



## FLUVANNA COUNTY BOARD OF SUPERVISORS

### REGULAR MEETING AGENDA

Carysbrook Performing Arts Center  
8880 James Madison Hwy, Fork Union, VA 23055  
October 5, 2022 at 5:00 pm

TAB	AGENDA ITEMS
<b>1</b>	<b>CALL TO ORDER</b>
<b>2</b>	<b>PLEDGE OF ALLEGIANCE AND MOMENT OF SILENCE</b>
<b>3</b>	<b>ADOPTION OF AGENDA</b>
<b>4</b>	<b>COUNTY ADMINISTRATOR'S REPORT</b>
<b>5</b>	<b>PUBLIC COMMENTS #1</b> (5 minutes each)
<b>6</b>	<b>PUBLIC HEARING</b>
	<b>At 7:00pm</b>
<b>7</b>	<b>ACTION MATTERS</b>
A	Selection of Voting Credentials for the 2022 VACo Annual Business Meeting – Eric Dahl, County Administrator
B	Judicial Assistant Job Description – Donna Snow, Director of Human Resources
<b>7A</b>	<b>APPOINTMENTS</b>
C	Board, Commission, and Committee Appointments – Eric Dahl, County Administrator
<b>8</b>	<b>PRESENTATIONS</b> (normally not to exceed 10 minutes each)
D	Piedmont Virginia Community College Update – Dr. Jean Runyon, President PVCC
E	Pearson Appraisal 2023 Reassessment Update – Andrew M. Sheridan, Jr., Commissioner of the Revenue
<b>9</b>	<b>CONSENT AGENDA</b>
F	Minutes of September 21, 2022 – Caitlin Solis, Clerk to the Board
G	CRMF - IT - FUSD Network Cabling – Andy Notman, Information Technology Director
H	CRMF - PW23 - 005 - FY22 Capital Reserve Maintenance Fund Request Form PW22-009 – Dale Critzer, Assistant Director of Public Works
I	Permanent Part-time Deputy Registrar Job Description – Donna Snow, Director of Human Resources
J	Department of Social Services Vehicles Contract – Donna Allen, Purchasing Officer
K	Dewberry Project Agreement #15 for On-Call Water and Sewer Plan Review – Donna Allen, Purchasing Officer
<b>10</b>	<b>UNFINISHED BUSINESS</b>
	TBD
<b>11</b>	<b>NEW BUSINESS</b>
	TBD
<b>12</b>	<b>PUBLIC COMMENTS #2</b> (5 minutes each)

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**6 – PUBLIC HEARING**

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L Public Hearing for Chapter 21 Water and Sewage Disposal Ordinance – Eric Dahl, County Administrator

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**13 – CLOSED MEETING**

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TBD

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**14 – ADJOURN**

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County Administrator Review

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*For the Hearing-Impaired – Listening device available in the Board of Supervisors Room upon request. TTY access number is 711 to make arrangements.  
For Persons with Disabilities – If you have special needs, please contact the County Administrator's Office at 591-1910.*

**PLEDGE OF ALLEGIANCE**

I pledge allegiance, to the flag,  
of the United States of America,  
and to the Republic for which it stands,  
one nation, under God, indivisible,  
with liberty and justice for all.

**GENERAL RULES OF ORDER**

1. It shall be the duty of the Chairman to maintain order and decorum at meetings. The Chairman shall speak to points of order in preference to all other members.
2. In maintaining decorum and propriety of conduct, the Chairman shall not be challenged and no debate shall be allowed until after the Chairman declares that order has been restored. In the event the Board wishes to debate the matter of the disorder or the bringing of order; the regular business may be suspended by vote of the Board to discuss the matter.
3. No member or citizen shall be allowed to use defamatory or abusive language directed at any member of the Board or other person, to create excessive noise, or in any way incite persons to use such tactics. The Chair shall be the judge of such breaches, however, the Board may by majority vote of the Board members present and voting to overrule the judgment of the Chair.
4. When a person engages in such breaches, the Chairman shall order the person's removal from the building, or may order the person to stand silent, or may, if necessary, order the person removed from the County property.

**RULES OF PROCEDURE FOR PUBLIC HEARINGS**

1. PURPOSE
  - The purpose of a public hearing is to receive testimony from the public on certain resolutions, ordinances or amendments prior to taking action.
  - A hearing is not a dialogue or debate. Its express purpose is to receive additional facts, comments and opinion on subject items.
2. SPEAKERS
  - Speakers should approach the lectern so they may be visible and audible to the Board.
  - Each speaker should clearly state his/her name and address.
  - All comments should be directed to the Board.
  - All questions should be directed to the Chairman. Members of the Board are not expected to respond to questions, and response to questions shall be made at the Chairman's discretion.
  - Speakers are encouraged to contact staff regarding unresolved concerns or to receive additional information.
  - Speakers with questions are encouraged to call County staff prior to the public hearing.
  - Speakers should be brief and avoid repetition of previously presented comments.
3. ACTION
  - At the conclusion of the public hearing on each item, the Chairman will close the public hearing.
  - The Board will proceed with its deliberation and will act on or formally postpone action on such item prior to proceeding to other agenda items.
  - Further public comment after the public hearing has been closed generally will not be permitted.

*Fluvanna County...The heart of Virginia and your gateway to the future!*



**FLUVANNA COUNTY BOARD OF SUPERVISORS  
AGENDA ITEM STAFF REPORT**

**TAB A**

<b>MEETING DATE:</b>	October 5, 2022				
<b>AGENDA TITLE:</b>	Selection of Voting Credentials for the 2022 VACo Annual Business Meeting				
<b>MOTION(s):</b>	<p><b>Motion 1:</b> I move the Board of Supervisors approve _____ be appointed Voting Delegate, representing Fluvanna County by casting votes at the 2022 Annual Business Meeting of the Virginia Association of Counties.</p> <p><b>Motion2:</b> I move the Board of Supervisors approve _____ be appointed Alternate Delegate, representing Fluvanna County by casting votes at the 2022 Annual Business Meeting of the Virginia Association of Counties.</p>				
<b>STRATEGIC INITIATIVE?</b>	Yes	No	If yes, list initiative(s):		
		X			
<b>AGENDA CATEGORY:</b>	Public Hearing	Action Matter	Presentation	Consent Agenda	Other
		X			
<b>STAFF CONTACT(S):</b>	Eric Dahl, County Administrator				
<b>PRESENTER(S):</b>	Eric Dahl, County Administrator				
<b>RECOMMENDATION:</b>	Approve				
<b>TIMING:</b>	Immediate				
<b>DISCUSSION:</b>	<ul style="list-style-type: none"> <li>Article VI, VACo Bylaws, states that each county shall designate a representative of its board of supervisors to cast its vote(s) at the Annual Business Meeting.</li> <li>Association's Bylaws allow a county to designate a non-elected official from your county or a member of a board of supervisors from another county to cast a proxy vote(s) for your county.</li> <li>For your county to be certified to vote at the Annual Business Meeting, a completed Voting Credentials Form or a Proxy Statement must be submitted to VACo by November 7, 2022.</li> </ul>				
<b>FISCAL IMPACT:</b>	N/A				
<b>POLICY IMPACT:</b>	N/A				
<b>LEGISLATIVE HISTORY:</b>	N/A				
<b>ENCLOSURES:</b>	VACo 2022 Annual Meeting letter and Voting Credentials Form				
<b>REVIEWS COMPLETED:</b>	Legal	Finance	Purchasing	HR	Other
					X



VACo 2022 Annual Meeting  
Voting Credentials Form

Form may be returned by mail, fax (804-788-0083) or email vrussell@vaco.org

Voting Delegate:  
(Supervisor)

Name \_\_\_\_\_

Title \_\_\_\_\_

Locality \_\_\_\_\_

Alternate Delegate:  
(Supervisor)

Name \_\_\_\_\_

Title \_\_\_\_\_

Locality \_\_\_\_\_

Certified by:  
(Clerk of the Board)

Name \_\_\_\_\_

Title \_\_\_\_\_

Locality \_\_\_\_\_

VACo 2022 Annual Meeting  
Proxy Statement

\_\_\_\_\_ County authorizes the following person to cast its vote at the 2022 Annual Meeting of the Virginia Association of Counties on November 13, 2022.

\_\_\_\_\_, a non-elected official of this county.

**-OR-**

\_\_\_\_\_ a supervisor from \_\_\_\_\_ County.

This authorization is:

Uninstructed. The proxy may use his/her discretion to cast \_\_\_\_\_ County's votes on any issue to come before the annual meeting.

Instructed. The proxy is limited in how he/she may cast \_\_\_\_\_ County's votes. The issues on which he/she may cast those votes and how he/she should vote are:  
(List issues and instructions on the back of this form)

Certified by: Name \_\_\_\_\_

Title \_\_\_\_\_

Locality \_\_\_\_\_





# Virginia Association of Counties



Connecting County Governments since 1934

**President**  
Meg Bohmke  
Stafford County

**President-Elect**  
Jason D. Bellows  
Lancaster County

**First Vice President**  
Ann H. Mallek  
Albemarle County

**Second Vice President**  
Ruth Larson  
James City County

**Secretary-Treasurer**  
Donald L. Hart, Jr.  
Accomack County

**Immediate Past President**  
Jeffrey C. McKay  
Fairfax County

**Executive Director**  
Dean A. Lynch, CAE

**General Counsel**  
Phyllis A. Errico, Esq., CAE

TO: Chairs, County Board of Supervisors  
County Administrators

FROM: Dean A. Lynch, CAE   
Executive Director

SUBJECT: Voting Credentials for the 2022 VACo Annual Business Meeting

DATE: September 21, 2022

The 2022 Annual Business Meeting of the Virginia Association of Counties will be held on Tuesday, November 15, at 10:00 a.m. at the Greater Richmond Convention Center, Richmond, VA.

Article VI, VACo Bylaws, states that each county shall designate a representative of its board of supervisors to cast its vote(s) at the Annual Business Meeting.

However, if a member of the board of supervisors cannot be present for this meeting, the Association's Bylaws allow a county to designate a non-elected official from your county or a member of a board of supervisors from another county to cast a proxy vote(s) for your county.

For your county to be certified to vote at the Annual Business Meeting, a completed Voting Credentials Form or a Proxy Statement must be submitted to VACo by November 7, 2022.

We look forward to your participation at the VACo Annual Conference November 13-15, 2021.

1207 E. Main St., Suite 300  
Richmond, Va. 23219-3627

Phone: 804.788.6652  
Fax: 804.788.0083

Email: [mail@vaco.org](mailto:mail@vaco.org)  
Website: [www.vaco.org](http://www.vaco.org)



**FLUVANNA COUNTY BOARD OF SUPERVISORS  
AGENDA ITEM STAFF REPORT**

**TAB B**

<b>MEETING DATE:</b>	October 5, 2022				
<b>AGENDA TITLE:</b>	Judicial Assistant Job Description				
<b>MOTION(s):</b>	<b>I move the Board of Supervisors approve the job description for the Judicial Assistant for the Office of the Circuit Court Judge.</b>				
<b>STRATEGIC INITIATIVE?</b>	Yes	No	<b>If yes, list initiative(s):</b>		
		X			
<b>AGENDA CATEGORY:</b>	Public Hearing	Action Matter	Presentation	Consent Agenda	Other
		X			
<b>STAFF CONTACT(S):</b>	Donna Snow, Director of Human Resources and Eric Dahl, County Administrator				
<b>PRESENTER(S):</b>	Donna Snow, Director of Human Resources and Eric Dahl, County Administrator				
<b>RECOMMENDATION:</b>	Approve				
<b>TIMING:</b>	Normal				
<b>DISCUSSION:</b>	<p>With Judge Moore retiring, a new Circuit Court Judge is being assigned to Fluvanna County. Currently, Fluvanna County shares the cost of Judge Moore’s Judicial Assistant with the City of Charlottesville, but the Judicial Assistant position is an employee of the City of Charlottesville. The current amount budgeted within FY23 is \$21,800, which accounts for 25% for personnel costs and 10% for office supply costs.</p> <p>The new Circuit Court Judge being assigned to Fluvanna is Judge Barredo, who will split his time 50% between Fluvanna and Greene County. The effective date for the incoming Circuit Court Judge is December 1, 2022. It is anticipated that based upon populations and case loads, Fluvanna may have a greater percentage of court time in the future. It is being requested that Fluvanna County be the employer for the Judge’s new Judicial Assistant and a new employee job description must be created. At a future meeting, a Memorandum of Agreement will be brought before the board between Fluvanna and Greene County for sharing costs of the position.</p>				
<b>FISCAL IMPACT:</b>	Pay Band 17 minimum is \$46,765, plus another ~10k for a full time position benefits. With the addition of this position, the current budgeted amount for FY23 will need to be increased by approximately \$5,000 - \$10,000 and \$10,000 - \$15,000 for FY24 and beyond.				
<b>POLICY IMPACT:</b>	N/A				
<b>LEGISLATIVE HISTORY:</b>	N/A				

<b>ENCLOSURES:</b>	Judicial Assistant Job Description				
<b>REVIEWS COMPLETED:</b>	Legal	Finance	Purchasing	HR	Other
		X		X	



Fluvanna County, Virginia  
Office of the Circuit Court Judge  
Job Description

**Judicial Assistant**

<b>Job Class #:</b>	####
<b>Pay Grade:</b>	17
<b>Category:</b>	Full-Time (with benefits)
<b>FLSA Status:</b>	Non-Exempt
<b>Reports To:</b>	Circuit Court Judge

**SUMMARY**

Performs clerical, administrative, and paralegal work for a Circuit Court Judge and the courts for which the judge presides.

**ESSENTIAL FUNCTIONS**

- Manages judge's schedules; initiates and responds to individuals and parties regarding judges' availability, court docket and appointments. Schedules and coordinates appointments and hearings for the judge.
- Maintains court calendars for Fluvanna and Greene Circuit Courts.
- Travel between Fluvanna Circuit Court and Greene Circuit Court in accordance with the judge's schedule.
- Contacts active and retired judges upon request; handles logistical arrangements for a substitute, judges' assigned cases pertaining to Court dockets. Provides judges with information regarding time, location, etc., and ensures timely receipt of pertinent information. Calculates and types travel vouchers for substitute judges.
- Receives all visitors and callers; provides information and assistance when appropriate; forwards call or visitor at judges' convenience.
- Establishes and maintains a wide range of administrative and legal files. Purges files as appropriate and follows records retention policies.
- Performs legal research as assigned by the judge. Copy research and other materials as requested.
- Receives and updates the law library and the judge's library.
- Receives orders for the judge's signature. Places order with appropriate file and present to judge for signature. Returns signed documents to clerk's office.
- Organizes and pulls files or documents for the judge for the day-to-day docket
- Performs office procurement and accounting functions: orders office supplies; reviews bills and submits payment vouchers; monitors the budgets; prepares requested and scheduled reports on budget and financial transactions.
- Draft and edit various orders for judicial execution.
- Draft and edit correspondence.
- Transcribe dictated material.
- Prepare and administer the budget for the judicial office.
- Performs varied clerical tasks in support of assigned duties and responsibilities-
- Secure foreign language interpreters for all court cases and hearings when required and necessary.
- Assist with coordinating jurors on the day of trial. Provide snacks for jurors and meals, if necessary.

<b>REQUIRED KNOWLEDGE, SKILLS AND ABILITIES</b>			
<ul style="list-style-type: none"> <li>• Knowledge of the processes, organizational structure, and policies of the court system.</li> <li>• Knowledge of legal terminology, and ability to conduct routine legal research and drafting of routine legal documents.</li> <li>• Ability to draft legal documents</li> <li>• Ability to maintain complex legal records</li> <li>• Ability to operate various office equipment including copier, phone, computer, etc.</li> <li>• Knowledge of various software including, Word, Excel, Outlook, PowerPoint, etc.</li> <li>• Ability to follow direction</li> <li>• Ability to exercise considerable tact and courtesy when dealing with customers and handling confidential information</li> <li>• Ability to provide the highest level of customer service</li> </ul>			
<b>ACCEPTABLE EDUCATION, EXPERIENCE, AND TRAINING</b>			
<ul style="list-style-type: none"> <li>• Any combination of education or experience equivalent to a two-year degree from an accredited university or college with a focus on public administration, business administration, management, criminal justice, law or closely related courses preferred, with 3-5 years of experience performing clerical work in a law office or legal environment.</li> </ul>			
<b>WORKING CONDITIONS AND PHYSICAL REQUIREMENTS</b>			
<ul style="list-style-type: none"> <li>• Tasks involve the ability to exert very moderate physical effort in light work, typically involving some combination of stooping, kneeling, crouching, and crawling, and which may involve some lifting, carrying, pushing, and/or pulling of objects and materials of moderate weight (12-20 pounds)</li> <li>• Requires ability to perform skills coordinated movements, perceive and discriminate sounds, visual perception, and oral communication.</li> <li>• Has contact with both internal &amp; external customers throughout the day.</li> </ul>			
<b>POST OFFER REQUIREMENTS</b>			
<ul style="list-style-type: none"> <li>• Background Check</li> </ul>			
<b>Department Head Recommended:</b>	<b>HR Manager Approval as to Form:</b>	<b>County Administrator Recommended:</b>	<b>Board of Supervisors Approved:</b>

Employee Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**FLUVANNA COUNTY BOARD OF SUPERVISORS**  
**BCC APPOINTMENTS STAFF REPORT**

TAB C

<b>MEETING DATE:</b>	October 5, 2022			
<b>AGENDA TITLE:</b>	Board, Commission, and Committee Appointments			
<b>MOTION:</b>	<b>I move the Board of Supervisors approve the following Board, Commission, or Committee appointment(s):</b>			
<b>Board/Commission/Committee</b>	<b>Appointees</b>	<b>Begins Term</b>	<b>Ends Term</b>	
Board of Building Code Appeals (BBCA) – At-Large Representative	James Halstead, Jr. (I) Gary Osteen (I) Gene Ott Josh Bower Nelson Cook, Jr.	11/1/2022	10/31/2026	
Board of Building Code Appeals (BBCA) – At-Large Representative	James Halstead, Jr. (I) Gary Osteen (I) Gene Ott Josh Bower Nelson Cook, Jr.	11/1/2022	10/31/2026	

**BCC VACANCIES AND APPLICANTS**

<b>BCC Vacancies</b>	<b>Applicants</b>	<b>Appt</b>	<b>District</b>	<b>Current BCC Appointments / Other Notes</b>
Board of Building Code Appeals (BBCA) – At-Large Representative	James Halstead, Jr. (I)	Reappt	Palmyra	Incumbent seeking reappointment. Term beginning Nov 1, 2022 and ending Oct 31, 2026.
Board of Building Code Appeals (BBCA) – At-Large Representative	Gary Osteen (I)	Reappt	Cunningham	Incumbent seeking reappointment. Term beginning Nov 1, 2022 and ending Oct 31, 2026.
Board of Building Code Appeals (BBCA) – At-Large Representative	Gene Ott	Appt	Cunningham	Term beginning Nov 1, 2022 and ending Oct 31, 2026. Currently serving on Social Services Board.
Board of Building Code Appeals (BBCA) – At-Large Representative	Josh Bower	Appt	Cunningham	Term beginning Nov 1, 2022 and ending Oct 31, 2026. Currently serving on Economic Development Authority.
Board of Building Code Appeals (BBCA) – At-Large Representative	Nelson Cook, Jr.	Appt	Columbia	Term beginning Nov 1, 2022 and ending Oct 31, 2026. Currently serving on Parks and Recreation Advisory Board.

<b>DISCUSSION:</b>	- Board of Building Code Appeals (BBCA) – At-Large Representative – two positions available with terms beginning Nov 1, 2022 and ending Oct 31, 2026.
<b>ENCLOSURES:</b>	Candidate Applications





# COMMONWEALTH OF VIRGINIA COUNTY OF FLUVANNA Application to Serve on Boards/Commissions/Committees

**Name:** James Halstead, Jr. Election District: Palmyra

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Mailing Address: 162 Paynes Mill Road City: Troy State: VA Zip: 22974

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Physical Address: 162 Paynes Mill Road City: Troy State: VA Zip: 22974

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Home Phone: (434) 591-0747 Work Phone: Cell Phone: (434) 960-2822 Fax Phone:

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Email: jhalstead67@gmail.com

**Education/Experience/Professional Expertise:**

Education: PVCC AAS  
 Experience / Professional Expertise: Earth Tech 1992-1997 (Civil Engineering), Moler & Associates Consulting Structural Engineers 1997-2013, The Gaines Group Architects 2013-present.

**Civic Activities/Committee Memberships (include other boards/committees/commissions, Fraternal, Business, Church or Social Groups):**

Fluvanna County Planning Commission: 2008-2012, serving as Chair for 2012  
 Albemarle County Sheriff's Office Reserve Deputy: 2014-present, serving as Lieutenant

**Interest in Serving on Board/Commission/Committee:**

Asked by Andrew Wills

**\*\*Please indicate on the following sheet all Boards/Commissions/Committees on which you wish to serve:**

The County of Fluvanna does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provision of services.

Please submit this form by e-mail or  
 Return to:  
 Clerk, Board of Supervisors  
 P.O. Box 540  
 Palmyra, VA

James Halstead, Jr 6-25-20  
 Signature Date

- Agricultural/Forestry Advisory Committee:** Consists of four landowners who are engaged in agricultural or forestry production, four other landowners of the County, the Commissioner of the Revenue and a member of the governing body. The committee shall advise the planning commission and the governing body and assist in creating, reviewing, modifying, continuing or terminating districts within the County.
- Board of Zoning Appeals:** Consists of five members, appointed by the Fluvanna County Circuit Court to serve five-year terms. The role of this organization is to hear and decide appeals of the requirements of the Zoning Ordinance or Administrator.
- Board of Building Code Appeals:** Consists of five members appointed by the locality for a specific term established by written policy. This appeals Board hears appeals as authorized by the local governing body.
- Community Policy and Management Team:** Members appointed by the Board with responsibility of implementing the Comprehensive Services Act. Membership includes Community Services Board, Social Services, Health Department, Juvenile Court Services Unit, BOS and local school division and a parent representative; three year term.
- Court Green Committee:** Oversees landscaping and landscaping maintenance needs on the court green, the museum grounds and Confederate Square. It meets at the call of any member or the County Administrator. Its purpose is to provide consensus on significant alterations to the appearance of the court green and its surroundings on matters that often are a matter of taste; three year term.
- Economic Development Authority:** Purpose is to promote industry and develop trade by inducing manufacturing, industrial, governmental, commercial enterprises and institutions of higher learning to locate and remain in the Commonwealth and consist of seven At-Large members; four year term.
- Economic Development Commission:** Ten members, one from each electoral district and four at large. Chartered to support the Board in development planning and economic development issues; four year term.
- Fluvanna County Youth Advisory Council:** Membership consist of interested citizens and representation from local government, agencies and youth-serving organizations, & at least one, but not more than two, citizens under the age of eighteen, with a minimum age of fifteen; members appointed by the Board of Supervisors; serves as liaison between organized groups concerned with youth, specifically the Board of Supervisors and the youth citizens of the county; two year term.
- Fluvanna Partnership for the Aging Committee:** Consists of a representative from each magisterial district, appointed by the Supervisors of the district, and representatives from the following agencies: Social Services, Virginia Extension Services, JABA Case Manager, Senior Center Director, MAQAA Director, Fork Union Nursing Home Director, Health Department, and County Administrator's office; four year term, meets 4<sup>th</sup> Monday of month at 11:00 am at the Fork Union Rescue squad building.
- Fluvanna Transportation Safety Commission:** Mission Statement is to further transportation safety within Fluvanna County; to increase transportation safety awareness among school age children & adults; and to assist VDOT in selected tasks pertaining to the County. Voting members include one BOS appointee from each voting district and representative of the Board of Supervisors, Fluvanna Schools and the Fluvanna Sheriff's Department; three year term.
- Fork Union Sanitary District Advisory Committee:** Consists of seven voting members who shall be appointed by the Board of Supervisors and must be members of the District's service area. The FUSD Advisory Board shall investigate and be informed on all matters relating to water production and supply in the FUSD and on other matters as the Board of Supervisors request; four year term.
- James River Alcohol Safety Action Program:** Organized and exists pursuant to an agreement for Joint Exercise of Powers entered into among the City of Charlottesville, and the Counties of Albemarle, Fluvanna, Greene, Louisa and Nelson and functions as administrative and fiscal agent for the Program. One person is appointed by the governing body of each participating locality; three year term.
- JAUNT Board:** Two members appointed; JAUNT manages budgets, policies and programs of the corporation's transportation services; three year term. The Board of Directors generally meets at the Charlottesville office.
- Jefferson Area Board for Aging Advisory Council:** Members provide input on the development and administration of JABA's Area Plan, participates in public hearings, represents the interests of older persons, reviews and comments on all community policies, programs and actions affecting the senior citizen's and elder caregivers of Planning District Ten. Each participating jurisdiction shall be represented by two voting members; two year term. The Council meets the first Tuesday of each month from 12:00-1:00 pm.
- Jefferson Area Board for Aging Board of Directors:** Meets the third Tuesday of each month. The meeting is usually held at the Center for Adult Rehab and Eldercare in the Alzheimer's Suite unless otherwise notified; two members appointed by the board of Supervisors; two year term.
- Jefferson Area Disability Services Board:** Service area comprises a rural, primarily agricultural area wherein services to persons with physical and/or sensory disabilities are hampered by the relative isolation of clients; consist of one representative appointed by the Board of Supervisors with a three year term.
- Library Board of Trustees:** Consist of seven members, one from each election district and the Library Director as ex-officio; four year term.
- Local Workforce Investment Board:** Consist of a majority of private sector representatives; number of appointments per locality is based on population (Fluvanna has two); three year term.
- Monticello Area Community Action Agency:** Provides services and supplies among local churches, schools, and community organizations for people in crisis situations, or with longer-term needs; four year term; one representative appointed by the Board of Supervisors.
- Parks & Recreation Advisory Board:** Members are appointed by the Board. Three are agency appointed and six are at-large. The Advisory Board provides counsel to the board on community recreation issues, assists department director in determining program priorities and content, and leisure issues in the community; four year term.
- Piedmont Virginia Community College Board:** Local advisory board which is appointed by its participating local jurisdictions; provides a vital link between the college and the community; participates in selection, evaluation and removal of college president; reviews and acts on annual local funds budget as prepared by the president, etc.
- Planning Commission:** The Code of Virginia requires the County to create a local Planning Commission to promote the public health, safety, convenience, and welfare of its citizens, to plan for the orderly development of the community and to develop and update the County's Comprehensive Plan. The role of the Planning Commission is to serve primarily in an advisory capacity to the Board of Supervisors for a four year term; There are two members from the Rivanna Election District, one member each from the Columbia, Cunningham, Fork Union and Palmyra Election District's.
- Region Ten Community Services Board:** A total of 14 members are appointed by the Boards of Supervisors of Albemarle, Fluvanna, Greene, Louisa, and Nelson Counties and the Charlottesville City Council. The board establishes policy and programs to provide mental health, mental retardation, and substance abuse services, and governs the operations of over forty component programs; Fluvanna has one representative with a three year term; meets the 2<sup>nd</sup> Monday of each month in the evening.
- Regional Jail Board:** The Regional Jail shall be supervised and managed by a board to consist of at least one representative from each political subdivision participating therein who shall be appointed by the local governing body for a two year term.
- Social Services Board:** The board is administrative and is responsible for local policy decisions, discretionary power over local funding, submission of the annual county budget, appointment of the department director and decisions governing optional and local services. The board exercises an interest in all matters pertinent to the local social services; consist of seven members-one from each district and a BOS representative; four year term.
- Southeast Rural Community Assistance Project, Inc.:** One board appointed representative; five year term; meets quarterly for three days throughout the state.
- Thomas Jefferson Emergency Medical Services Council:** One member, appointed by the Board to represent the local government. The Board establishes regional EMS protocols, grades and ranks Rescue Squad Assistance Fund applications; develops regional EMS training/continuing education programs, and acts as a liaison between the region and State; two year term.
- Thomas Jefferson Partnership for Economic Development:** Enhances the assistance and information that can be made available to both existing & new businesses interested in investing in the Greater Charlottesville Region; marketing the region & the development opportunities that exist for different types of businesses; and assisting the public sector members of the Partnership to define and improve the "product" that can be offered to prospective companies.
- Thomas Jefferson Planning District Commission:** Two members, at least one of which is a local elected official, are appointed by each of six member jurisdictions. An elected official serves a term coinciding with duration of their locally elected position; terms for citizen members are three years. The purpose of the Commission is to foster regional cooperation, provide a forum for discussion of regional issues, and to plan with local governments for the future of the region. Fluvanna has two representatives with a two year term.



# APPLICATION TO SERVE ON BOARDS/COMMISSION/COMMITTEES

## County of Fluvanna

Name: <b>Gary E. Osteen</b>		Election <input type="checkbox"/> Columbia <input checked="" type="checkbox"/> Cunningham <input type="checkbox"/> Fork Union	
		District: <input type="checkbox"/> Palmyra <input type="checkbox"/> Rivanna <input type="checkbox"/> Other	
Mailing Address (including City, State, & ZIP) 2567 Sclaters Ford Road Palmyra, VA 22963		Physical Address (if different)	
Years Lived in Fluvanna	Cell Phone – preferred? <b>434-531-3145</b>	Home Phone – preferred? <b>434-589-6694</b>	Email <b>Garyosteen13@gmail.com</b>
EXPERIENCE/PROFESSIONAL EXPERTISE/EDUCATION (Please provides dates of education and experience.): High School Graduate FCHS 1991 30 Years+ of Practical Plumbing Experience Master Plumber			
CURRENT OR PRIOR SERVICE ON BOARDS/COMMISSIONS/OR COMMITTEES: Fluvanna Co. School Bond CIP Committee FCSB Parental Guidance Committee Pastor of Light Academy Christian School Local Business Owner			
CIVIC ACTIVITIES AND MEMBERSHIPS (Roles with fraternal, business, church, or social groups – please provide dates):			
REASON(S) FOR WANTING TO SERVE FLUVANNA COUNTY: My interest is to whatever is necessary to improve my community.			
<p><b>Applicants are considered as vacancies occur and your application will be kept on file for three years.</b></p> <p>Fluvanna County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provision of services.</p> <p><b>Submit by email (<a href="mailto:clerk@fluvannacounty.org">clerk@fluvannacounty.org</a>) or mail to:</b>  <b>Clerk, Board of Supervisors, PO Box 540, Palmyra, VA 22963</b></p> <p><b>By signing below you are indicating that you have read and understand the attached Fluvanna County BCC Attendance Policy and that you agree to abide by the Bylaws of any Board, Commission, or Committee to which you may be appointed.</b></p>			
Applicant's Signature <i>(Typing name below serves as digital signature)</i>		Date <b>07-14-2020</b>	

**PLEASE INDICATE BELOW THE BOARDS, COMMISSIONS, OR COMMITTEES ON WHICH YOU WISH TO SERVE.**

X	Board, Commission, Committee
	Agricultural/Forestral District Advisory Committee
	Board of Equalization (BOE)
	Board of Zoning Appeals (BZA)
x	Building Code of Appeals Board
	Central Virginia Regional Jail (CVRJ) Authority
	Columbia Task Force (CARE)
	Community Policy & Management Team (CPMT)
	Economic Development Authority (EDA)
	Economic Develop. & Tourism Advisory Council (EDTAC)
	Family Assessment and Planning Team (FAPT)
	Finance Board
	Fluvanna Partnership for Aging Committee (FPA)
	Fork Union Sanitary District (FUSD) Advisory Committee
	James River Water Authority (JRWA)
	JAUNT Board

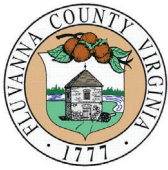
X	Board, Commission, Committee (cont.)
	Jefferson Area Board of Aging (JABA) Advisory Council
	Jefferson Area Board of Aging (JABA) Board of Directors
	Library Board of Trustees
	Monticello Area Community Action Agency (MACAA)
	Palmyra Area Revitalization Committee (PARC)
	Parks & Recreation Advisory Board (RAB)
	Piedmont Virginia Community College (PVCC) Board
	Planning Commission
	Region Ten Community Services Board
	Rivanna River Basin Commission
	Social Services Board
	Thomas Jefferson Planning District Commission (TJPDC)
	Thomas Jefferson Water Resources Protection Foundation
	Youth Advisory Council (YAC)
	OTHER:

**Fluvanna County Board, Committee, and Commission Attendance Policy**

(Approved June 17, 2015)

1. BCC members shall attend at least two-thirds of all scheduled meetings in each calendar year while serving.
2. The Chairperson of the board, commission, or committee shall notify the Clerk to the Board of Supervisors of any absences exceeding this policy.
3. The Clerk shall report these findings to the Board of Supervisors, typically in closed session.
4. Appointees who do not meet the attendance requirement without a valid reason(s) may be deemed to have rendered an implied resignation of that appointment.
5. The Board may choose to accept the resignation and appoint another person to fill the appointed position. The Board may also override the implied resignation and extend the appointment, if extenuating circumstances so dictate.
6. This requirement shall apply to all boards, commissions, or committees listed on the attached application form, provided however, that if State or County Ordinance addresses attendance requirements in an alternative manner, such law shall prevail.

Office Use Only	
Application Received On:	Application Received By:
Acknowledgement Sent:	
Renewal Date:	Remarks:
Renewal Date:	
Renewal Date:	
Renewal Date:	



# APPLICATION TO SERVE ON BOARDS/COMMISSION/COMMITTEES

## County of Fluvanna

Name: <b>Gene Ott</b>		Election <input type="checkbox"/> Columbia <input checked="" type="checkbox"/> Cunningham <input type="checkbox"/> Fork Union	
		District: <input type="checkbox"/> Palmyra <input type="checkbox"/> Rivanna <input type="checkbox"/> Other	
Mailing Address (including City, State, & ZIP) 212 VILLAGE BLVD PALMYRA VA 22963		Physical Address (if different)	
Years Lived in Fluvanna <b>25</b>	Cell Phone – preferred?	Home Phone – preferred? <b>4345894876</b>	Email <b>genefranklin43@gmail.com</b>
EXPERIENCE/PROFESSIONAL EXPERTISE/EDUCATION (Please provides dates of education and experience.): See resume			
CURRENT OR PRIOR SERVICE ON BOARDS/COMMISSIONS/OR COMMITTEES: Board Of Supervisors 2004 -2010, Chairman 2010; CPMT; Audit Committee; Emergency Service Director; County Finance Board; Transportation Safety Commission; Palmyra Wastewater Committee; Piedmont Work Force Council; Thomas Jefferson Planning Economic Development Committee; Water Committee			
CIVIC ACTIVITIES AND MEMBERSHIPS (Roles with fraternal, business, church, or social groups – please provide dates): LOMA Finance Committee, Vice Chairman 1999-2003; Fluvanna Habitat For Humanity Board, five years; Fluvanna Calvary Chapel building committee and accountant; Contracting and supervising operations for Country Creek Way for acceptance into the VDOT road system as directed by the Fluvanna BOS; Coaching junior varsity football at the Covenant School.			
REASON(S) FOR WANTING TO SERVE FLUVANNA COUNTY: Contribute to the operations of the county and use my experience wisely.			
<p><b>Applicants are considered as vacancies occur and your application will be kept on file for three years.</b></p> <p>Fluvanna County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provision of services.</p> <p><b>Submit by email (<a href="mailto:clerk@fluvannacounty.org">clerk@fluvannacounty.org</a>) or mail to:</b>  <b>Clerk, Board of Supervisors, PO Box 540, Palmyra, VA 22963</b></p> <p><b>By signing below you are indicating that you have read and understand the attached Fluvanna County BCC Attendance Policy and that you agree to abide by the Bylaws of any Board, Commission, or Committee to which you may be appointed.</b></p>			
Applicant's Signature <b>Gene F. Ott (From file)</b>		Date <b>May 10, 2020</b>	

**PLEASE INDICATE BELOW THE BOARDS, COMMISSIONS, OR COMMITTEES ON WHICH YOU WISH TO SERVE.**

X	Board, Commission, Committee
	Agricultural/Forestral District Advisory Committee
	Board of Equalization (BOE)
X	Board of Zoning Appeals (BZA)
X	Building Code of Appeals Board
	Central Virginia Regional Jail (CVRJ) Authority
	Columbia Task Force (CARE)
X	Community Policy & Management Team (CPMT)
	Economic Development Authority (EDA)
	Economic Develop. & Tourism Advisory Council (EDTAC)
X	Family Assessment and Planning Team (FAPT)
X	Finance Board
	Fluvanna Partnership for Aging Committee (FPA)
	Fork Union Sanitary District (FUSD) Advisory Committee
	James River Water Authority (JRWA)
	JAUNT Board

X	Board, Commission, Committee (cont.)
	Jefferson Area Board of Aging (JABA) Advisory Council
	Jefferson Area Board of Aging (JABA) Board of Directors
X	Library Board of Trustees
	Monticello Area Community Action Agency (MACAA)
	Palmyra Area Revitalization Committee (PARC)
	Parks & Recreation Advisory Board (RAB)
	Piedmont Virginia Community College (PVCC) Board
X	Planning Commission
	Region Ten Community Services Board
	Rivanna River Basin Commission
X	Social Services Board
	Thomas Jefferson Planning District Commission (TJPDC)
	Thomas Jefferson Water Resources Protection Foundation
	Youth Advisory Council (YAC)
	OTHER:

**Fluvanna County Board, Committee, and Commission Attendance Policy**

(Approved June 17, 2015)

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4. Appointees who do not meet the attendance requirement without a valid reason(s) may be deemed to have rendered an implied resignation of that appointment.
5. The Board may choose to accept the resignation and appoint another person to fill the appointed position. The Board may also override the implied resignation and extend the appointment, if extenuating circumstances so dictate.
6. This requirement shall apply to all boards, commissions, or committees listed on the attached application form, provided however, that if State or County Ordinance addresses attendance requirements in an alternative manner, such law shall prevail.

Office Use Only		
Application Received On:	May 10, 2020	Application Received By: Caitlin Solis
Acknowledgement Sent:	May 11, 2020	
Renewal Date:		Remarks:
Renewal Date:		
Renewal Date:		
Renewal Date:		

**Gene F. Ott**  
**243 Country Creek Way**  
**Palmyra, Virginia 22963**  
**(434) 589-4876**

### ACCOMPLISHMENTS

**Elected twice as Fluvanna County Supervisor (Rivanna District)...** Taught Accounting Information Systems (COMM 410) at University of Virginia, McIntire School of Commerce; taught accounting as a graduate assistant at Penn State, and then six semesters of Accounting and Economics at Tidewater and Craven Community Colleges... Chief Financial Officer (CFO) Fork Union Military Academy, coached football, wrestling, baseball... Held a series of demanding **leadership** roles from being Battalion Commander of my Penn State NROTC unit to achieving the rank of Captain, Supply Corps, U S Navy, with my final duty as the Deputy Commander of Defense Distribution Region East, the largest wholesale depot in the Department of Defense where I managed an organization of over 3800 people... **Innovator** Changed the shipment of member's personal property leaving Iceland from commercial ship to space available government air saving over two million dollars a year and providing much faster and safer delivery for our military personnel... **Accountable and responsible** supply officer at four major Navy commands and received seven personal and 20 total decorations... Western Pacific Data Systems **Project manager and software demonstrator** for two successful U S Air Force contract bids. Office manager and clerk for local organization using quick books and performing all office functions for two years.

### PERSONAL STRENGTHS

Friendly personality... accounting, financial management, and logistics expertise... leadership/management skills... persuasive and entertaining public speaker and lecturer... sincere and encouraging listener... computer expertise... moral courage... ability to develop/execute programs/procedures based on management's policies and regulations.

### EDUCATION

Master of Science, Accounting, Penn State University.  
 Bachelor of Science, Accounting, Penn State University.  
 Naval War College, Newport, RI, Senior Course.  
 Various Navy business courses accumulating over two years classroom time.

### EMPLOYMENT

**From January 2004 to 2010**, I was an elected official of the people of Fluvanna County as Fluvanna County Supervisor (Rivanna District). Was part of the six member governing body of the county. Produced budgets, set tax rates, set and administer zoning and other county

regulations. Served on a four year term with about 40 hours work per month... Also worked as office manager/bookkeeper for nonprofit company from March 2006 to November 2007.

*From September 1999 to September 2002, first taught, counseled, and coached middle school cadets at Fork Union Military Academy. From December 2000 was the Chief Financial Officer (CFO) of the Academy. Produced and presented budget and financial statements to the Academy President and Board of Trustees. Managed over 100 employees in all the services activities of the Academy.*

**From January 1993 to May 1997** worked for Western Pacific Data Systems-La Jolla on the Government On-Line Data (GOLD) Logistics Software as a Project Manager and Senior Logistics Analyst. I performed on-site reviews of procedures and processes, prepared design studies, briefed management, conducted training, and assisted during initial installation of GOLD at customer sites. My clients included McDonnell Douglas Aircraft, Rockwell International, Lockheed Martin, Westinghouse, Pemco Aeroplex, the Malaysian Air Force, and the US Air Force.

**From July 1967 - September 1991** was on active duty as a commissioned officer in the United States Navy attaining the rank of **Captain, Supply Corps, U.S. Navy** in 1988.

**From March 1989 to September 1991** was a Senior Executive as the Deputy Commander, Defense Distribution Region East (DDRE) and Defense Depot Mechanicsburg, PA. DDRE was largest DOD wholesale depot with six million issues annually. Worldwide wholesale support of all commodity classes. Implemented the largest distribution center and the automated Integrated Material Complex (IMC) for the Department of Defense. Managed over 3800 employees at various remote locations. Managed base facilities including housing administration, dining areas, golf course, and a complete range of recreational facilities. Used automated accounting systems to monitor and manage financial as well as operational business cycle goals and objectives.

**From July 1967 to March 1989** worked in a progression of operational positions in material management, inventory control, transportation, financial management, payroll, and retail support areas. Served in-country Vietnam. Always responsible for employee discipline and morale. Have extensive experience in using automated payroll, inventory, and general accounting systems.





# APPLICATION TO SERVE ON BOARDS/COMMISSION/COMMITTEES

## County of Fluvanna

Applicants are considered as vacancies occur and your application will be kept on file for three years.

Fluvanna County does not discriminate on the basis of race, color, national origin, sex, religion, age, or disability in employment or the provision of services. Before completing the application, please review the membership requirements for the Board, Commission, or Committee for which you are interested. Applicants who do not meet membership requirements will not be put forward for consideration.

Name:  <b>Joshua Bower</b>	Election <input type="checkbox"/> Columbia <input checked="" type="checkbox"/> Cunningham <input type="checkbox"/> Fork Union District: <input type="checkbox"/> Palmyra <input type="checkbox"/> Rivanna <input type="checkbox"/> Other
EXPERIENCE/PROFESSIONAL EXPERTISE/EDUCATION (Please provides dates of education and experience. You may also provide a resume/CV.): I have an Associates Degree in Architecture from Penn College (1994-96) and a Bachelors Degree in Architecture from Temple University (1996-2002). I am a licensed Architect in Virginia and have been a partner in my firm since 2017. I have been practicing Architecture since 1998.	
CURRENT OR PRIOR SERVICE ON BOARDS/COMMISSIONS/OR COMMITTEES: I have served as an elected member of Mount Joy PA Borough Council for 7 years (President Pro-tem for 2 years), Mount Joy PA planning commission for 9 years (chair for 4 years), Mount Joy PA Main Street executive board for 5 years, Building Committee on Main Street Org for 5 years and at Church for over 10 years. I was elected as Judge of Elections for (2) four year terms. I also served on the St Marks UMC leadership team for 6 years and chair for two of those years.	
CIVIC ACTIVITIES AND MEMBERSHIPS (Roles with fraternal, business, church, or social groups – please provide dates): I have been a member of Sigma Phi Epsilon Fraternity in college and a member of Rotary International in MOUNTY JOY PA. I am currently a member the American Institute of Architects and of the National CPTED Organization	
REASON(S) FOR WANTING TO SERVE FLUVANNA COUNTY: My family and I moved here from Pennsylvania in 2015. When in PA I was fortunate to dedicate some of my personal time to help make the community better through governmental, economic development and spiritual organizations. As out children are now moving onto college, I would like to start seeking opportunities to dedicate some of my personal time to Fluvanna County and its residents	

### Fluvanna County Board, Committee, and Commission Attendance Policy

(Approved June 17, 2015)

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4. Appointees who do not meet the attendance requirement without a valid reason(s) may be deemed to have rendered an implied resignation of that appointment.
5. The Board may choose to accept the resignation and appoint another person to fill the appointed position. The Board may also override the implied resignation and extend the appointment, if extenuating circumstances so dictate.
6. This requirement shall apply to all boards, commissions, or committees listed on the attached application form, provided however, that if State or County Ordinance addresses attendance requirements in an alternative manner, such law shall prevail.

**PLEASE INDICATE BELOW THE BOARDS, COMMISSIONS, OR COMMITTEES (BCC)  
ON WHICH YOU WISH TO SERVE.**

X	BCC	X	BCC	X	BCC
	Agricultural/Forestral District Advisory Committee		Finance Board		Piedmont Virginia Community College (PVCC) Board
	Board of Equalization (BOE)		Fluvanna Partnership for Aging Committee (FPA)		Planning Commission (PC)
	Board of Zoning Appeals (BZA)		Fork Union Sanitary District (FUSD) Advisory Committee		Region Ten Community Services Board
X	Building Code of Appeals Board		James River Water Authority (JRWA)		Rivanna River Basin Commission
	Central Virginia Regional Jail (CVRJ) Authority		JAUNT Board		Social Services Board
	Columbia Task Force (CARE)		Jefferson Area Board of Aging (JABA) Advisory Council	X	Thomas Jefferson Planning District Commission (TJPDC)
	Community Policy & Management Team (CPMT)		Jefferson Area Board of Aging (JABA) Board of Directors		Thomas Jefferson Water Resources Protection Foundation
X	Economic Development Authority (EDA)		Library Board of Trustees		
	Economic Develop. & Tourism Advisory Council (EDTAC)		Monticello Area Community Action Agency (MACAA)		
	Family Assessment and Planning Team (FAPT)		Parks & Recreation Advisory Board (RAB)		

**Submit by email ([clerk@fluvannacounty.org](mailto:clerk@fluvannacounty.org)) or mail to:**

**County of Fluvanna, Attention: Clerk, Board of Supervisors, PO Box 540, Palmyra, VA 22963**

By signing below you are indicating that you have read and understand the Fluvanna County BCC Attendance Policy and that you agree to abide by the Bylaws of any Board, Commission, or Committee to which you may be appointed.

In accordance with Virginia Code §2.2-3705.1, by submitting this application, it is presumed that you are providing your personal contact information to be used for communicating with the County, and unless otherwise indicated by you, your personal contact information will not be shared publicly.

Applicant's Signature <i>(Typing name below serves as digital signature)</i>		Date	
Joshua Bower		1-13-2022	
Mailing Address (including City, State, & ZIP)		Physical Address (if different)	
418 Fox Hollow Ln, Palmyra, VA 22963			
Years Lived in Fluvanna	Phone #	Alternate Phone #	Email Address
6	434-989-2788		bowerjc00@gmail.com
Office Use Only			
Application Received On:	1-13-2022	Application Received By:	
Acknowledgement Sent:	1-13-2022	Leontyne Peck	
Renewal Date:		Remarks:	
Renewal Date:			
Renewal Date:			
Renewal Date:			



# APPLICATION TO SERVE ON BOARDS/COMMISSION/COMMITTEES

## County of Fluvanna

Name: <b>Nelson H Cook Jr</b>		Election <input checked="" type="checkbox"/> Columbia <input type="checkbox"/> Cunningham <input type="checkbox"/> Fork Union	
		District: <input type="checkbox"/> Palmyra <input type="checkbox"/> Rivanna <input type="checkbox"/> Other	
Mailing Address (including City, State, & ZIP) 5056 Venable Road Kents Store, VA 23084		Physical Address (if different)	
Years Lived in Fluvanna 1 Month	Cell Phone – preferred? (585)967-3355	Home Phone – preferred?	Email nelsoncookleedap@gmail.com
EXPERIENCE/PROFESSIONAL EXPERTISE/EDUCATION (Please provides dates of education and experience.): Currently director of preconstruction for construction company in Richmond Past chief estimator in Seattle, WA (2010 to 2020) Past US Navy SeaBee (1992 to 1997)			
CURRENT OR PRIOR SERVICE ON BOARDS/COMMISSIONS/OR COMMITTEES: Chairman of Junior Builders Exchange (Rochester, NY) 2006 to 2008			
CIVIC ACTIVITIES AND MEMBERSHIPS (Roles with fraternal, business, church, or social groups – please provide dates): Deacon Board Chairman, Puyallup Community Baptist Church (2015 to 2019)			
REASON(S) FOR WANTING TO SERVE FLUVANNA COUNTY: We are new to the county and I would like to serve our new community.			
<b>Applicants are considered as vacancies occur and your application will be kept on file for three years.</b> Fluvanna County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provision of services. <b>Submit by email (<a href="mailto:clerk@fluvannacounty.org">clerk@fluvannacounty.org</a>) or mail to:</b> <b>Clerk, Board of Supervisors, PO Box 540, Palmyra, VA 22963</b> <b>By signing below you are indicating that you have read and understand the attached Fluvanna County BCC Attendance Policy and that you agree to abide by the Bylaws of any Board, Commission, or Committee to which you may be appointed.</b>			
Applicant's Signature <i>(Typing name below serves as digital signature)</i>		Date <b>8/28/2020</b>	

**PLEASE INDICATE BELOW ANY BOARDS, COMMISSIONS, OR COMMITTEES ON WHICH YOU WISH TO SERVE.**

<b>X</b>	<b>Board, Commission, Committee</b>
	Agricultural/Forestral District Advisory Committee
	Audit Committee
	Board of Equalization (BOE)
X	Board of Zoning Appeals (BZA)
X	Building Code of Appeals Board
	Central Virginia Regional Jail (CVRJ) Authority
X	Columbia Task Force (CARE)
	Community Policy & Management Team (CPMT)
	Economic Development Authority (EDA)
	Economic Develop. & Tourism Advisory Council (EDTAC)
	Family Assessment and Planning Team (FAPT)
X	Finance Board
	Fluvanna Partnership for Aging Committee
	Fork Union Sanitary District (FUSD) Advisory Committee
	James River Water Authority (JRWA)
	JAUNT Board

<b>X</b>	<b>Board, Commission, Committee (cont.)</b>
	Jefferson Area Board of Aging (JABA) Advisory Council
	Jefferson Area Board of Aging (JABA) Board of Directors
	Library Board of Trustees
	Monticello Area Community Action Agency (MACAA)
	Palmyra Area Revitalization Committee (PARC)
X	Parks & Recreation Advisory Board
	Piedmont Virginia Community College (PVCC) Board
	Planning Commission
	Region Ten Community Services Board
	Rivanna River Basin Commission
	Social Services Board
	Thomas Jefferson Planning District Commission (TJPDC)
	Thomas Jefferson Water Resources Protection Foundation
	Youth Advisory Council (YAC)
	OTHER:

**Fluvanna County Board, Committee, and Commission Attendance Policy**

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<b>Office Use Only</b>		
Application Received On:		Application Received By:
Acknowledgement Sent:		
Renewal Date:		Remarks:
Renewal Date:		
Renewal Date:		
Renewal Date:		

(585) 967-3355

[nelsoncookleedap@gmail.com](mailto:nelsoncookleedap@gmail.com)LinkedIn: [Nelson H Cook Jr](#)

## NELSON H COOK JR, LEED AP, ASSOC DBIA

### PROFESSIONAL PROFILE

My experience has covered many delivery methods as well as project types. I have been responsible for management oversight as well as hands-on for all phases of a construction project estimate. Including coordinating estimators, subcontractors, and material vendors. I have a proven track record of ensuring estimates are completed on schedule and with accuracy.

- Excellent client facing skills to confirm goals are met and relationships maintained.
- Capable of effectively reviewing estimates for pricing, risks and take-offs.
- Diligent communication and coordination skills to allow for a total team “buy-in” approach during the preconstruction process.
- Exceptional ability in bid package development to reduce risk and provide complete analysis.
- Proven design management and leadership skills to safeguard all stakeholder’s needs.
- Skilled at assessing current training and processes to ensure continuous improvement of personnel and procedures.
- Ability to analyze subcontractor and supplier proposals for thorough and complete project approach.
- Demonstrated leadership in both the preconstruction process and business wide.

### PROFESSIONAL ACHIEVEMENTS

- Preconstruction Director leading team of 6 handling the preconstruction process for revenue greater than 300 million per year.
- Instituted project hand-off to ensure operations has complete and detailed information helping to ensure project goals are met.
- Established a historical cost data capture system to better predict project costs during client interactions and cost studies.
- Lead Estimator for progressive design build at International Arrivals Facility. Project measures over 500,000 sqft with a budget in excess of \$500,000,000.
- Awarded quarterly “Best Purchasing Process” for region while purchasing 16 trade packages with a value in excess of \$75,000,000.
- Standardized model-based take-off organization to allow for efficient evaluation of design changes allowing for quicker response and ability to better manage design decision process.
- Developed basis of design template for multi-family fixtures and finishes to allow for communicating level of quality to both subcontractors and client.
- Awarded 4.4 million in contracts from Aug ’13 to Aug ’14, an increase of over 200% from previous year.
- Built and maintained database thus reducing time expended for 2D take off by over 50%.
- Lead estimator for 135 million dollars negotiated GMP multifamily high rise.
- Lead estimator for reroofing project more than 900,000 sqft for major aerospace manufacturing company.
- Lead estimator for 14 million dollar negotiated GMP multifamily concrete/wood multifamily mid-rise construction.
- Standardized subcontractor “table sheets” to reduce tabulation and evaluation errors. Reduction was approximately 20%.

- SKILLS**
- Proficient in Sage 300 “Timberline” estimating software
  - Associate DBIA
  - LEED Accredited Professional
  - Highly skilled in digital take-off software including On-Screen Takeoff and PlanSwift
  - Administrator for Assemble Systems (model-based takeoff)
  - Proficient user of Autodesk BIM 360

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**WORK HISTORY**

**DIRECTOR OF PRECONSTRUCTION, BREEDEN CONSTRUCTION, RICHMOND VA**

July 2020 - Present

**CHIEF ESTIMATOR, KATERRA/UEB BUILDERS, SEATTLE WA**

October 2018 – July 2020

**SENIOR ESTIMATOR, CLARK CONSTRUCTION GROUP, SEATTLE WA**

September 2015 – October 2018

**LEAD ESTIMATOR, ALUTIIQ LLC, TACOMA WA**

August 2013 – September 2015

**SENIOR ESTIMATOR, PCL CONSTRUCTION, BELLEVUE, WA**

January 2012 – August 2013

**SENIOR ESTIMATOR, ABSHER CONSTRUCTION, PUYALLUP, WA**

October 2010 – January 2012

**CHIEF ESTIMATOR, LECHASE CONSTRUCTION SERVICES LLC, ROCHESTER, NY**

January 1999 - October 2010

**PROJECT MANAGER / ESTIMATOR, ALLIED BUILDERS INC, BROCKPORT, NY**

January 1996 - January 1999

**ESTIMATOR, THE BELL CORPORATION, ROCHESTER, NY**

January 1992 - January 1996

**BUILDER, UNITED STATES NAVY, VARIOUS LOCATIONS**

January 1987 - January 1992

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**EDUCATION**

**UNITED STATES NAVY “A” SCHOOL**

Graduated technical school with a 3.8 evaluation and 3<sup>rd</sup> in a class of 60.

**NORTH TONAWANDA HIGH SCHOOL**

High school diploma

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**REFERENCES**

**AVAILABLE UPON REQUEST**

**FLUVANNA COUNTY BOARD OF SUPERVISORS  
AGENDA ITEM STAFF REPORT**

**TAB D**

<b>MEETING DATE:</b>	October 5, 2022				
<b>AGENDA TITLE:</b>	Piedmont Virginia Community College Update				
<b>MOTION(s):</b>	N/A				
<b>STRATEGIC INITIATIVE?</b>	Yes	No	<b>If yes, list initiative(s):</b>		
		X			
<b>AGENDA CATEGORY:</b>	Public Hearing	Action Matter	Presentation	Consent Agenda	Other
			X		
<b>STAFF CONTACT(S):</b>	Eric Dahl, County Administrator				
<b>PRESENTER(S):</b>	Dr. Jean Runyon, President PVCC				
<b>RECOMMENDATION:</b>	N/A				
<b>TIMING:</b>	Routine				
<b>DISCUSSION:</b>	Update on Piedmont Virginia Community College by Dr. Jean Runyon.				
<b>FISCAL IMPACT:</b>	N/A				
<b>POLICY IMPACT:</b>	N/A				
<b>LEGISLATIVE HISTORY:</b>	N/A				
<b>ENCLOSURES:</b>	Presentation				
<b>REVIEWS COMPLETED:</b>	Legal	Finance	Purchasing	HR	Other
					X



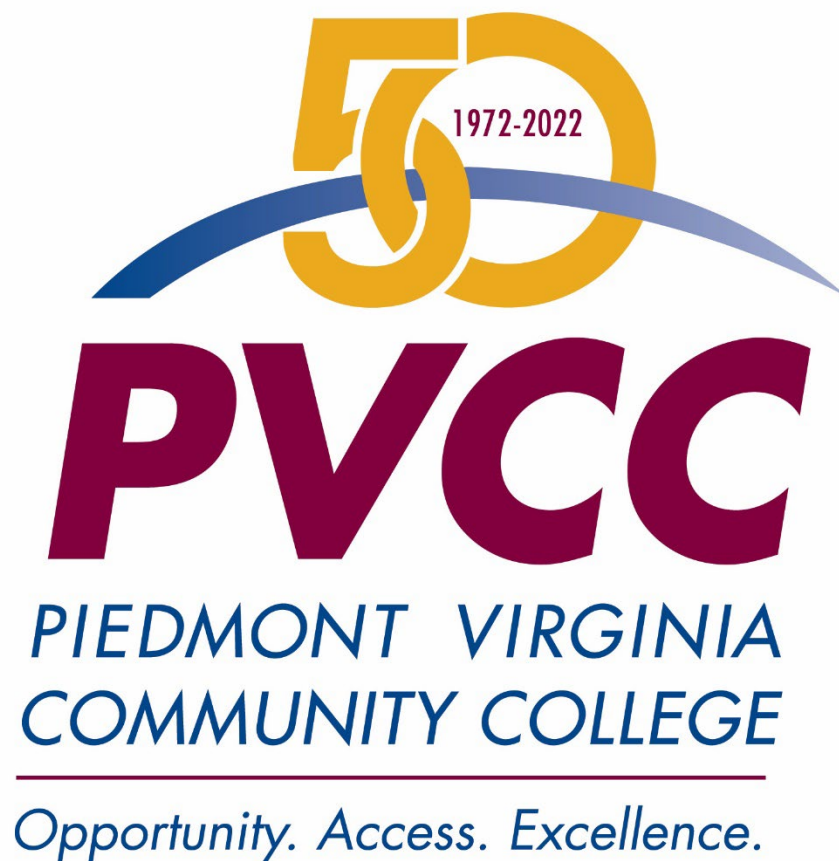


# Board of Supervisors

October 5, 2022

Jean Runyon  
President

[jrunyon@pvcc.edu](mailto:jrunyon@pvcc.edu)



**PVCC**

PIEDMONT VIRGINIA  
COMMUNITY COLLEGE

*Opportunity. Access. Excellence.*







# 2021-22 GRADUATES BY LOCATION



- Albemarle
- Buckingham
- Charlottesville
- Fluvanna
- Greene
- Outside PVCC's Service Region
- Louisa
- Nelson

9.33%

# Dual Enrollment (2021-2022)

- 143 students
- 33 course sections
- 1,575 credit hours



Fluvanna County High School





# Bolick Advanced Technology & Student Success Center

*thank  
you*



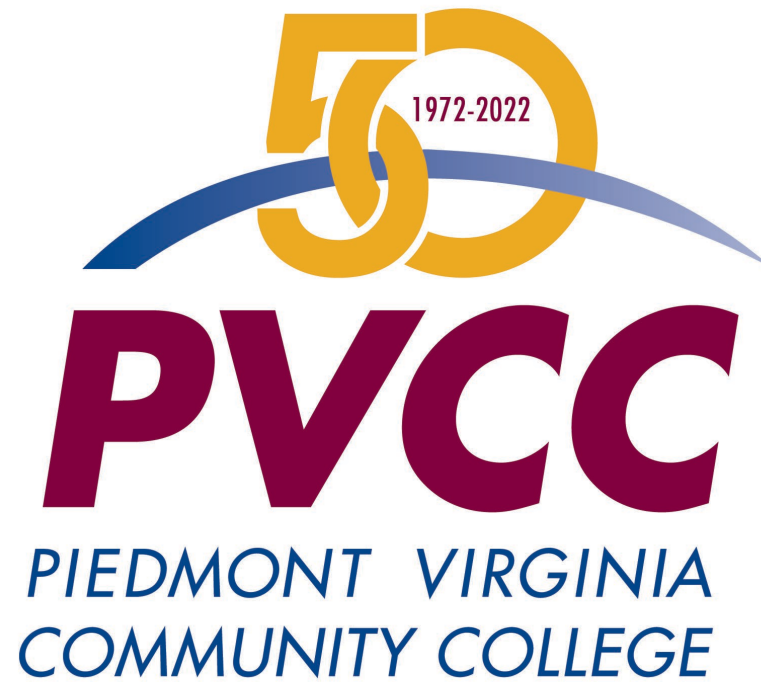
Opening January 2024







We remain committed to our mission to offer accessible, affordable, high-quality educational programs that promote student success and community vitality.





**FLUVANNA COUNTY BOARD OF SUPERVISORS  
 AGENDA ITEM STAFF REPORT**

**TAB E**

<b>MEETING DATE:</b>	October 5, 2022				
<b>AGENDA TITLE:</b>	Pearson Appraisal 2023 Reassessment Update				
<b>MOTION(s):</b>	N/A				
<b>STRATEGIC INITIATIVE?</b>	Yes	No	<b>If yes, list initiative(s):</b>		
		X			
<b>AGENDA CATEGORY:</b>	Public Hearing	Action Matter	Presentation	Consent Agenda	Other
			X		
<b>STAFF CONTACT(S):</b>	Andrew M. Sheridan, Jr., Commissioner of the Revenue				
<b>PRESENTER(S):</b>	Randy Willis, Assessor for Pearson’s Appraisal Service, Inc.				
<b>RECOMMENDATION:</b>	N/A				
<b>TIMING:</b>	N/A				
<b>DISCUSSION:</b>	Initial overview of 2023 reassessment data.				
<b>FISCAL IMPACT:</b>	TBD				
<b>POLICY IMPACT:</b>	N/A				
<b>LEGISLATIVE HISTORY:</b>	N/A				
<b>ENCLOSURES:</b>	None.				
<b>REVIEWS COMPLETED:</b>	Legal	Finance	Purchasing	HR	Other
					X





**FLUVANNA COUNTY BOARD OF SUPERVISORS  
AGENDA ITEM STAFF REPORT**

**TAB F**

<b>MEETING DATE:</b>	October 5, 2022				
<b>AGENDA TITLE:</b>	Adoption of the Fluvanna County Board of Supervisors September 21, 2022 Meeting Minutes.				
<b>MOTION(s):</b>	<b>I move the meeting minutes of the Fluvanna County Board of Supervisors Regular Meeting on Wednesday September 21, 2022, be adopted.</b>				
<b>STRATEGIC INITIATIVE?</b>	Yes	No	<b>If yes, list initiative(s):</b>		
		X			
<b>AGENDA CATEGORY:</b>	Public Hearing	Action Matter	Presentation	Consent Agenda	Other
				<b>XX</b>	
<b>STAFF CONTACT(S):</b>	Caitlin Solis, Clerk to the Board				
<b>PRESENTER(S):</b>	Eric Dahl, County Administrator				
<b>RECOMMENDATION:</b>	Approve				
<b>TIMING:</b>	Routine				
<b>DISCUSSION:</b>	None.				
<b>FISCAL IMPACT:</b>	N/A				
<b>POLICY IMPACT:</b>	N/A				
<b>LEGISLATIVE HISTORY:</b>	N/A				
<b>ENCLOSURES:</b>	Draft Minutes for September 21, 2022.				
<b>REVIEWS COMPLETED:</b>	Legal	Finance	Purchasing	HR	Other
					<b>X</b>



**FLUVANNA COUNTY BOARD OF SUPERVISORS**  
**REGULAR MEETING MINUTES**  
**Carysbrook Performing Arts Center**  
**8880 James Madison Hwy, Fork Union, VA 23055**  
**September 21, 2022**  
**Regular Meeting 7:00pm**

**MEMBERS PRESENT:** John M. (Mike) Sheridan, Columbia District, Chair  
 Tony O'Brien, Rivanna District, Vice Chair  
 Mozell Booker, Fork Union District  
 Patricia Eager, Palmyra District  
 Chris Fairchild, Cunningham District

**ABSENT:** None.

**ALSO PRESENT:** Eric M. Dahl, County Administrator  
 Kelly Harris, Assistant County Administrator  
 Fred Payne, County Attorney  
 Caitlin Solis, Clerk for the Board of Supervisors

**1 - CALL TO ORDER, PLEDGE OF ALLEGIANCE, & MOMENT OF SILENCE**

At 7:04pm, Chair Sheridan called to order the Regular Meeting of September 21, 2022. After the recitation of the Pledge of Allegiance, a moment of silence was observed.

**3 - ADOPTION OF AGENDA**

<b>MOTION:</b>	Accept the Agenda, for the September 21, 2022 Regular Meeting of the Board of Supervisors, as presented.				
<b>MEMBER:</b>	Mrs. Booker	Mrs. Eager	Mr. Fairchild	Mr. O'Brien	Mr. Sheridan
<b>ACTION:</b>	Second			Motion	
<b>VOTE:</b>	Yes	Yes	Yes	Yes	Yes
<b>RESULT:</b>	<b>5-0</b>				

**4 - COUNTY ADMINISTRATOR'S REPORT**

Mr. Dahl reported on the following topics:

Announcements and Updates - New Employees

- Dustin Herndon, Deputy Sheriff, Sheriff's office, Started September 12th

Drive-thru Rabies Clinic

- Pleasant Grove Park 271 Pleasant Grove Drive Palmyra, VA 22963
- Saturday, September 24, 2022, 9:00am to 12:00pm, COST: \$10.00 (cash only)

Dominion Energy will complete controlled demolition of Bremo Power Station, located in Bremo Bluff, Fluvanna County.

- Friday, September 23, 2022, Approximately 10:00AM
- Weather delay date is Saturday, September 24, 2022
- Closures of the following public areas will take place starting at 9:15AM:
  - Bremo Road, between the Bremo Post Office and 1268 Bremo Road
  - James River, from the Bremo Bluff Boat Launch and ½ mile downstream
  - Reopening of these areas anticipated by 11:00AM

**Next BOS Meetings:**

Day	Date	Time	Purpose	Location
Wed	Oct 5	5:00 PM	Regular Meeting	Performing Arts Center
Wed	Oct 19	7:00 PM	Regular Meeting	Performing Arts Center
Wed	Nov 2	5:00 PM	Regular Meeting	Performing Arts Center

- Mr. Sheridan mentioned the Rivanna Conservation Alliance is looking for volunteers to pull tires out of the Rivanna River on Saturday, September 24, 2022.

**5 - PUBLIC COMMENTS #1**

At 7:10pm, Chair Sheridan opened the first round of Public Comments.

Board of Supervisors Minutes

September 21, 2022

- Rachel Ferrell, 107 Riverside dr., thanked the Board for the safety study resolution on the agenda, and expressed her concerns with the intersection on South Boston Rd and River Ridge Drive and the Riverside Gate.
- Bruce Bowling, 116 Rivanna St., Commented on the Board of Supervisors’ mission statement and applying the statement to the Columbia area.
- Corven Flynn, 319 Shiloh Church Rd., made comments regarding the June 15, 2022 and September 7, 2022 Board of Supervisors meetings, and Board meeting minutes, generally.
- Cyndra Kerley, TM 17-15-X, made comments regarding the lack of any response to multiple emails sent directly to all Supervisors requesting the policy on electronic meetings. Mrs. Kerley also spoke broadly on transparency and State Code requirements.
- Brittany Gray, 2 Watt Cir, shared her safety concerns in the roadways around riverside section.

With no one else wishing to speak, Chair Sheridan closed the first round of Public Comments at 7:34pm.

**6 - PUBLIC HEARING**

None.

**7 - ACTION MATTERS**

*Requesting Part-time Temporary Clerk Position be Reclassified as Permanent Part-time Deputy Registrar Position*

– Joyce Pace, General Registrar

- Ms. Pace gave a brief presentation requesting the Board of Supervisors approve the reclassification of the Part-time Temporary Registrar Clerk position to the Permanent Part-time Deputy Registrar position.

<b>MOTION:</b>	Approve the reclassification of the Temporary Part Time Registrar Clerk position, to a Permanent Part-Time Deputy Registrar, with the additional funding to come from FY23 Personnel Contingency.				
<b>MEMBER:</b>	Mrs. Booker	Mrs. Eager	Mr. Fairchild	Mr. O’Brien	Mr. Sheridan
<b>ACTION:</b>		Second		Motion	
<b>VOTE:</b>	Yes	Yes	Yes	Yes	Yes
<b>RESULT:</b>	<b>5-0</b>				

*Authorization to Advertise a Public Hearing for Noise Control Ordinance* – Eric Dahl, County Administrator & Fred Payne, County Attorney

- The principal purpose of this action would be to provide for a new standard for review of noise complaints which the Sheriff believes will be easier and more equitable to enforce, as well as to substitute civil penalties as specifically authorized by statute in lieu the current criminal penalties.
  - Staff is requesting authorization to advertise for a public hearing on October 19, 2022, repealing Chapter 15.1 and adding new Chapter 15.2 to regulate excessive noise and activities related and to provide for penalties for violations.
- After some discussion, the Chair asked for a vote.

<b>MOTION:</b>	Approve an authorization to advertise a Public Hearing for “AN ORDINANCE TO REPEAL CHAPTER 15.1 OF THE FLUVANNA COUNTY CODE AND TO ADD A NEW CHAPTER 15.2 IN ITS PLACE TO REGULATE EXCESSIVE NOISE AND ACTIVITIES RELATED THERETO AND TO PROVIDE FOR PENALTIES FOR VIOLATIONS THEREOF.”				
<b>MEMBER:</b>	Mrs. Booker	Mrs. Eager	Mr. Fairchild	Mr. O’Brien	Mr. Sheridan
<b>ACTION:</b>	Second		Motion		
<b>VOTE:</b>	Yes	Yes	Yes	Yes	Yes
<b>RESULT:</b>	<b>5-0</b>				

*Revised Board of Supervisors Mission Statement* – Eric Dahl, County Administrator and Kelly Harris, Assistant County Administrator

- During the 2022 Leadership Retreat, discussion centered around a revision of the Mission Statement in order to accurately reflect the goals of the Board of Supervisors, as well as the community.

Mission Statement adopted in 2016:

Fluvanna County is committed to providing an excellent quality of life for our citizens and businesses through the delivery of competitive public services and programs in an efficient and effective manner.

**Option #1:**

Fluvanna County is committed to providing an excellent quality of life for our citizens and businesses through the efficient delivery of **core services and programs, while preserving the unique identity and rural character of the county.**

**Option #2:**

Fluvanna County is committed to providing an excellent quality of life for our citizens and businesses through **attractive, efficient, and effective core services and programs, while preserving the rural character of the county.**

**Option #3:** (Same as #1, removes “committed”)

Fluvanna County provides an excellent quality of life for our citizens and businesses through the efficient delivery of core services and programs, while preserving the unique identity and rural character of the county.

**Option #4:** (Same #3, removes “for our citizens and businesses”)

Fluvanna County provides an excellent quality of life through the efficient delivery of core services and programs, while preserving the unique identity and rural character of the county.

<b>MOTION:</b>	Adopt the revised Mission Statement, Option #1 as presented.				
<b>MEMBER:</b>	Mrs. Booker	Mrs. Eager	Mr. Fairchild	Mr. O’Brien	Mr. Sheridan
<b>ACTION:</b>		Second	Motion		
<b>VOTE:</b>	Yes	Yes	Yes	No	Yes
<b>RESULT:</b>	<b>4-1</b>				

*2022-2023 Board of Supervisors Two Year Plan – Eric Dahl, County Administrator and Kelly Harris, Assistant County Administrator*

- The Board’s Two Year Plan are those goals identified during the 2022 Leadership Retreat. Previously, the Board’s goals were called Strategic Initiatives.
- Categories
  - Service Delivery
  - Communication
  - Project Management
  - Community Development and Enrichment
  - Financial Stewardship and Efficiency

<b>MOTION:</b>	Adopt the Board’s 2022-2023 Two Year Plan, as presented.				
<b>MEMBER:</b>	Mrs. Booker	Mrs. Eager	Mr. Fairchild	Mr. O’Brien	Mr. Sheridan
<b>ACTION:</b>	Motion	Second			
<b>VOTE:</b>	Yes	Yes	Yes	Yes	Yes
<b>RESULT:</b>	<b>5-0</b>				

*Economic Development Strategic Plan – Jennifer Schmack, Director of Economic Development*

A focus on People, Prosperity and Placemaking will support a vibrant economy and enhance our Quality of Life.

- People – Improve employment opportunities to elevate residents and businesses.
  - Position Fluvanna County’s workforce for success through skills development.
  - Develop talent attraction initiatives to grow opportunities in Fluvanna County.
  - Showcase residential real estate to attract, retain, and grow available talent.
- Prosperity – Attract and retain industries that advance our communities.
  - Retain existing industries that build upon our strengths.
  - Attract growth-oriented sectors aligning with our economic objectives.
  - Foster entrepreneurship with Fluvanna County.
  - Improve the variety of commercial real estate options to support business attraction, retention and expansion efforts.
- Placemaking – Enhance the spaces where people live, work, and play in Fluvanna County.
  - Prioritize infrastructure to meet the needs of residents and businesses.
  - Leverage tourism assets to boost visitor appeal.

Goals:

1. Position Fluvanna County as a business-friendly county with competitive assets in the Central Virginia Region.
  2. Foster entrepreneurship, business growth, and expansion in Fluvanna County through business retention efforts.
  3. Develop new and enhance existing tourism experiences, activities, and events in Fluvanna County to increase tourism attraction.
  4. Support Fluvanna County businesses with talent recruitment and retention challenges.
- After a lengthy discussion, the Chair asked for a vote.

<b>MOTION:</b>	Adopt the FY 2023 – FY 2028 Economic Development Strategic Plan, as presented				
<b>MEMBER:</b>	Mrs. Booker	Mrs. Eager	Mr. Fairchild	Mr. O'Brien	Mr. Sheridan
<b>ACTION:</b>	Motion			Second	
<b>VOTE:</b>	Yes	Yes	No	Yes	Yes
<b>RESULT:</b>	<b>4-1</b>				

*VDOT Safety Study on South Boston Road – Eric Dahl, County Administrator*

- Over the years, there has been much discussion around the safety concerns at the intersection of South Boston Rd. (Rt. 600), where it intersects with River Ridge Dr. and the Riverside Gate in Lake Monticello.
- In order for VDOT to assess any safety or speed concerns in the area, it was recommended by VDOT for the Board of Supervisors to request a Safety Study.
- The Safety Study will look at many factors in this area and any outcomes may require the collaboration between VDOT, Fluvanna County and the Lake Monticello Owners’ Association.

<b>MOTION:</b>	Adopt a resolution requesting a Safety Study on Route 600 (South Boston Road) in the Palmyra district around and beyond the intersection of River Ridge Drive and the Riverside Gate of Lake Monticello				
<b>MEMBER:</b>	Mrs. Booker	Mrs. Eager	Mr. Fairchild	Mr. O'Brien	Mr. Sheridan
<b>ACTION:</b>		Second		Motion	
<b>VOTE:</b>	Yes	Yes	Yes	Yes	Yes
<b>RESULT:</b>	<b>5-0</b>				

**7A – BOARDS AND COMMISSIONS**

None.

**8 – PRESENTATIONS**

*Jaunt Presentation – Ted Rieck, CEO, Jaunt, Inc.*

Mr. Rieck presented the FY22 Annual Report including Jaunt’s mission, driver metrics, FY22 trip purpose for Fluvanna County, and Jaunt initiatives (Alternative fueled vehicles, Microtransit, Transit Development Plan (TDP), and Advertising).

*2022 Fluvanna County Fair Review – Aaron Spitzer, Director of Parks and Recreation*

**Attendance**

- This year’s County Fair was a success with 7,148 to 8,000 visitors over the four days.

**Parks and Recreation Expenses**

- Advertising - \$2,511.72
  - Fair Books, Fair Tri-Folds and Fluvanna Review ads (3).
  - Budget - \$2,000.00
- General Supplies - \$1,194.29
  - Donation (\$5,000) from Food Lion was accepted by the county and used for the bounce houses due to tax information needed by Food Lion.
  - Fun Zone, Staff T-Shirts, Ace, Amazon, Walmart, and Lowes.
  - Budget - \$3,000.00
- Contract Services - \$12,827.80
  - Gibson Tent Rental, Sunbelt (lights), Porta Johns, Dumpster, and Security from Sheriff’s Office.
  - Budget - \$13,600.00
- Total Expenses = \$16,533.81

**Parks and Recreation Revenues**

- Gate Sales - \$14,299.00
  - 7,148 paying visitors; we did not take gate sales on Wednesday or for anyone under 18 years old on Thursday and everyday children under the age of 2 years old got in free. Closed the gate early Friday and Saturday, staffing issues/needs.
- Carnival Ride Sales - \$16,932.00
  - \$100 for each food/concession (11) as well as 25% of all ticket sales.
- Fair Vendors - \$4,102.50
  - 3 Sponsors, 14 food, and 39 non-food.
  - Total Revenue = \$35,333.50

**Fair Board’s Expenses**

- Stage Entertainment - \$2,725.00
  - Crimson Current, Sam Lowe, Cheap Whiskey, Wes Iseli, and Silver Creek.
- Fair Grounds Entertainment - \$21,006.00
  - Virginia Giant, Beer Garden, Rodeo, Barrel Train and Petting Zoo.
- Parking - \$1,000.00
  - Troup 154 (Friday night & Saturday day).
- General Supplies - \$8,135.09
  - Wristbands/bags, Card Reader, Golf Cart, Banners,

Board of Supervisors Minutes

Tent Rental, Signs, and Volunteers.

- Total Expenses = \$32,866.09

Special Needs Event

- Valley Amusements opened up rides and a few games for area youth and adults with special needs on Friday from 10am - noon. Approx. 60 participants that came to this event.
- EW Thomas and S&N Communication whom provided meals for the participants and staff.
- SPECIAL THANKS to Wade Parrish, Valley Amusements, S&N Communication, the Fluvanna County Public Schools, Fluvanna County Fair Board, and Parks and Recreation whom partnered together to provide this unique experience.

Home Arts Competition

- The Sorrell Family (Andy & Kristen) organized and ran the competition this year – very difficult to secure volunteers & judges
- Over 150 entries (double 2021) - 50 from children and over 30 from youth
- New for 2022 - Expanded Age Groups
  - Children (10 & under), Youth (11-17) & Adult (18+) – All children entries received ribbons, regardless of award status)
  - Expanded Categories – Flowers, Fine Arts, Homemade Crafts
  - Website with entry & judging info & Online pre-registration (over 100 pre-registered)

Recognitions

- 2022 Fair Board
  - President - Wade Parrish
  - Vice President/Secretary - Maria Graff
  - Treasurer - Channing Snoody
  - Sponsorships - Kirsten Cropp
  - Marketing - Heather Hastings
  - Home Arts Director - Andy Sorrell
  - 4-H Director - Kim Mayo
  - Equipment & Flowers - George and Gene Goin
  - County Representatives - Dylan Morris and Aaron Spitzer
- Thanks to Fluvanna Fire and Rescue, Fluvanna Sheriff's Department and State Police for being at the Fair to help out with any emergencies that arose!
- Special THANK YOU to all the volunteers that helped at various events throughout the Fair!

**9 - CONSENT AGENDA**

The following items were discussed before approval:

J - Minutes of September 7, 2022 – Caitlin Solis, Clerk to the Board

The following items were approved under the Consent Agenda for September 21, 2022:

- *Minutes of August 27, 2022 Planning Retreat* – Caitlin Solis, Clerk to the Board
- *Minutes of September 7, 2022* – Caitlin Solis, Clerk to the Board
- *CRMF - FMS VACORP Vandalism and Theft Reimbursement* – Don Stribling, FCPS
- *FY22 Sheriff's Office Budget Transfer* – Tori Melton, Director of Finance
- *FY23 FCPS Grants Supplemental Appropriation* – Brenda Gilliam, Executive Director for Instruction and Finance
- *Proclaiming October as Community Planning Month* – Douglas Miles, Community Development Director

<b>MOTION:</b>	Approve the consent agenda, including the correction of a typographical error in the Minutes of September 7, 2022, for the September 21, 2022 Board of Supervisors meeting.				
<b>MEMBER:</b>	Mrs. Booker	Mrs. Eager	Mr. Fairchild	Mr. O'Brien	Mr. Sheridan
<b>ACTION:</b>	Motion			Second	
<b>VOTE:</b>	Yes	Yes	Yes	Yes	Yes
<b>RESULT:</b>	<b>5-0</b>				

**10 - UNFINISHED BUSINESS**

TBD

**11 - NEW BUSINESS**

TBD

**12 - PUBLIC COMMENTS #2**

At 10:14pm, Chair Sheridan opened the second round of Public Comments. With no one wishing to speak, Chair Sheridan closed the second round of Public Comments at 10:14pm.

**13 - CLOSED MEETING**

<b>MOTION:</b>	At 10:15pm, move the Fluvanna County Board of Supervisors enter into a closed meeting, pursuant to the provisions of Section 2.2-3711 A.3, A.5 & A.7 of the Code of Virginia, 1950, as amended, for the purpose of discussing, Real Estate – Fork Union Real Estate Acquisition, Prospective Industry – Prospective Business, and Legal Matters – Actual Litigation in Connection with the Zion Crossroads Water and Sewer Project.				
<b>MEMBER:</b>	Mrs. Booker	Mrs. Eager	Mr. Fairchild	Mr. O’Brien	Mr. Sheridan
<b>ACTION:</b>	Second			Motion	
<b>VOTE:</b>	Yes	Yes	Yes	Yes	Yes
<b>RESULT:</b>	<b>5-0</b>				

<b>MOTION:</b>	At 10:53pm, move Closed Meeting be adjourned and the Fluvanna County Board of Supervisors convene again in open session and “BE IT RESOLVED, the Board of Supervisors does hereby certify to the best of each member’s knowledge (i) only public business matters lawfully exempted from open meeting requirements under Section 2.2-3711-A of the Code of Virginia, 1950, as amended, and (ii) only such public business matters as were identified in the motion by which the closed meeting was convened were heard, discussed, or considered in the meeting.”				
<b>MEMBER:</b>	Mrs. Booker	Mrs. Eager	Mr. Fairchild	Mr. O’Brien	Mr. Sheridan
<b>ACTION:</b>	Second			Motion	
<b>VOTE:</b>	Yes	Yes	Yes	Yes	Yes
<b>RESULT:</b>	<b>5-0</b>				

**14 - ADJOURN**

<b>MOTION:</b>	Adjourn the regular meeting of Wednesday, September 21, 2022 at 10:54pm.				
<b>MEMBER:</b>	Mrs. Booker	Mrs. Eager	Mr. Fairchild	Mr. O’Brien	Mr. Sheridan
<b>ACTION:</b>	Motion			Second	
<b>VOTE:</b>	Yes	Yes	Yes	Yes	Yes
<b>RESULT:</b>	<b>5-0</b>				

ATTEST:

FLUVANNA COUNTY BOARD OF SUPERVISORS

\_\_\_\_\_  
Caitlin Solis  
Clerk to the Board

\_\_\_\_\_  
John M. Sheridan  
Chair





**BOARD OF SUPERVISORS**  
County of Fluvanna  
Palmyra, Virginia

**RESOLUTION No. 16-2022**

**A RESOLUTION REQUESTING SAFETY STUDY ON ROUTE 600 (SOUTH BOSTON ROAD) IN THE PALMYRA DISTRICT**

At a Regular Meeting of the Fluvanna County Board of Supervisors held in the Carysbrook Performing Arts Center at 7:00 PM on Wednesday, September 21, 2022, the following resolution was adopted by the Board of Supervisors, the vote being as shown below and recorded in the minutes of the meeting.

**WHEREAS**, it is the intention of the Fluvanna County Board of Supervisors to protect the health, safety, and welfare of all its citizens; and

**WHEREAS**, the Board of Supervisors feels there is a need for an appropriate Safety Study on Route 600 (South Boston Road) from before the intersection of Route 1040 (Broken Island Road) traveling North along Route 600 (South Boston Road) to the intersection at Route 618 (Lake Monticello Road), as the current intersection of River Ridge Drive and the Riverside Gate is hazardous and needs to be evaluated for any safety or speed concerns; and

**WHEREAS**, the Board of Supervisors feels that the safety on this roadway at this intersection can be significantly improved by assessing many factors in the area, and any outcomes may require the collaboration between VDOT, Fluvanna County and the Lake Monticello Owners’ Association; and

**NOW, THEREFORE BE IT RESOLVED**, on this 21<sup>st</sup> day of September 2022, that the Fluvanna County Board of Supervisors hereby requests that the Virginia Department of Transportation conduct a safety study on Route 600 (South Boston Road) around the intersection of River Ridge Drive and the Riverside Gate of Lake Monticello to establish a less dangerous intersection; and

**THE FOREGOING RESOLUTION WAS DULY AND REGULARLY ADOPTED** by the Fluvanna County Board of Supervisors at the Regular Meeting of the Board held on the 21<sup>st</sup> day of September 2022;

	AYE	NAY	ABSTAIN	ABSENT	MOTION	SECOND
Mozell H. Booker, Fork Union District						
Patricia B. Eager, Palmyra District						
Anthony P. O’Brien, Rivanna District						
John M. Sheridan, Columbia District						
Chris Fairchild, Cunningham District						

Attest:

---

John M. Sheridan, Chair

Fluvanna County Board of Supervisors



**BOARD OF SUPERVISORS**  
County of Fluvanna  
Palmyra, Virginia  
**PROCLAMATION 04-2022**



**Proclaiming October As Community Planning Month In Fluvanna County, Virginia:  
Planning for a Better Fluvanna through the Comprehensive Plan Process**

**WHEREAS**, change is constant and affects all cities, towns, counties, and other local, state and federal places; and throughout 2022 we have been working through Fluvanna County's adopted Comprehensive Plan; and

**WHEREAS**, community planning and plans can help manage this change in a way that provides better choices for how people work and live and through the current amendment of the County's 2015 Comprehensive Plan; and

**WHEREAS**, community planning provides an opportunity for all County residents to be meaningfully involved in making the choices that determine the future of their own community through the local planning process; and

**WHEREAS**, the full benefits of planning requires public officials and our residents to understand, support, and expect excellence in planning and plan implementation and to also participate to have a better future; and

**WHEREAS**, The American Planning Association (APA) and its professional institute, the American Institute of Certified Planners (AICP), endorse National Community Planning Month, as an opportunity to highlight the contributions sound planning and plan implementation make to the quality of our overall environment; and

**WHEREAS**, the celebration of National Community Planning Month gives us the opportunity to publicly recognize the participation and dedication of the members of the planning commission and others who have contributed their time and expertise to the overall improvement of the County of Fluvanna, Virginia; and

**WHEREAS**, we recognize the many valuable contributions that are made by the Planning staff members in the County of Fluvanna, Virginia and we extend our heartfelt thanks for the continued commitment to local public service by these well trained professionals that include staff members with AICP, CZA, and CZO certifications;

**NOW, THEREFORE, BE IT RESOLVED THAT**, the month of October 2022 is hereby designated as Community Planning Month in the County of Fluvanna, Virginia in conjunction with the celebration of National Community Planning Month in the USA, by the Fluvanna County Board of Supervisors this 21st day of September, 2022.

Passed and adopted this 21st day of September 2022.

---

John M. Sheridan, Chair  
Fluvanna County Board of Supervisors



# Capital Reserve Maintenance Fund Request

## TAB G

**MOTION:** I move that the Board of Supervisors approve a Capital Reserve Maintenance Fund Request in the amount of **\$12,415.70** for the purpose(s) of:  
**Installing network infrastructure in Fork Union Sanitary District (FUSD) building.**

### Section 1 - REQUEST

Requesting Department/Agency <b>Information Technology</b>	Dept/Agency Contact <b>Andrew Notman</b>	Date of Request <b>09/28/2022</b>
Phone <b>(434) 591-1910</b>	Fax <b>(434) 591-1911</b>	Fiscal Year <b>FY23</b>


Reserve Fund Purpose Category: **Other one-time, minor capital projects costing less than \$50,000**

Description of Project/Repair	Qty	Unit Price	Total Price
<b>Materials (See attached quote)</b>	1	\$2,371.70	\$2,371.70
<b>Labor</b>	1	\$10,044.00	\$10,044.00
			\$0.00
			\$0.00

Total Request: **\$12,415.70**

Description and justification for proposed use.

**Currently the FUSD building has no network infrastructure. Their Internet connection (Comcast cable) enters the building on the East side of the building, but the majority of the office space and computers are on the West side of the building. Some time ago a former FUSD employee ran a single Ethernet cable from one the East side to the West side, but something chewed through it sometime in early August. The cost of this project is so high because I am having all of the cabling be run through conduit to protect it.**

Department/Agency Head Name <b>Andrew Notman</b>	Signature 	Date <b>09/28/2022</b>
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### Section 2 - REVIEW

Recommended? <input type="checkbox"/> Yes <input type="checkbox"/> No	County Finance Director <b>Tori Melton</b> <small>Digitally signed by Tori Melton Date: 2022.09.28 10:11:20 -04'00'</small>	Date
Recommended? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	County Administrator <b>Eric Dahl</b> <small>Digitally signed by Eric Dahl Date: 2022.09.28 10:20:41 -04'00'</small>	Date

### Section 3 - BOARD OF SUPERVISORS

Approved? <input type="checkbox"/> Yes <input type="checkbox"/> No	Decision Date	Comments
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09/26/2022

Qty	Unit	Description	Unit Cost	Total
		#2059-2022 - Fluvanna County-15704 W River Road Fork Union VA 23022		
#				
2,500	ft	Cat 6 Non CMP Cable	\$0.24	\$600.00
100	ft	Panduit Latching Duct 3/4 inch	\$1.31	\$131.00
1	ea	24 port Patch Panel	\$181.50	\$181.50
14	ea	Cat 6 Jacks	\$7.05	\$98.70
6	ea	Face Plates	\$3.60	\$21.60
6	ea	Surface Mount Boxes	\$5.40	\$32.40
1	ea	9U Cabinet	\$321.00	\$321.00
30	ea	1" x 10" EMT conduit	\$27.00	\$810.00
3	ea	HOFFMAN ASE 8X8X4 boxes	\$21.00	\$63.00
20	ea	1 EMT Connectors	\$0.00	\$0.00
20	ea	1- In STL EMT CPLG	\$0.00	\$0.00
1		Miscellaneous Materials Tywraps, Tape,	\$112.50	\$112.50
Subtotal Materials				\$2,371.70
Low Voltage Permit		NA		\$0.00
Subtotal Labor				\$10,044.00
Total Quotation				\$12,415.70

This Quote is with Conduit.

**Thank you,**

**Thomas W Werner**  
**President**  
**Mid-Atlantic Source One of Virginia, LLC.**  
**Voice-Data-Fiber**  
**DCJS# 11-7014**  
 Richmond VA 23230  
 804-513-7734 cell  
[twerner@maso1.com](mailto:twerner@maso1.com)





# Capital Reserve Maintenance Fund Request

TAB H

**MOTION:** I move that the Board of Supervisors approve a Capital Reserve Maintenance Fund Request in the amount of **\$6,301.01** for the purpose(s) of:  
**Replacement of leaking evaporator coil at the Fluvanna County Library**

### Section 1 - REQUEST

Requesting Department/Agency <b>Public Works PW22-009</b>	Dept/Agency Contact <b>Dale Critzer</b>	Date of Request <b>06/09/2022</b>
Phone <b>(434) 591-1925</b>	Fax <b>(434) 591-1924</b>	Fiscal Year <b>FY22</b>

Reserve Fund Purpose Category: **Unexpected facility repairs or replacements**

Description of Project/Repair	Qty	Unit Price	Total Price
<b>Replacement coil and Labor to install</b>	1	\$5,301.01	\$5,301.01
<b>Service call and contingency for unforeseen issues</b>	1	\$1,000.00	\$1,000.00
			\$0.00
			\$0.00

Total Request: **\$6,301.01**

Description and justification for proposed use.

**Heat pump #6 had gone into alarm for high pressure on the compressors and would not reset. Placed a service call and the contractor found that the R-22 refrigerant charge was empty and after doing a leak test found the leak in the evaporator coil and it is unrepairable and will need to be replaced and recharged with R-22 refrigerant .**

Department/Agency Head Name <b>Assistant Director of Public Works</b>	Signature <b>Dale Critzer</b> <small>Digitally signed by Dale Critzer Date: 2022.06.09 14:32:56 -04'00'</small>	Date <b>06/09/2022</b>
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### Section 2 - REVIEW

Recommended? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	County Finance Director <b>Tori Melton</b> <small>Digitally signed by Tori Melton Date: 2022.09.12 11:08:36 -04'00'</small>	Date <b>09/12/2022</b>
Recommended? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	County Administrator <b>Eric Dahl</b> <small>Digitally signed by Eric Dahl Date: 2022.09.12 14:30:30 -04'00'</small>	Date

### Section 3 - BOARD OF SUPERVISORS

Approved? <input type="checkbox"/> Yes <input type="checkbox"/> No	Decision Date	Comments
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**FLUVANNA COUNTY BOARD OF SUPERVISORS  
AGENDA ITEM STAFF REPORT**

**TAB I**

<b>MEETING DATE:</b>	October 5, 2022				
<b>AGENDA TITLE:</b>	Permanent Part-time Deputy Registrar Job Description				
<b>MOTION(s):</b>	<b>I move the Board of Supervisors to approve the Job Description for the Permanent Part-Time Deputy Registrar.</b>				
<b>STRATEGIC INITIATIVE?</b>	Yes	No	<b>If yes, list initiative(s):</b>		
		X			
<b>AGENDA CATEGORY:</b>	Public Hearing	Action Matter	Presentation	Consent Agenda	Other
				<b>X</b>	
<b>STAFF CONTACT(S):</b>	Donna Snow, Director of Human Resources				
<b>PRESENTER(S):</b>	Donna Snow, Director of Human Resources				
<b>RECOMMENDATION:</b>	Approve				
<b>TIMING:</b>	Normal				
<b>DISCUSSION:</b>	Requesting the Board of Supervisors approve the Job Description for the Part-time permanent Deputy Registrar with leave benefits.				
<b>FISCAL IMPACT:</b>	Board approved the position being reclassified to a permanent part-time position on 9/21/2022, funds are accounted for in the budget.				
<b>POLICY IMPACT:</b>	N/A				
<b>LEGISLATIVE HISTORY:</b>	N/A				
<b>ENCLOSURES:</b>	Job Description for the Permanent Part-Time Deputy Registrar.				
<b>REVIEWS COMPLETED:</b>	Legal	Finance	Purchasing	HR	Other
		<b>X</b>		<b>X</b>	



 <div style="text-align: center;"> <p>Fluvanna County, Virginia Department of General Registrar Job Description</p> </div>	
<b>Deputy Registrar</b>	
<b>Job Class #:</b>	2209
<b>Pay Grade:</b>	7* New Pay Band 12
<b>Category:</b>	Permanent Part-Time (with leave benefits only)
<b>FLSA Status:</b>	Non-Exempt
<b>Reports To:</b>	Director of Elections and General Registrar
<b>SUMMARY</b>	
<p>The Deputy Registrar performs clerical work assisting with voter registration and election preparation duties in the office of the General Registrar and Electoral Board.</p>	
<b>ESSENTIAL FUNCTIONS</b>	
<p>Assists with the registering voters as well as preparing, updating and maintaining records and files. (These are intended only as illustrations of the various types of work performed. The omission of specific duties does not exclude them from the position if the work is similar, related, or a logical assignment to the position.)</p> <ul style="list-style-type: none"> <li>• Answers inquiries concerning voter registration laws; provides information to the public concerning registration and voting.</li> <li>• Processes voter registration applications and changes.</li> <li>• Maintains an electronic voter registration record system, to include entering and deleting registrations, and making voter record and street file changes.</li> <li>• Enters completed alpha card in VVRS; verifies E&amp;V report and prepares generated voter cards for mailing.</li> <li>• Files alpha cards and helps maintain filing system.</li> <li>• Processes prohibited voter list of felons and deceased persons.</li> <li>• Assists in maintaining data to transfer or purge voters who have relocated.</li> <li>• Changes addresses and/or sends cards to other jurisdictions.</li> <li>• Orders supplies for elections and office supplies.</li> <li>• Prepares sample ballots.</li> <li>• Assists citizens with absentee ballots.</li> <li>• Assists Registrar with candidate packets, campaign finance reports and other candidate documentation.</li> <li>• Performs related tasks as required.</li> </ul>	
<b>REQUIRED KNOWLEDGE, SKILLS AND ABILITIES</b>	
<ul style="list-style-type: none"> <li>• General knowledge of and ability to research federal, state and county election laws</li> <li>• General knowledge of voting procedures, maintenance and protection of voter registration lists and records</li> <li>• General knowledge of standard office procedures, practices and equipment</li> <li>• Ability to operate a personal computer</li> <li>• Ability to communicate ideas effectively in both oral and written forms</li> <li>• Ability to follow oral and written instructions</li> </ul>	

- Ability to establish and maintain effective working relationships with the Electoral Board, associates and the general public.

**ACCEPTABLE EDUCATION, EXPERIENCE, AND TRAINING**

- High School Diploma or equivalent
- 2+ years of administrative experience in an office environment, to include customer service

**WORKING CONDITIONS AND PHYSICAL REQUIREMENTS**

This is sedentary work requiring the exertion of up to 10 pounds of force occasionally, and a negligible amount of force frequently or constantly to move objects; work requires fingering, grasping, and repetitive motions; vocal communication is required for expressing or exchanging ideas by means of the spoken word; hearing is required to perceive information at normal spoken word levels; visual acuity is required for preparing and analyzing written or computer data, operation of machines, determining the accuracy and thoroughness of work, and observing general surroundings and activities; the worker is not subject to adverse environmental conditions. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential tasks.

**POST OFFER REQUIREMENTS**

- Criminal background check.

Department Head Recommended:	HR Manager Approval as to Form:	County Administrator Recommended:	Board of Supervisors Approved:

**FLUVANNA COUNTY BOARD OF SUPERVISORS  
AGENDA ITEM STAFF REPORT**

**TAB J**

<b>MEETING DATE:</b>	October 5, 2022				
<b>AGENDA TITLE:</b>	Department of Social Services Vehicles Contract				
<b>MOTION(s):</b>	I move the Board of Supervisors approve the purchase of two Nissan Kicks for a total cost of \$43,814.00 for the Department of Social Services by Purchase Order issued through eVa as required by and under that cooperative Contract # E194-93766 between the Commonwealth of Virginia and Hall Automotive, LLC as modified by Modification #1 thereto and further authorize the County Administrator to execute the agreement subject to approval as to form by the County Attorney.				
<b>STRATEGIC INITIATIVE?</b>	Yes	No	If yes, list initiative(s):		
		X			
<b>AGENDA CATEGORY:</b>	Public Hearing	Action Matter	Presentation	Consent Agenda	Other
				X	
<b>STAFF CONTACT(S):</b>	Donna Allen, Purchasing Officer				
<b>PRESENTER(S):</b>	Donna Allen, Purchasing Officer				
<b>RECOMMENDATION:</b>	Approval				
<b>TIMING:</b>	Routine				
<b>DISCUSSION:</b>	<p>Contract Terms the County should be aware of (highlights only, see contract for details):</p> <ol style="list-style-type: none"> <li>1. Orders must be submitted through eVa.</li> <li>2. Contractor has certain rights to cancel.</li> <li>3. Delivery will take place 4-5 months after submittal or order.</li> <li>4. Since PO's through eVa and State prefers no modifications to the State Contract, Counter General Terms Conditions and Instructions to Bidders and Contractors are not a part of this PO/cooperative agreement.</li> </ol>				
<b>FISCAL IMPACT:</b>	No additional funding is required, the \$43,814.00 was budgeted in the FY22 and FY23 Capital Improvement Plan for the Department of Social Services vehicle purchases.				
<b>POLICY IMPACT:</b>	N/A				
<b>LEGISLATIVE HISTORY:</b>	N/A				
<b>ENCLOSURES:</b>	<ul style="list-style-type: none"> <li>• Modification #1 to Contract #E194-93766</li> <li>• Contract #E194-93766 Summary</li> <li>• Vehicle Configuration Order Sheet</li> </ul>				
<b>REVIEWS COMPLETED:</b>	Legal	Finance	Purchasing	HR	Other
	X	X	X		





COMMONWEALTH OF VIRGINIA  
DIVISION OF PURCHASES & SUPPLY (DPS)  
1111 East Broad Street, Richmond, Virginia 23219

**Contract Number E194-93766**  
**Nissan Kicks**

CONTRACT PERIOD	September 23, 2021 through September 22, 2026
CONTRACT TYPE	Mandatory Statewide
RENEWAL(S) REMAINING	N/A
AUTHORIZED USERS	Commonwealth of Virginia state agencies, institutions of higher education & other public bodies as authorized and defined in the Code of Virginia §2.2-1110, 2.2-1120, and 2.2-4301
CONTRACTOR & eVA ID#	Hall Automotive C13056
CONTRACTOR(S) POINT OF CONTACT	Jake Clarke Phone: (757) 498-2303 Email: <a href="mailto:jake.clarke@hallauto.com">jake.clarke@hallauto.com</a>
CUT OFF DATE	TBD
MINIMUM ORDER	N/A
PAYMENT TERMS	Net 30
DELIVERY	120 Calendar Days ARO*
DPS CONTRACT OFFICER	Brandon Amsel   (804) 786-3857 <a href="mailto:brandon.amsel@dgs.virginia.gov">brandon.amsel@dgs.virginia.gov</a>
COMMODITY CODE(S)	07104
LAST UPDATE & PURPOSE	September 1, 2022 Model Year 2023 update

**INFORMATION:**

1. Ordering Method: All Authorized Users placing orders against this Contract must place purchase orders through eVA.
2. Purchase Order Information: When placing an eVA order, follow the Buyer Guide. This guide may be found on eVA (Click on "I Buy For Virginia", then on "eVA Buyer Training", then on "Buyer Guide").
3. Authorized User Acceptance: Inspection and acceptance upon delivery and approval of Contractor's invoice is the responsibility of the receiving Authorized User.

**OVERVIEW:**

2023 Nissan Kicks Crossover SUV – See (excel) spreadsheet.

**PRICING**

See (excel) spreadsheet for pricing and options

**This document is provided only as a summary of the Contract. A complete and official copy of the Contract and any associated changes are available on the eVA State Contracts webpage OR at the offices of the Division of Purchases and Supply.**

Contract Summary: E194-93766



DEPARTMENT OF  
GENERAL SERVICES

COMMONWEALTH OF VIRGINIA  
DIVISION OF PURCHASES & SUPPLY (DPS)  
1111 East Broad Street, Richmond, Virginia 23219

MODIFICATION #1  
TO  
CONTRACT NUMBER E194-93766  
BETWEEN THE  
COMMONWEALTH OF VIRGINIA  
AND  
HALL AUTOMOTIVE

This **MODIFICATION #1** is an Agreement between the Commonwealth of Virginia, hereinafter referred to as "State" or "Commonwealth," and Hall Automotive, a Virginia corporation, hereinafter referred to as the "Contractor" or "Hall", relating to the modification of Contract **E194-93766** effective September 23, 2021, as amended, hereinafter referred to as the "Contract" or "Agreement." This Modification is hereby incorporated into and made an integral part of the Agreement.

The purpose of this modification is to document both parties' agreement to update the Nissan Kicks and base vehicle pricing to Model Year 2023. All changes are effective at the date of modification execution and shall be included in any subsequent modifications.

**A. Reference: Contract E194-93766**

The base model for the Nissan Kicks shall be updated to the 2023 Model Year with an increase of \$4,355.00 to bring the price for the 2023 Model Year to \$21,700.00.

The foregoing is the complete and final expression of the parties' agreement to modify Contract **E194- 93766** and cannot be modified, except by a writing signed by the duly authorized representatives of both parties. All other terms and conditions remain unchanged.

**PERSONS SIGNING THIS CONTRACT ARE AUTHORIZED REPRESENTATIVES OF EACH PARTY TO THIS CONTRACT AND ACKNOWLEDGE THAT EACH PARTY AGREES TO BE BOUND BY THE TERMS AND CONDITIONS OF THE CONTRACT.**

HALL AUTOMOTIVE

COMMONWEALTH OF VIRGINIA

BY: \_\_\_\_\_

BY: \_\_\_\_\_

NAME: \_\_\_\_\_

NAME: \_\_\_\_\_

*Jake Clarke*  
Printed Name

*Brandon Amsel*  
Printed Name

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

*Fleet Director*

Statewide Sourcing & Contracting Officer

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

*9-1-22*

9/1/2022





# COMMONWEALTH of VIRGINIA

*Department of General Services  
Division of Purchases and Supply*

J. Peter Stamps, CPPO, VCM, VCO  
Director

Kelly J. Langley, CPPO, CPPB, VCM, VCO  
Deputy Director

P. O. Box 1199  
Richmond, VA 23218-1199  
Voice: (804) 786-3842

## **NOTICE OF AWARD**

Contract No. E194-93766

Date: September 23, 2021

eVA Vendor No. C13056

Name: Hall Automotive

Address: 3148 Virginia Beach  
Virginia Beach, Virginia 23452

Bid Response Date: August 2, 2021

In Response to: IFB #5181

To Furnish: Compact Crossover – Nissan Kick

During the Period: September 23, 2021 through September 22, 2026

hereby is accepted at prices and terms stated, subject to all conditions and requirements of the solicitation, purchase specifications, warranties, performance bond, and other stipulations, if any. The solicitation, your bid and this notice of acceptance constitute the contract.

Brandon Amsel, VCO  
Statewide Sourcing & Contracting Officer



# COMMONWEALTH of VIRGINIA

## Department of General Services Division of Purchases and Supply

J. Peter Stamps, CPPO, VCM, VCO  
Director

Kelly J. Langley, CPPO, CPPB, VCM, VCO  
Deputy Director

P. O. Box 1199  
Richmond, VA 23218-1199  
Voice: (804) 786-3842

July 30, 2021

### ADDENDUM NO. 1 TO ALL BIDDERS:

Reference – Invitation for Bids: 5181  
Commodity: Compact Crossover Vehicles  
Dated: July 23, 2021  
For Delivery To: Statewide  
Bid Due: August 2, 2021 at 5:00 PM (updated below)  
Public Bid Opening: August 3, 2021 at 1:00 PM (updated below)

The above is hereby changed to read:

1. Reference Closing Date and Time: Bid Closing Date changed to August 10, 2021 at 5:00 PM
2. Reference Public Opening Date and Time: Bid Opening Date changed to August 11, 2021 at 1:00 PM
3. Reference Attachment B – Bid Opening Date: Date changed to August 11, 2021 at 1:00 PM
4. Reference eVA Special Term and Condition Award: Special Term changed to the following language:

AWARD: The Commonwealth, at its sole discretion, reserves the right to issue one award per manufacturer to one or more manufacturers based on the price provided for Line 1 only starting with the lowest priced responsive and responsible bidder. Due consideration will be given to price, quality as judged by tests and previous experience, and of the ability of the bidder to render required services. The Commonwealth reserves the right to conduct any tests it may deem advisable and to make all evaluations. The Commonwealth also reserves the right to reject any or all bids, in whole or in part, to waive informalities and to delete items prior to making the award, whenever it is deemed in the sole opinion of the procuring public body to be in its best interest

Bidders have to submit a separate pricing schedule for each manufacturer offered.

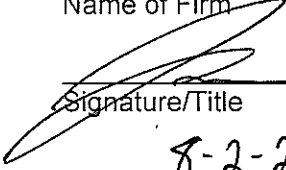
Bidders shall submit complete pricing of the product(s) being offered. Bidders shall indicate pricing on *Attachment C – IFB 5181 Pricing Schedule* and shall provide a complete offering for all vehicles listed per manufacturer in each category listed, as applicable. Bidder shall submit separate Equipment and Pricing Schedule for each manufacturer bid (e.g. Chevrolet, Ford, Dodge, etc.).

Note: A signed acknowledgment of this addendum must be received at the location indicated on the IFB either prior to the bid due date and hour or attached to your bid. Signature on this addendum does not substitute for your signature on the original bid document. The original bid document must be signed.

Very truly yours,

Brandon Amsel, VCO  
Statewide Sourcing & Contracting Officer

Hall Automotive  
Name of Firm

 Fleet Director  
Signature/Title

8-2-21  
Date

IFB 5181

Questions and Answers

1. Do all of the specs (gas, hybrid, electric) need to be the same brand or model? For example, could we do a Nissan LEAF, Toyota Rav4, and a Ford Escape for the three models, for example?

*Answer: The specifications for the gas, hybrid and electric must be for the same brand and model.*

2. Will the award be based on the sum of all three spec types, or just the "base" standard model?

*Answer: Per the eVA term titled Award, "The Commonwealth, at its sole discretion, reserves the right to issue one award per manufacturer based on the price provided for Line 1 starting with the lowest priced responsive and responsible bidder".*

3. Can the solicitation be amended to 180.5" length?

*Answer: Specification shall remain as written.*

IFB 5181

Questions and Answers

1. From what I can tell, there is no OEM that makes the same model in each configuration. You can get a gas and hybrid, hybrid and electric, one of each, etc, but there's none that makes one model in all configurations. That being said, are we ok quoting a different brand or model for each of the spec types?

*Answer: Per Section IV.A.1 Bidder Requirements on page 1 of Attachment A, "Bidders shall include electric and/or hybrid vehicle models in Attachment C if these models are available." Electric and/or hybrid vehicles shall be the same model for each manufacturer's Attachment C submitted.*

2. Based on the Q&A, the award will be based only on Line 1 –Standard Crossover, and NOT Line 2 Hybrid nor Line 3 Electric?

*Answer: See updated Special Term Award included in Addendum 1*

3. If your plan is to award one of each brand, are we ok submitting multiple bid responses under our name for different brands?

*Answer: See updated Special Term Award included in Addendum 1*

## IFB #5181, Attachment A

## IFB# 5181

## Compact Crossover Vehicles

## I. PURPOSE:

The purpose of this Invitation for Bids (IFB) is to solicit sealed bids to establish a contract with one or more qualified suppliers to provide 2022, or most current model year, compact crossover vehicles to all Commonwealth of Virginia agencies, institutions of higher education, or other public bodies (collectively "Authorized Users") as defined in the Code of Virginia §2.2-1110, 2.2-1120, and 2.2-4301.

Any contract that may result from this solicitation will be a mandatory-use term contract for use by Commonwealth of Virginia executive branch agencies and optional-use for other public bodies and authorized users. Any contract that may result from this solicitation will be established and managed by the Commonwealth of Virginia, Department of General Services (DGS), Division of Purchases and Supplies (DPS).

All Authorized Users shall place orders through eVA for any contract that may result from this solicitation.

## II. PERIOD OF CONTRACT:

The initial period of the contract will be from Date of Award through a five-year period. There will be no renewals under this contract.

## III. BACKGROUND AND/OR HISTORICAL SALES DATA:

The previous contract had a total of just over 1.6 million dollars spent over the course of its two-year life.

## IV. SCOPE OF WORK:

The Contractor shall furnish compact crossover vehicles. Options may be listed on Attachment C or added by modification after award of contract.

## A. REQUIREMENTS:

1. **Bidder Requirements:** Bidders shall submit complete pricing of the product being bid. Bidders shall indicate pricing on Attachment C – Pricing Schedule next to each specification item, using the lines provided across from the specified items. The Commonwealth reserves the right to obtain technical data and to request clarification when deemed necessary. Failure on the part of the Bidder to provide all requested documentation may be cause to deem the bid non-responsive.
  - i. Bidders shall include pricing for electric and/or hybrid vehicle models in Attachment C if these models are available. The electric and/or hybrid models will not be included in the bid evaluation but, if pricing is provided and specifications for these models are met, the electric and/or hybrid models will be included as part of the awarded contract.
2. **Fleet Numbers:** If required by the Manufacturer, all Authorized Users shall provide a Fleet Number prior to placing a Vehicle order with the Contractor. The Contractor shall verify if the Authorized User has an existing number. If the Authorized User does not have a required Fleet Number, the Contractor shall fully assist them in obtaining one.
3. **Delivery Locations and Times:** Vehicles shall be delivered to various state agencies, cities, counties, towns and political subdivisions throughout the Commonwealth as required and indicated in the purchase order. Normal hours for delivery shall be between the hours of 8:00 AM and 5:00 PM, except on official state holidays and periods of shut down, unless otherwise

## IFB #5181, Attachment A

instructed by the Authorized User. The Contractor shall clarify and coordinate deliveries with the Authorized User.

4. **Delivery Charges:** The Contractor shall provide delivery for the Vehicle(s) purchased in accordance with the following:
  - i. **Distance:** Shall be calculated by the number of actual miles from the Contractor's physical address to the delivery point specified by the Authorized User. Mileage shall be determined using Google (maps and directions) at <http://maps.google.com>; with the results rounded up to the next whole mile.
  - ii. **Included Miles - Distance equal to or less than 50 miles and all deliveries to DGS Office of Fleet Management Services (OFMS) in Richmond, Virginia and the Virginia State Police located at 7700 Midlothian Turnpike North Chesterfield, VA 23235:** Vehicle(s) shall be delivered FOB Destination, freight included. No extra charges permitted.
  - iii. **Additional Mileage – Distance equal to or more than 51 Miles:** The Contractor may add an additional delivery charge of no more than \$1.80 per mile of the difference between the actual total distance minus 50 included miles. (Example: Actual total distance= 150 miles, minus 50 included miles, equals 100 miles applicable to an additional delivery charge per Vehicle.)
  - iv. Bidders shall provide the additional delivery rates in accordance with the Pricing Schedule and as follows:
    1. Single purchase order for multiple Vehicles: Bidders should offer a reduced delivery rate for multiple Vehicles ordered on any single purchase order. The regular rate provided must be equal to or less than \$1.80 per mile applicable to the first Vehicle and any reduced rates should apply to subsequent Vehicles on the same purchase order. Partial shipments of any single order made at the option of the Contractor shall not change delivery charges.
    2. Multiple purchase orders: If the Contractor delivers multiple Vehicles ordered on different purchase orders in a single shipment, the Contractor should extend the reduced delivery rate(s) to the Authorized User. The Contractor must have prior written approval from the Authorized User and obtain any necessary change orders.
    3. Additional delivery rates shall not apply to any Vehicle ordered by OFMS.
5. **Delivery Lead Time:** Bidders shall provide a delivery lead-time, after receipt of order (ARO), in the "Delivery Date" section of the solicitation. This lead-time shall be for orders placed prior to the build out date.
6. **Pricing Schedule:** All Bidders must enter Vehicle pricing on Attachment C and in the required field on the bid document.
7. **Taxes:** No Federal Taxes shall be included in the bid response pricing, including tires. The Authorized Users as described herein shall furnish their Tax Exemption Registration number upon request.
8. **Preparation:** Vehicles must be delivered clean and complete and ready for service including a current Virginia State Inspection. New Vehicle service preparation must be performed by the Contractor according to the manufacturer's specifications. Each Vehicle must be delivered with a half (1/2) tank of gas. Vehicles delivered without proper Contractor preparation must be picked up, serviced, and re-delivered by the Contractor at no additional cost to the Authorized User.
9. **Delivery Inspection:** Each Vehicle delivered will be checked for compliance with the purchase order. If any deviations from the specifications, damage, or improper Contractor preparation exist, the invoice will not be approved for payment until the Contractor corrects all defects.

## IFB #5181, Attachment A

10. **Miscellaneous:** Vehicle to be furnished shall conform to all applicable Federal and Motor Vehicle Safety Standards and all equipment shall conform to Title 46.2, Chapter 10, of the Code of Virginia and shall include a valid State Inspector Sticker. No dealer identifications such as sticker, decal, metal emblem and so forth will be accepted on Vehicles furnished under the contract.
11. **Ordering:** The parties agree that all orders issued under the contract by Authorized Users shall be processed through eVA. Orders against the contract which are not processed through eVA are not in compliance with the terms and conditions of the contract and Contractors receiving such non-eVA orders shall request the Authorized User to resubmit the order through eVA. If the Contractor accepts an order under the contract, where the order has not been processed through eVA, the Contractor will be in breach of contract. If an Authorized User issues an order which is not processed through eVA, but purports to be authorized by the contract, the agency may be found in violation of Section 2.2-4376 of the Code of Virginia. Section 2.2-4376 prohibits public employees from knowingly making false statements or misrepresentations, and from using documents known to contain false statements or misrepresentations.
12. **New Equipment:** The Vehicles offered in response to this solicitation and delivered under the contract shall be new and unused models of the Vehicle. No prototype or demonstrator Vehicle will be accepted, and offering of such a Vehicle will be cause for bid rejection.
13. **Graphics and Dealer Options:** Graphics and other dealer-installed options may be included into this contract only if the work is done at the contractor's facility or by contractor staff. Pricing for these options may be listed on Attachment C. Any options that are not listed by the contractor on Attachment C may be added by mutual agreement by contract modification after award of contract.
14. **Safety Features:** The compact crossover vehicles shall come with industry standard safety features. Safety features beyond the industry standard that the manufacturer offers may be offered as options.

V. **PRE-BID CONFERENCE:** Not Applicable

VI. **SOLICITATION CLARIFICATIONS:**

Questions regarding the solicitation must be submitted in writing only to Brandon Amsel via e-mail at [brandon.amsel@dgs.virginia.gov](mailto:brandon.amsel@dgs.virginia.gov) no later than 5:00 PM on July 28, 2021. Bidder should identify the email by noting the solicitation number "5181" in the subject line. Responses to clarifications may be posted in eVA's Virginia Business Opportunities (VBO). The identity of Bidder's will not be published with the response. Formal changes to the solicitation, including but not limited to, contractual terms and procurement requirements will only be changed by formal written addendum to the solicitation.

There shall be no communication of any type on any aspect of this solicitation, written or otherwise, by any prospective Bidder, including any sub-bidder, Bidder's agent or other type of Bidder representative, with any employee or agency of the Commonwealth of Virginia, with the exception of the DPS Contracting Officer noted in the solicitation, unless a Bidder is instructed otherwise by the DPS Contracting Officer. Failure to comply with this requirement may disqualify a Bidder from participation in this opportunity.

As used in this IFB, the terms "must", "shall", "should" and "may" identify the criticality of requirements. "Must" and "shall" identify requirements whose absence will have a major negative



## IFB #5181, Attachment A

impact on the suitability of the bid. Items labeled as "should" or "may" are highly desirable, although their absence will not have a large impact and would be useful, but are not necessary.

Bid submission information as well as security information can be found on Attachment B *IFB Submission and Security Instructions*.

## VII. REPORTING REQUIREMENTS:

### A. CONTRACTOR'S QUARTERLY REPORT OF SALES:

Contractor shall provide electronic reports in Microsoft Excel format on a quarterly basis showing total invoiced sales data, which means all invoices issued within the reporting period. Reports shall be provided no later the 15th of the next month following the end of the calendar quarter, reporting total invoiced sales and return transactions that took place in the immediately preceding quarter. Reports shall be sent to the DPS Contracting Officer. Failure to submit required information in a timely manner may result in cancellation of the Contract.

### B. SURCHARGE ADJUSTMENT FEE:

Contractor shall pay the Department of General Services (DGS), a Surcharge Adjustment (SCA) fee under this Contract. **DGS will not issue invoices or statements.** The Contractor must remit the SCA fee by the last day of the month following the end of the calendar quarter. The SCA fee for this contract is \$350.00 per vehicle sold on this contract. The SCA fee amount due must be paid by check with identification of "Contract Number," "Report Amounts," and "Report Period" on either the check stub or other remittance material. DGS may, at its discretion, agree to an electronic funds transfer, in lieu of a check, however in the absence of an express written agreement from DGS that validates the agreement, then the payment shall be made by check as described herein.

Checks shall be payable to: **Treasurer, Commonwealth of Virginia.**

Checks shall be mailed to:  
**DGS/Division of Purchases and Supply**  
**ATTN: VSSI Coordinator**  
**PO Box 1199**  
**Richmond, VA 23218-1199**

If the full amount of the SCA fee is not paid within 30 calendar days of due date, it shall constitute a debt that the Contractor is obligated contractually to pay to the Commonwealth of Virginia, and the Commonwealth may exercise all rights and remedies available under law. Reports shall be sent to the DPS Contracting Officer and to the following email address: [vssireport@dgs.virginia.gov](mailto:vssireport@dgs.virginia.gov). Failure to submit sales reports, falsification of sales reports, and or failure to pay the SCA fee in a timely manner may result in cancellation of the Contract.

### C. REPORTING AND PAYMENT SCHEDULES:

<u>Quarterly Report Period</u>	<u>Sales Months</u>	<u>Report Due</u>
1st Quarter	Jan, Feb, Mar	April 15th
2nd Quarter	Apr, May, June	July 15th
3rd Quarter	July, Aug, Sept	October 15th
4th Quarter	Oct, Nov, Dec	January 15th

## IFB #5181, Attachment A

<u>SCA Fee Period</u>	<u>Sales Months</u>	<u>Payment Due</u>
1st Quarter	Jan, Feb, Mar	April 30th
2nd Quarter	Apr, May, June	July 31st
3rd Quarter	July, Aug, Sept	October 31st
4th Quarter	Oct, Nov, Dec	January 31st

**VIII. INVOICES AND PAYMENT:****A. INVOICES:**

Contractor shall submit the invoice(s) to the address designated on the purchase order following acceptance by the Authorized User of goods and services rendered. No invoice may include any cost other than those identified in the purchase order referencing the Contract. Invoice(s) shall provide at a minimum:

1. Name of Authorized User (the ordering entity)
2. Authorized User point of contact and phone/email
3. Description of the goods and/or services provided
4. Contract number
5. Purchase order number
6. Invoice number
7. Invoice date
8. Invoice amount

**B. PAYMENT:**

Payment will be made in accordance with the Virginia Public Procurement Act. Commonwealth of Virginia Executive Branch Agencies will remit payment within thirty (30) days after receipt of a valid invoice for all goods and/or services received and accepted, per § 2.2-4350. Localities will remit payment within forty-five (45) days of receipt of a valid invoice for all goods and/or services received and accepted, per § 2.2-4352. Payment is anticipated to be made by check or EDI.



IFB #5181, Attachment B

## IFB SUBMISSION INSTRUCTIONS

**A. BID SUBMISSION REQUIREMENTS:**

IFB #5181 is an invitation for an electronic sealed bid; therefore, bids submitted outside of the eVA system, such as via e-mail, mail, or fax WILL NOT be accepted. Electronic sealed bids will be received until the closing date and time provided in the solicitation. Any bid received after the closing date and time specified in the solicitation will not be considered and will be date and time stamped, marked "late" and retained unopened in the procurement file.

Prior to the due date, Bidders should:

- Check the status of the solicitation on eVA at [www.eva.virginia.gov](http://www.eva.virginia.gov) by clicking on Business Opportunities and then click on Virginia Business Opportunities (VBO) for any updates, changes, amendments, cancellations, etc.;
- Check the "Reminders" section in VBO for all attachments and documents to be completed and submitted; and
- Complete all attachments, amendments, exhibits, product information, etc. and attach electronically to the Bidder's electronic submission.

Bidders are solely responsible for reviewing, complying, and returning a complete and responsive bid. Failure to submit any of the required information may result in the bid being declared non-responsive. Changes to the solicitation's forms or formats are prohibited except where clearly instructed and permitted.

**Bid Submission:**

Electronic bid submission with required documents attached is required. Bidder must be registered in eVA in order to submit an electronic bid. Bidders must submit one (1) complete copy of the bid and attachments.

The following are instructions for submitting an electronic bid:

- a. Go to [www.eva.virginia.gov](http://www.eva.virginia.gov);
- b. Click on "I Sell To Virginia";
- c. Click on "eVA Vendor Training"; and
- d. Click on "Respond to IFBs - RFPs and more".

If a Bidder need assistance submitting an electronic response, the Bidder must contact eVA Customer Care at 866-289-7367 or email [eVACustomerCare@dgs.virginia.gov](mailto:eVACustomerCare@dgs.virginia.gov).

**Bid Opening:**

A public bid opening will be held at 1:00 PM on August 3, 2021 via Google Hangouts:

Link: [meet.google.com/myc-imkz-bhz](https://meet.google.com/myc-imkz-bhz)

Number: 1 413-424-6481

Pin #: 110 809 139#

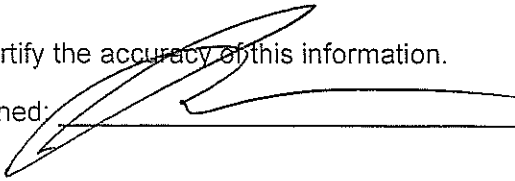
IFB #5181, Attachment D

## VENDOR DATA SHEET

The following information is required as part of the Bidder's response to this solicitation. Failure to complete and provide this sheet may result in bid being declared nonresponsive. (In the case of a Combined Two-Step IFB, it may cause the Technical Proposal to be determined to be not acceptable.)

1. Qualification: The Bidder must have the capability and capacity in all respects to satisfy fully all of the contractual requirements.
2. Bidder's Primary Contact:  
Name: Jake Clarke Phone: 757-498-2303 Email: jake.clarke@hallauto.com
3. Years in Business: Indicate the length of time Bidder has been in business providing this type of good or service:  
45 Years \_\_\_\_\_ Months
4. eVA Vendor ID or DUNS Number: 065997199
5. Indicate below a listing of at least four (4) current or recent accounts, either commercial or governmental, that the Bidder is servicing, has serviced, or has provided similar goods/services. Include the length of service and the name, address, and telephone number of the point of contact.
  - A. Company: Albemarle County Contact: Andy Neilson  
Phone: (434) 296-5854 Email: aneilson@albemarle.org  
Dates of Service: Ongoing \$ Value: † \$ 500,000
  - B. Company: City of Chesapeake Contact: George Reichak  
Phone: (757) 382-3379 Email: greichak@cityofchesapeake.net  
Dates of Service: Ongoing \$ Value: † \$ 1 million
  - C. Company: Fairfax County Contact: Howard Frame  
Phone: (703) 324-3539 Email: howard.frame@fairfaxcounty.net  
Dates of Service: Ongoing \$ Value: † \$ 1 million
  - D. Company: Henrico County Contact: Larry Maneady  
Phone: (804) 727-8630 Email: man26@henrico.us  
Dates of Service: Ongoing \$ Value: † \$ 500,000

I certify the accuracy of this information.

Signed: 

Title: Fleet + Commercial Director Date: 7-30-21

## IFB #5181, Attachment E

**SMALL BUSINESS SUBCONTRACTING PLAN**

It is the goal of the Commonwealth that over 42% of its purchases be made from small businesses. All potential bidders are required to submit the subcontractor plan by one of the following methods in order to be considered responsive:

- A. Complete the subcontractor plan as specified in the electronic response; or
- B. Download the "paper response" form, complete the subcontractor plan section, and submit as an attachment with the bid response.

Small Business: "Small business (including micro)" means a business which holds a certification as such by the Virginia Department of Small Business and Supplier Diversity (DSBSD) on the due date for proposals. This shall also include DSBSD-certified women- owned and minority-owned businesses and businesses with DSBSD service disabled veteran owned status when they also hold a DSBSD certification as a small business on the proposal due date. Currently, DSBSD offers small business certification and micro business designation to firms that qualify.

Certification applications are available through DSBSD online at [www.SBSD.virginia.gov](http://www.SBSD.virginia.gov) (Customer Service).

IFB #5181, Attachment F

## STATE CORPORATION COMMISSION FORM

The following information is required as part of the Bidder's response to this solicitation. Failure to complete and provide this form may result in bid being declared nonresponsive. (In the case of a Combined Two-Step IFB, it may cause the Technical Proposal to be determined to be not acceptable.)

Virginia State Corporation Commission ("SCC") registration information: The Bidder:

is a corporation or other business entity with the following SCC identification number:

5175958-0

-OR-

is not a corporation, limited liability company, limited partnership, registered limited liability partnership, or business trust

-OR-

is an out-of-state business entity that does not regularly and continuously maintain as part of its ordinary and customary business any employees, agents, offices, facilities, or inventories in Virginia (not counting any employees or agents in Virginia who merely solicit orders that require acceptance outside Virginia before they become contracts, and not counting any incidental presence of the Bidder in Virginia that is needed in order to assemble, maintain, and repair goods in accordance with the contracts by which such goods were sold and shipped into Virginia from Bidder's out-of-state location)

-OR-

is an out-of-state business entity that is including with this bid an opinion of legal counsel which accurately and completely discloses the undersigned Bidder's current contacts with Virginia and describes why those contacts do not constitute the transaction of business in Virginia within the meaning of § 13.1-757 or other similar provisions in Titles 13.1 or 50 of the Code of Virginia.

**\*\*NOTE\*\*** >> Check the following box if you have not completed any of the foregoing options but currently have pending before the SCC an application for authority to transact business in the Commonwealth of Virginia and wish to be considered for a waiver to allow you to submit the SCC identification number after the due date for bids (the Commonwealth reserves the right to determine in its sole discretion whether to allow such waiver):

Signature: \_\_\_\_\_ Date: 7-30-21

Name: Jacob Clarke

Print

Title: Fleet + Commercial Director

Name of Firm: Hall Automotive

Solicitation Print

[Return to Solicitation](#) [Send to Printer](#)**Solicitation 5181**

Procurement Folder: **93765** High-Risk: **No**  
 Solicitation: **5181**  
 Solicitation Type: **Invitation for Bids (IFB)** Status: **Open**  
 Short Description: **Compact Crossover Vehicles** Issued Date: **7/23/2021**  
 Description: **The purpose of this Invitation for Bids (IFB) is to solicit sealed bids to establish a contract with one or more qualified suppliers to provide 2022, or most current model year, compact crossover vehicles to all Commonwealth of Virginia agencies, institutions of higher education, or other public bodies (collectively "Authorized Users") as defined in the Code of Virginia §2.2-1110, 2.2-1120, and 2.2-4301.**  
 External Solicitation ID:  
 External Solicitation Version:  
 External Solicitation Type:  
 Closing Date: **8/2/2021**  
 Closing Time: **5:00 PM**  
 Requestor Office: **E194** Phone: **(804) 786-3857**  
 Preparer Office: **E194** Phone: **(804) 786-3857**  
 Work Location: **Statewide**  
 Created By: **bamsel1** Modified By: **bamsel1**  
 Created On: **7/6/2021** Modified On: **7/23/2021**

**Attachments**

Attachment Name: **Attachment A, IFB 5181 Crossover Vehicles.pdf** Description: **Attachment A, IFB 5181 Compact Crossover Specifications**  
 Attachment Name: **Attachment B, IFB 5181 Submission Instructions.pdf** Description: **Attachment B, IFB 5181 Submission Instructions**  
 Attachment Name: **Attachment C, IFB 5181 Pricing Schedule.xlsx** Description: **Attachment C, IFB 5181 Pricing Schedule**  
 Attachment Name: **Attachment D, IFB 5181 Vendor Data Sheet.pdf** Description: **Attachment D, IFB 5181 Vendor Data Sheet**  
 Attachment Name: **Attachment E, IFB 5181 Small Business Subcontracting Plan.pdf** Description: **Attachment E, IFB 5181 Small Business Subcontracting Plan**  
 Attachment Name: **Attachment F, IFB 5181 State Corporation Commission Form.pdf** Description: **Attachment F, IFB 5181 SCC Form**

**Contact Information**

Brandon Amsel Phone: **(804) 786-3857**  
 Email: **Brandon.Amsel@dgs.virginia.gov** Fax:

**Other Events**

Information not provided

**Commodity Information****Lot 1: Lot 1**

**Lot 1, Line 1** **Line Type: Good**  
 Commodity: **07180 SUV Type Vehicles (Incl. Carryalls)** Quantity: **1**  
 Specifications: Unit: **each**  
 Description: **Price of base vehicle: 2022 or Current Model Year, STANDARD Compact Crossover Vehicle** Requested Delivery Date:  
 Manufacturer: Drawing:  
 Part Number: Piece:  
 Product/Category: Color:  
 Serial Number: Size:  
 Specification: Model:  
 Detailed Instructions: **Warranty:**

**Ship To**

eVA-Shipping Exception  
 SEE COMMENTS  
 eVA, VA 99999-9999  
 US  
 Shipping Method:  
 MSDS Required?: **No**  
 Hazardous Materials:  
 Handling Instructions:  
 Packing Instructions:  
 Additional Instructions:  
 Shipping Instructions:

**Bill To**

eVA-Billing Exception  
 Same as Ship To Address  
 eVA, VA 99999-9999  
 US  
 Billing Instructions:

External Lot Number:

External Line Number:

**Lot 1, Line 2**

Commodity: **07180 SUV Type Vehicles (Incl. Carryalls)** **Line Type: Good**  
 Specifications: Quantity: **1**  
 Description: **Price of base vehicle: 2022 or Current Model Year,** Unit: **each**  
 Requested Delivery Date:



**HYBRID Compact Crossover Vehicle**

Manufacturer:  
Part Number:  
Product/Category:  
Serial Number:  
Specification:

Drawing:  
Piece:  
Color:  
Size:  
Model:  
Detailed Instructions:

Warranty:

**Ship To**

eVA-Shipping Exception  
SEE COMMENTS

eVA,VA 99999-9999  
US

Shipping Method:  
MSDS Required?: No  
Hazardous Materials:  
Handling Instructions:  
Packing Instructions:  
Additional Instructions:  
Shipping Instructions:

**Bill To**

eVA-Billing Exception  
Same as Ship To Address

eVA,VA 99999-9999  
US

Billing Instructions:

External Lot Number:

External Line Number:

**Lot 1, Line 3**

Commodity: 07180 SUV Type Vehicles (Incl. Carryalls)

Specifications:

Description: Price of base vehicle: 2022 or Current Model Year,  
ELECTRIC Compact Crossover Vehicle

Manufacturer:  
Part Number:  
Product/Category:  
Serial Number:  
Specification:

**Line Type: Good**

Quantity: 1

Unit: each

Requested Delivery Date:

Drawing:  
Piece:  
Color:  
Size:  
Model:  
Detailed Instructions:

Warranty:

**Ship To**

eVA-Shipping Exception  
SEE COMMENTS

eVA,VA 99999-9999  
US

Shipping Method:  
MSDS Required?: No  
Hazardous Materials:  
Handling Instructions:  
Packing Instructions:  
Additional Instructions:  
Shipping Instructions:

**Bill To**

eVA-Billing Exception  
Same as Ship To Address

eVA,VA 99999-9999  
US

Billing Instructions:

External Lot Number:

External Line Number:

**Build Commodity List**

Line	Commodity	Description
1	07180	SUV Type Vehicles (Incl. Carryalls)

**Terms And Conditions**

**Section GEN**

**NOTE**

This public body does not discriminate against faith-based organizations in accordance with the Code of Virginia, § 2.2-4343.1 or against a bidder because of race, religion, color, sex, national origin, age, disability, sexual orientation, gender identity, political affiliation, or veteran status or any other basis prohibited by state law relating to discrimination in employment. Faith-based organizations may request that the issuing agency not include subparagraph 1.f in General Terms and Condition C. Such a request shall be in writing and explain why an exception should be made in that invitation for bid.

**VENDORS MANUAL**

This solicitation is subject to the provisions of the Commonwealth of Virginia Vendors Manual and any changes or revisions thereto, which are hereby incorporated into this contract in their entirety. The process for filing a complaint about this solicitation is in section 7.13 of the Vendors Manual. (Note section 7.13 does not apply to protests of awards or formal contractual claims.) The procedure for filing contractual claims is in section 7.19 of the Vendors Manual. A copy of the manual is normally available for review at the purchasing office and is accessible on the Internet at [www.eva.virginia.gov](http://www.eva.virginia.gov) under "I Sell To Virginia".

**APPLICABLE LAWS AND COURTS**

This solicitation and any resulting contract shall be governed in all respects by the laws of the Commonwealth of Virginia, without regard to its choice of law provisions, and any litigation with respect thereto shall be brought in the circuit courts of the Commonwealth. The agency and the contractor are encouraged to resolve any issues in controversy arising from the award of the contract or any contractual dispute using Alternative Dispute Resolution (ADR) procedures (Code of Virginia, § 2.2-4366). ADR procedures are described in Chapter 9 of the Vendors Manual. The contractor shall comply with all applicable federal, state and local laws, rules and regulations.

**ANTI-DISCRIMINATION**

By submitting their bids, bidders certify to the Commonwealth that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginians With Disabilities Act, the

Americans With Disabilities Act and § 2.2-4311 of the Virginia Public Procurement Act (VPPA). If the award is made to a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender sexual orientation, gender identity, or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (Code of Virginia, § 2.2-4343.1E). In every contract over \$10,000 the provisions in 1. and 2. below apply: 1. During the performance of this contract, the contractor agrees as follows: a. The contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, sexual orientation, gender identity, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. b. The contractor, in all solicitations or advertisements for employees placed by or on behalf of the contractor, will state that such contractor is an equal opportunity employer. c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section. d. If the contractor employs more than five employees, the contractor shall (i) provide annual training on the contractor's sexual harassment policy to all supervisors and employees providing services in the Commonwealth, except such supervisors or employees that are required to complete sexual harassment training provided by the Department of Human Resource Management, and (ii) post the contractor's sexual harassment policy in (a) a conspicuous public place in each building located in the Commonwealth that the contractor owns or leases for business purposes and (b) the contractor's employee handbook. e. The requirements of these provisions 1. and 2. are a material part of the contract. If the Contractor violates one of these provisions, the Commonwealth may terminate the affected part of this contract for breach, or at its option, the whole contract. Violation of one of these provisions may also result in debarment from State contracting regardless of whether the specific contract is terminated. f. In accordance with Executive Order 61 (2017), a prohibition on discrimination by the contractor, in its employment practices, subcontracting practices, and delivery of goods or services, on the basis of race, sex, color, national origin, religion, sexual orientation, gender identity, age, political affiliation, disability, or veteran status, is hereby incorporated in this contract. 2. The contractor will include the provisions of 1. above in every subcontract or purchase order over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

#### **ETHICS IN PUBLIC CONTRACTING**

By submitting their bids, bidders certify that their bids are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other bidder, supplier, manufacturer or subcontractor in connection with their bid, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

#### **IMMIGRATION REFORM**

Applicable for all contracts over \$10,000: By entering into a written contract with the Commonwealth of Virginia, the Contractor certifies that the Contractor does not, and shall not during the performance of the contract for goods and services in the Commonwealth, knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

#### **DEBARMENT STATUS**

By participating in this procurement, the vendor certifies that they are not currently debarred by the Commonwealth of Virginia from submitting a response for the type of goods and/or services covered by this solicitation. Vendor further certifies that they are not debarred from filling any order or accepting any resulting order, or that they are an agent of any person or entity that is currently debarred by the Commonwealth of Virginia. If a vendor is created or used for the purpose of circumventing a debarment decision against another vendor, the non-debarred vendor will be debarred for the same time period as the debarred vendor.

#### **ANTITRUST**

By entering into a contract, the contractor conveys, sells, assigns, and transfers to the Commonwealth of Virginia all rights, title and interest in and to all causes of action it may now have or hereafter acquire under the antitrust laws of the United States and the Commonwealth of Virginia, relating to the particular goods or services purchased or acquired by the Commonwealth of Virginia under said contract.

#### **MANDATORY USE OF STATE FORM**

Failure to submit a bid on the official state form provided for that purpose shall be a cause for rejection of the bid. Modification of or additions to any portion of the Invitation for Bids may be cause for rejection of the bid; however, the Commonwealth reserves the right to decide, on a case by case basis, in its sole discretion, whether to reject such a bid as nonresponsive. As a precondition to its acceptance, the Commonwealth may, in its sole discretion, request that the bidder withdraw or modify nonresponsive portions of a bid which do not affect quality, quantity, price, or delivery. No modification of or addition to the provisions of the contract shall be effective unless reduced to writing and signed by the parties.

#### **CLARIFICATION OF TERMS**

If any prospective bidder has questions about the specifications or other solicitation documents, the prospective bidder should contact the buyer whose name appears on the face of the solicitation no later than five working days before the due date. Any revisions to the solicitation will be made only by addendum issued by the buyer.

#### **PAYMENT**

1. To Prime Contractor: a. Invoices for items ordered, delivered and accepted shall be submitted by the contractor directly to the payment address shown on the purchase order/contract. All invoices shall show the state contract number and/or purchase order number; social security number (for individual contractors) or the federal employer identification number (for proprietorships, partnerships, and corporations). b. Any payment terms requiring payment in less than 30 days will be regarded as requiring payment 30 days after invoice or delivery, whichever occurs last. This shall not affect offers of discounts for payment in less than 30 days, however. c. All goods or services provided under this contract or purchase order, that are to be paid for with public funds, shall be billed by the contractor at the contract price, regardless of which public agency is being billed. d. The following shall be deemed to be the date of payment: the date of postmark in all cases where payment is made by mail, or when offset proceedings have been instituted as authorized under the Virginia Debt Collection Act. e. Unreasonable Charges. Under certain emergency procurements and for most time and material purchases, final job costs cannot be accurately determined at the time orders are placed. In such cases, contractors should be put on notice that final payment in full is contingent on a determination of reasonableness with respect to all invoiced charges. Charges which appear to be unreasonable will be resolved in accordance with Code of Virginia, § 2.2-4363 and -4364. Upon determining that invoiced charges are not reasonable, the Commonwealth shall notify the contractor of defects or improprieties in invoices within fifteen (15) days as required in Code of Virginia, § 2.2-4351... The provisions of this section do not relieve an agency of its prompt payment obligations with respect to those charges which are not in dispute (Code of Virginia, § 2.2-4363). 2. To Subcontractors: a. Within seven (7) days of the contractor's receipt of payment from the Commonwealth, a contractor awarded a contract under this solicitation is hereby obligated: (1) To pay the subcontractor(s) for the proportionate share of the payment received for work performed by the subcontractor(s) under the contract; or (2) To notify the agency and the subcontractor(s), in writing, of the contractor's intention to withhold payment and the reason. b. The contractor is obligated to pay the subcontractor(s) interest at the rate of one percent per month (unless otherwise provided under the terms of the contract) on all amounts owed by the contractor that remain unpaid seven (7) days following receipt of payment from the Commonwealth, except for amounts withheld as stated in (2) above. The date of mailing of any payment by U. S. Mail is deemed to be payment to the addressee. These provisions apply to each sub-tier contractor performing under the primary contract. A contractor's obligation to pay an interest charge to a subcontractor may not be construed to be an obligation of the Commonwealth. 3. Each prime contractor who wins an award in which provision of a SWaM procurement plan is a condition to the award, shall deliver to the contracting agency or institution, on or before request for final payment, evidence and certification of compliance (subject only to insubstantial shortfalls and to shortfalls arising from subcontractor default) with the SWaM procurement plan. Final payment under the contract in question may be withheld until such certification is delivered and, if necessary, confirmed by the agency or institution, or other appropriate penalties may be assessed in lieu of withholding such payment. 4. The Commonwealth of Virginia encourages contractors and subcontractors to accept electronic and credit card payments.

**PRECEDENCE OF TERMS**

The following General Terms and Conditions VENDORS MANUAL, APPLICABLE LAWS AND COURTS, ANTI-DISCRIMINATION, ETHICS IN PUBLIC CONTRACTING, IMMIGRATION REFORM AND CONTROL ACT OF 1986, DEBARMENT STATUS, ANTITRUST, MANDATORY USE OF STATE FORM AND TERMS AND CONDITIONS, CLARIFICATION OF TERMS, PAYMENT shall apply in all instances. In the event there is a conflict between any of the other General Terms and Conditions and any Special Terms and Conditions in this solicitation, the Special Terms and Conditions shall apply.

**QUALIFICATIONS OF BIDDERS**

The Commonwealth may make such reasonable investigations as deemed proper and necessary to determine the ability of the bidder to perform the services/furnish the goods and the bidder shall furnish to the Commonwealth all such information and data for this purpose as may be requested. The Commonwealth reserves the right to inspect bidder's physical facilities prior to award to satisfy questions regarding the bidder's capabilities. The Commonwealth further reserves the right to reject any bid if the evidence submitted by, or investigations of, such bidder fails to satisfy the Commonwealth that such bidder is properly qualified to carry out the obligations of the contract and to provide the services and/or furnish the goods contemplated therein.

**TESTING AND INSPECTION**

The Commonwealth reserves the right to conduct any test/inspection it may deem advisable to assure goods and services conform to the specifications.

**ASSIGNMENT OF CONTRACT**

A contract shall not be assignable by the contractor in whole or in part without the written consent of the Commonwealth.

**CHANGES TO THE CONTRACT**

Changes can be made to the contract in any of the following ways: 1. The parties may agree in writing to modify the terms, conditions, or scope of the contract. Any additional goods or services to be provided shall be of a sort that is ancillary to the contract goods or services, or within the same broad product or service categories as were included in the contract award. Any increase or decrease in the price of the contract resulting from such modification shall be agreed to by the parties as a part of their written agreement to modify the scope of the contract. 2. The Purchasing Agency may order changes within the general scope of the contract at any time by written notice to the contractor. Changes within the scope of the contract include, but are not limited to, things such as services to be performed, the method of packing or shipment, and the place of delivery or installation. The contractor shall comply with the notice upon receipt, unless the contractor intends to claim an adjustment to compensation, schedule, or other contractual impact that would be caused by complying with such notice, in which case the contractor shall, in writing, promptly notify the Purchasing Agency of the adjustment to be sought, and before proceeding to comply with the notice, shall await the Purchasing Agency's written decision affirming, modifying, or revoking the prior written notice. If the Purchasing Agency decides to issue a notice that requires an adjustment to compensation, the contractor shall be compensated for any additional costs incurred as the result of such order and shall give the Purchasing Agency a credit for any savings. Said compensation shall be determined by one of the following methods: a. By mutual agreement between the parties in writing; or b. By agreeing upon a unit price or using a unit price set forth in the contract, if the work to be done can be expressed in units, and the contractor accounts for the number of units of work performed, subject to the Purchasing Agency's right to audit the contractor's records and/or to determine the correct number of units independently; or c. By ordering the contractor to proceed with the work and keep a record of all costs incurred and savings realized. A markup for overhead and profit may be allowed if provided by the contract. The same markup shall be used for determining a decrease in price as the result of savings realized. The contractor shall present the Purchasing Agency with all vouchers and records of expenses incurred and savings realized. The Purchasing Agency shall have the right to audit the records of the contractor as it deems necessary to determine costs or savings. Any claim for an adjustment in price under this provision must be asserted by written notice to the Purchasing Agency within thirty (30) days from the date of receipt of the written order from the Purchasing Agency. If the parties fail to agree on an amount of adjustment, the question of an increase or decrease in the contract price or time for performance shall be resolved in accordance with the procedures for resolving disputes provided by the Disputes Clause of this contract or, if there is none, in accordance with the disputes provisions of the Commonwealth of Virginia Vendors Manual. Neither the existence of a claim nor a dispute resolution process, litigation or any other provision of this contract shall excuse the contractor from promptly complying with the changes ordered by the Purchasing Agency or with the performance of the contract generally.

**DEFAULT**

In case of failure to deliver goods or services in accordance with the contract terms and conditions, the Commonwealth, after due oral or written notice, may procure them from other sources and hold the contractor responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to any other remedies which the Commonwealth may have.

**TAXES**

Sales to the Commonwealth of Virginia are normally exempt from State sales tax. State sales and use tax certificates of exemption, Form ST-12, will be issued upon request. Deliveries against this contract shall usually be free of Federal excise and transportation taxes. The Commonwealth's excise tax exemption registration number is 54-73-0076K. If sales or deliveries against the contract are not exempt, the contractor shall be responsible for the payment of such taxes unless the tax law specifically imposes the tax upon the buying entity and prohibits the contractor from offering a tax-included price.

**USE OF BRAND NAMES**

Unless otherwise provided in this solicitation, the name of a certain brand, make or manufacturer does not restrict bidders to the specific brand, make or manufacturer named, but conveys the general style, type, character, and quality of the article desired. Any article which the public body, in its sole discretion, determines to be the equivalent of that specified, considering quality, workmanship, economy of operation, and suitability for the purpose intended, shall be accepted. The bidder is responsible to clearly and specifically identify the product being offered and to provide sufficient descriptive literature, catalog cuts and technical detail to enable the Commonwealth to determine if the product offered meets the requirements of the solicitation. This is required even if offering the exact brand, make or manufacturer specified. Normally in competitive sealed bidding only the information furnished with the bid will be considered in the evaluation. Failure to furnish adequate data for evaluation purposes may result in declaring a bid nonresponsive. Unless the bidder clearly indicates in its bid that the product offered is an equivalent product, such bid will be considered to offer the brand name product referenced in the solicitation.

**TRANSPORTATION AND PACKAGING**

By submitting their bids, all bidders certify and warrant that the price offered for FOB destination includes only the actual freight rate costs at the lowest and best rate and is based upon the actual weight of the goods to be shipped. Except as otherwise specified herein, standard commercial packaging, packing and shipping containers shall be used. All shipping containers shall be legibly marked or labeled on the outside with purchase order number, commodity description, and quantity.

**INSURANCE**

By signing and submitting a bid under this solicitation, the bidder certifies that if awarded the contract, it will have the following insurance coverage at the time the contract is awarded. For construction contracts, if any subcontractors are involved, the subcontractor will have workers' compensation insurance in accordance with §§ 2.2-4332 and 65.2-800 et seq. of the Code of Virginia. The bidder further certifies that the contractor and any subcontractors will maintain these insurance coverages during the entire term of the contract and that all coverage will be provided by companies authorized to sell insurance in Virginia by the Virginia State Corporation Commission. MINIMUM INSURANCE COVERAGES AND LIMITS: 1. Workers' Compensation - Statutory requirements and benefits. Coverage is compulsory for employers of three or more employees, to include the employer. Contractors who fail to notify the Commonwealth of increases in the number of employees that change their workers' compensation requirements under the Code of Virginia during the course of the contract shall be in noncompliance with the contract. 2. Employer's Liability - \$100,000. 3. Commercial General Liability - \$1,000,000 per occurrence and \$2,000,000 in the aggregate. Commercial General Liability is to include bodily injury and property damage, personal injury and advertising injury, products and completed operations coverage. The Commonwealth of Virginia shall be added as an additional insured to the policy by an endorsement. 4. Automobile Liability - \$1,000,000 combined single limit. (Required

only if a motor vehicle not owned by the Commonwealth is to be used in the contract. Contractor must assure that the required coverage is maintained by the Contractor (or third party owner of such motor vehicle.) Profession/Service Limits Accounting \$1,000,000 per occurrence, \$3,000,000 aggregate Architecture \$2,000,000 per occurrence, \$6,000,000 aggregate Asbestos Design, Inspection or Abatement Contractors \$1,000,000 per occurrence, \$3,000,000 aggregate Health Care Practitioner (to include Dentists, Licensed Dental Hygienists, Optometrists, Registered or Licensed Practical Nurses, Pharmacists, Physicians, Podiatrists, Chiropractors, Physical Therapists, Physical Therapist Assistants, Clinical Psychologists, Clinical Social Workers, Professional Counselors, Hospitals, or Health Maintenance Organizations.) Code of Virginia § 8.01-581.15 <https://law.lis.virginia.gov/vacode/title8.01/chapter21.1/section8.01-581.15/> Insurance/Risk Management \$1,000,000 per occurrence, \$3,000,000 aggregate Landscape/Architecture \$1,000,000 per occurrence, \$1,000,000 aggregate Legal \$1,000,000 per occurrence, \$5,000,000 aggregate Professional Engineer \$2,000,000 per occurrence, \$6,000,000 aggregate Surveying \$1,000,000 per occurrence, \$1,000,000 aggregate

#### **ANNOUNCEMENT OF AWARD**

Upon the award or the announcement of the decision to award a contract as a result of this solicitation, the purchasing agency will publicly post such notice in eVA ([www.eva.virginia.gov](http://www.eva.virginia.gov)) for a minimum of 10 days.

#### **DRUG-FREE WORKPLACE**

Applicable for all contracts over \$10,000: During the performance of this contract, the contractor agrees to (i) provide a drug-free workplace for the contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor. For the purposes of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific contract awarded to a contractor, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

#### **NONDISCRIMINATION**

A bidder or contractor shall not be discriminated against in the solicitation or award of this contract because of race, religion, color, sex, sexual orientation, gender identity, national origin, age, disability, faith-based organizational status, any other basis prohibited by state law relating to discrimination in employment or because the bidder employs ex-offenders unless the state agency, department or institution has made a written determination that employing ex-offenders on the specific contract is not in its best interest. If the award of this contract is made to a faith-based organization and an individual, who applies for or receives goods, services, or disbursements provided pursuant to this contract objects to the religious character of the faith-based organization from which the individual receives or would receive the goods, services, or disbursements, the public body shall offer the individual, within a reasonable period of time after the date of his objection, access to equivalent goods, services, or disbursements from an alternative provider.

#### **eVA VENDOR REGISTRATION**

The eVA Internet electronic procurement solution, web site portal [www.eva.virginia.gov](http://www.eva.virginia.gov), streamlines and automates government purchasing activities in the Commonwealth. The eVA portal is the gateway for vendors to conduct business with state agencies and public bodies. All vendors desiring to provide goods and/or services to the Commonwealth shall participate in the eVA Internet e-procurement solution by completing the free eVA Vendor Registration. All bidders must register in eVA and pay the Vendor Transaction Fees specified below; failure to register will result in the bid being rejected. Vendor transaction fees are determined by the date the original purchase order is issued and the current fees are as follows: a. For orders issued July 1, 2014, and after, the Vendor Transaction Fee is: (i) DSBSD-certified Small Businesses: 1%, capped at \$500 per order. (ii) Businesses that are not DSBSD-certified Small Businesses: 1%, capped at \$1,500 per order. b. Refer to Special Term and Condition "eVA Orders and Contracts" to identify the number of purchase orders that will be issued as a result of this solicitation with the eVA transaction fee specified above assessed for each order. For orders issued prior to July 1, 2014, the vendor transaction fees can be found at [www.eva.virginia.gov](http://www.eva.virginia.gov). The specified vendor transaction fee will be invoiced, by the Commonwealth of Virginia Department of General Services, typically within 60 days of the order issue date. Any adjustments (increases/decreases) will be handled through purchase order changes.

#### **AVAILABILITY OF FUNDS**

It is understood and agreed between the parties herein that the agency shall be bound hereunder only to the extent that the legislature has appropriated funds that are legally available or may hereafter become legally available for the purpose of this agreement.

#### **SET-ASIDES AWARD PRIORITY**

This solicitation is set-aside for award priority to DSBSD-certified micro businesses or small businesses when designated as "Micro Business Set-Aside Award Priority" or "Small Business Set-Aside Award Priority" accordingly in the solicitation. DSBSD-certified micro businesses or small businesses also includes DSBSD-certified women-owned and minority-owned businesses when they have received the DSBSD small business certification. For purposes of award, bidders shall be deemed micro businesses or small businesses if and only if they are certified as such by DSBSD on the due date for receipt of bids.

#### **BID PRICE CURRENCY**

Unless stated otherwise in the solicitation, bidders shall state bid prices in US dollars.

#### **AUTHORIZATION TO CONDUCT BUS.**

A contractor organized as a stock or nonstock corporation, limited liability company, business trust, or limited partnership or registered as a registered limited liability partnership shall be authorized to transact business in the Commonwealth as a domestic or foreign business entity if so required by Title 13.1 or Title 50 of the Code of Virginia or as otherwise required by law. Any business entity described above that enters into a contract with a public body pursuant to the Virginia Public Procurement Act shall not allow its existence to lapse or its certificate of authority or registration to transact business in the Commonwealth, if so required under Title 13.1 or Title 50, to be revoked or cancelled at any time during the term of the contract. A public body may void any contract with a business entity if the business entity fails to remain in compliance with the provisions of this section.

#### **CIVILITY IN STATE WORKPLACES**

The contractor shall take all reasonable steps to ensure that no individual, while performing work on behalf of the contractor or any subcontractor in connection with this agreement (each, a "Contract Worker"), shall engage in 1) harassment (including sexual harassment), bullying, cyber-bullying, or threatening or violent conduct, or 2) discriminatory behavior on the basis of race, sex, color, national origin, religious belief, sexual orientation, gender identity or expression, age, political affiliation, veteran status, or disability. The contractor shall provide each Contract Worker with a copy of this Section and will require Contract Workers to participate in agency training on civility in the State workplace if contractor's (and any subcontractor's) regular mandatory training programs do not already encompass equivalent or greater expectations. Upon request, the contractor shall provide documentation that each Contract Worker has received such training. For purposes of this Section, "State workplace" includes any location, permanent or temporary, where a Commonwealth employee performs any work-related duty or is representing his or her agency, as well as surrounding perimeters, parking lots, outside meeting locations, and means of travel to and from these locations. Communications are deemed to occur in a State workplace if the Contract Worker reasonably should know that the phone number, email, or other method of communication is associated with a State workplace or is associated with a person who is a State employee. The Commonwealth of Virginia may require, at its sole discretion, the removal and replacement of any Contract Worker who the Commonwealth reasonably believes to have violated this Section. This Section creates obligations solely on the part of the contractor. Employees or other third parties may benefit incidentally from this Section and from training materials or other communications distributed on this topic, but the Parties to this agreement intend this Section to be enforceable solely by the Commonwealth and not by employees or other third parties.

#### **Section SPC**

#### **AUDIT**

The contractor shall retain all books, records, and other documents relative to this contract for five (5) years after final payment or until the end of the Commonwealth of Virginia, whichever is sooner. The agency, its authorized agents, and/or state auditors shall have full access to and the right to examine any of said materials during said period.

#### **AUTHORIZED DEALER**

By submitting this bid, the Bidder certifies that it is a manufacturer-authorized dealer for all goods and services it proposes to furnish under any resulting contract. If requested by the Commonwealth, the Bidder shall provide supporting evidence from the manufacturer.

#### **AWARD**

The Commonwealth, at its sole discretion, reserves the right to issue one award per manufacturer based on the price provided for Line 1 starting with the lowest priced responsive and responsible bidder. Due consideration will be given to price, quality as judged by tests and previous experience, and of the ability of the bidder to render required services. The Commonwealth reserves the right to conduct any tests it may deem advisable and to make all evaluations. The Commonwealth also reserves the right to reject any or all bids, in whole or in part, to waive informalities and to delete items prior to making the award, whenever it is deemed in the sole opinion of the procuring public body to be in its best interest.

#### **BID ACCEPTANCE**

Any bid in response to this solicitation shall be valid for (60) days. At the end of the days the bid may be withdrawn at the written request of the bidder. If the bid is not withdrawn at that time it remains in effect until an award is made or the solicitation is canceled.

#### **BID PRICES**

Bid shall be in the form of a firm unit price for each item during the contract period

#### **BUILD OUT/ORDER CUT OFF DATE**

The build out, also referred to as the factory order cut-off date, is the date set by the manufacturer and is the latest date where dealers and customers can place an order with the vehicle manufacturer. The following shall apply during the life of the contract: a. Contractors who are authorized dealers: Contractor shall state the manufacturers build out date for each model and must fill all orders with the manufacturer that are placed by authorized users prior to the build out date. The Commonwealth understands build out date is subject to change and the contractor shall update the Statewide Sourcing and Contracting Officer of any changes. Contractors will not be expected to fulfill orders after build out date. b. Contractors who are manufacturers: Contractor shall state their build out date for each model and must fill all orders that are placed by authorized users prior to the build out date. The Commonwealth understands build out date is subject to change and the contractor shall update the Statewide Sourcing and Contracting Officer of any changes. Contractors will not be expected to fulfill orders after build out date unless they possess the ability to produce additional vehicles of that model year.

#### **CANCELLATION OF CONTRACT**

The purchasing agency reserves the right to cancel and terminate any resulting contract, in part or in whole, without penalty, upon 60 days written notice to the contractor. In the event the initial contract period is for more than 12 months, the resulting contract may also be terminated by the contractor, without penalty, after the initial 12 months of the contract period upon 60 days written notice to the other party. Any contract cancellation notice shall not relieve the contractor of the obligation to deliver and/or perform on all outstanding orders issued prior to the effective date of cancellation.

#### **CONTRACTUAL DISPUTES**

In accordance with Code of Virginia § 2.2-4363, contractual claims, whether for money or other relief, shall be submitted in writing to the Authorized User no later than sixty (60) days after final payment; however, written notice of the Contractor's intention to file such claim must be given to the Authorized User at the time of the occurrence or beginning of the work upon which the claim is based. Pendency of claims shall not delay payment of amounts agreed due in the final payment. The Authorized User shall render a final decision in writing within thirty (30) days after its receipt of the Contractor's written claim. a. The Contractor may not invoke any available administrative procedure under Code of Virginia § 2.2-4365 nor institute legal action prior to receipt of the Commonwealth's decision on the claim, unless the Commonwealth fails to render its decision within thirty (30) days. The decision of the Commonwealth shall be final and conclusive unless the Contractor, within six (6) months of the date of the final decision on the claim, invokes appropriate action under Code of Virginia § 2.2-4364 or the administrative procedure authorized by Code of Virginia § 2.2-4365. b. The Commonwealth or any Authorized User, and their officers, agents and employees, including without limitation, the contracting and Ordering Officers, are executing this Agreement and any Orders issued hereunder, solely in its or their statutory and regulatory capacities as agent of the Commonwealth agency or Authorized User that is purchasing and receiving the goods or services in question and need not be joined as a party to any dispute that may arise there under. c. In the event of any breach by the Commonwealth or any Authorized User, Contractor's remedies shall be limited to claims for damages and Prompt Payment Act interest and, if available and warranted, equitable relief, all such claims to be processed pursuant to this Section. In no event shall Contractor's remedies include the right to terminate any services hereunder.

#### **DELIVERY**

Bidders shall fill out one of the two delivery clauses: a. For Dealers: Bidders shall be held to the time it takes for them to deliver the vehicle to the customer fully titled or with a completed Certificate of Origin after they receive it from the manufacturer (turn time). Whether the vehicle is required to be fully titled or only delivered with a Certificate of Origin will be at the discretion of the Authorized User. Authorized Users will communicate which is required and establish the process with the Dealer prior to the delivery of the vehicle(s). Bidders shall also indicate how long it takes for the vehicle to be delivered to the dealer after an order has been placed with the manufacturer (lead time). TURN TIME PER VEHICLE ORDERED: \_\_\_\_\_ DAYS AFTER RECEIPT FROM MANUFACTURER MANUFACTURER'S LEAD TIME PER VEHICLE: \_\_\_\_\_ DAYS ARO Throughout the life of the contract, the Commonwealth understands that issues may arise during the model year and delay the vehicle lead time. If the manufacturer communicates a manufacturing delay, contractor shall notify the DPS Statewide Sourcing and Contracting Officer as well as the authorized users who are impacted. b. For Manufacturer Direct Sales Delivery of goods or performance of services shall be within the number of calendar days stated below after receipt of order (ARO) by the bidder. Bidders shall indicate their current expected delivery time below: BIDDER'S CURRENT EXPECTED DELIVERY TIME: \_\_\_\_\_ CALENDAR DAYS ARO If during the life of the contract there are any delays in production of the vehicles, the contractor shall notify both the Statewide Sourcing and Contracting Officer and the impacted authorized users. If the contractor's delivery is delayed due to an event beyond the contractor's control including, but not limited to, natural disaster, fire, an act of war or terrorism, or a labor strike then the time for delivery of the vehicles shall be extended by the Commonwealth for thirty (30) days unless negotiated after such event has ended. The Commonwealth shall evaluate these situations on a case-by-case basis.

#### **DELIVERY TO CORRECTION INSTITUTION**

"The Contractor shall be responsible for adherence to the following guidelines as they pertain to delivering goods and/or providing services to correctional institutions, especially if the location is within the secured perimeter: a. The Contractor shall be responsible for ensuring that all personnel connected with the work comply with the rules and regulations of each ordering institution, which may reach beyond the scope of this specification. b. The Contractor shall maintain proper security and control over all personnel, equipment, tools, and materials at all times. The Contractor's equipment and personnel shall be subject to security checks and associated delays therefrom. c. There shall be no verbal discussion or physical contact between the Contractor's employees and offenders. d. Anyone bringing any offender any item, such as (but not limited to) weapons, tools, food, drink, clothing, cigarettes, matches, correspondence, printed or electronic media, or assisting offenders to escape is in violation of Commonwealth law and may be prosecuted to the fullest extent of the law. e. No weapons, alcohol, drugs, or medication of any type will be allowed on Commonwealth property. f. Keys shall be removed from all vehicles and other mobile equipment when not in operation. Vehicle doors and tool compartments shall be locked at all times when not in use. Ladders left on vehicles shall be chained and locked at all times. g. Any tools, especially cutting tools, if left unattended, will be confiscated. h. All security regulations shall be observed at all times. These will be made known to the Contractor and his representatives by the Institutional Security Chief, or his designee, at the point of entrance to the institution. i. All persons entering the prison complex are subject to search. j. Contractors and their representatives are limited to movement to and from, and within, the immediate area of their work. k. An institutional employee may be designated as a liaison between the Contractor and institution. Unless otherwise stated this person will be the Department Superintendent for whom the Contractor is performing the service or delivering the goods. l. Vehicles may not be permitted to leave the facility until after the daily or

routine security check has been performed. m. All Contractor employees shall have valid identification with photograph at all times. n. The institution reserves the right to refuse entrance to anyone who appears, in the institution's sole judgment, to be under the influence of drugs or alcohol, or otherwise impaired. "

#### **DELIVERY NOTIFICATION**

The ordering agency shall be notified 2 days prior to delivery so that personnel may be available to inspect and receive vehicles being delivered. Notification shall be made to the individual indicated on the purchase order

#### **EVA ORDERS AND CONTRACTS**

The solicitation/contract will result in multiple purchase orders with the applicable eVA transaction fee assessed for each order. Vendors desiring to provide goods and/or services to the Commonwealth shall participate in the eVA Internet e-procurement solution and agree to comply with the following: If this solicitation is for a term contract, failure to provide an electronic catalog (price list) or index page catalog for items awarded will be just cause for the Commonwealth to reject your bid or terminate this contract for default. The format of this electronic catalog shall conform to the eVA Catalog Interchange Format (CIF) Specification that can be accessed and downloaded from [www.eVA.virginia.gov](http://www.eVA.virginia.gov). Contractors should email Catalog or Index Page information to [eVA-catalog-manager@dgs.virginia.gov](mailto:eVA-catalog-manager@dgs.virginia.gov).

#### **EXCLUSIVITY OF TERMS & CONDITIONS**

No employee or agent of the Commonwealth or Authorized User shall be required to sign or execute any additional contract, license or other agreement containing contractual terms and conditions. No contractor shall be required to sign, from any employee or agent of the Commonwealth or Authorized Users, any additional agreements, contracts, or other documents that were not part of the original contract. Any documents signed by persons other than the Director of DPS or their authorized designee shall have no validity or effect upon the Contract.

#### **EXTRA CHARGES NOT ALLOWED**

The bid price shall be for complete installation ready for the Commonwealth's use, and shall include all applicable freight and installation charges; extra charges will not be allowed

#### **FEDERALLY IMPOSED TARIFFS**

In the event that the President of the United States, the United States Congress, Customs and Border Protection, or any other federal entity authorized by law, imposes an import duty or tariff (a "tariff"), on an imported good that results in an increase in contractor's costs to a level that renders performance under the Agreement impracticable, the Commonwealth may agree to an increase to the purchase price for the affected good. No increase in purchase price may exceed 25% of the additional tariff imposed on the goods imported or purchased by the contractor that are provided to the Commonwealth under this Agreement. Prior to the Commonwealth agreeing to a price increase pursuant to this Section, the contractor must provide to the Commonwealth, the following documentation, all of which must be satisfactory to the Commonwealth: - evidence demonstrating: (i) the unit price paid by contractor as of the date of award for the good or raw material used to furnish the goods to the Commonwealth under this Agreement, (ii) the applicability of the tariff to the specific good or raw material, and (iii) contractor's payment of the increased import duty or tariff (either directly or through an increase to the cost paid for the good or raw material). The evidence submitted shall be sufficient in detail and content to allow the Commonwealth to verify that the tariff is the cause of the price change. - a certification signed by contractor that it has made all reasonable efforts to obtain the good or the raw materials comprising the good procured by the Commonwealth at a lower cost from a different source located outside of the country against which the tariff has been imposed. - a certification signed by contractor that the documentation, statements, and any other evidence it submits in support of its request for a price increase under this Section are true and correct, and that the contractor would otherwise be unable to perform under this Agreement without such price increase. - as requested by the Commonwealth, written instructions authorizing the Commonwealth to request additional documentation from individuals or entities that provide the good or the raw materials to verify the information submitted by contractor. If the Commonwealth agrees to a price increase pursuant to this Section, the parties further agree to add the following terms to this Agreement: - During the Term and for five (5) years after the termination of this Agreement, contractor shall retain, and the Commonwealth and its authorized representatives shall have the right to audit, examine, and make copies of, all of contractor's books, accounts, and other records related to this Agreement and contractor's costs for providing goods to the Commonwealth, including, but not limited to those kept by the contractor's agents, assigns, successors, and subcontractors. - Notwithstanding anything to the contrary in this Agreement, the Commonwealth shall have the right to terminate this Agreement for the Commonwealth's convenience upon 15 days' written notice to contractor. In the event the import duty or tariff is repealed or reduced prior to termination of this Agreement, the increase in the Commonwealth's contract price shall be reduced by the same amount and adjusted accordingly. - Any material misrepresentation of fact by contractor relating in any way to the Commonwealth's payment of additional sums due to tariffs shall be fraud against the taxpayer's of the Commonwealth and subject contractor to treble damages pursuant to the Virginia Fraud Against Taxpayers Act.

#### **FINANCIAL WARRANTY**

Contractor shall ensure that the prices, discounts, incentives, and other financial terms (collectively, the "financial deal") applicable to purchases under this Contract are always at least as favorable to the purchaser as the financial deal that the Contractor or its affiliates make available to any public body in Virginia for the same good(s)/service(s) outside this Contract. Throughout the term of this Contract, if Contractor (or any affiliate) makes a better financial deal available to a public body in Virginia for any good(s)/service(s) available under this Contract, Contractor shall immediately notify DGS of the details and, at DGS's option, sign an amendment to this Contract, so that an equivalent financial deal for the affected good(s)/service(s) is also available as an option under this Contract. Contractor may request exemption if the better financial deal was for a spot purchase, and DGS shall grant such request if DGS in good faith finds that the spot purchase involved special circumstances affecting cost that would make it unfair to apply an equivalent financial deal outside of that spot purchase. Upon DGS's request (and annually on August 1), Contractor shall submit to DGS an affidavit certifying full compliance with this Section. The Contractor (and any affiliate) shall waive any contractual or other right that inhibits any public body in Virginia from disclosing to DGS or others the financial terms made available to the public body, and upon request from DGS, Contractor shall ensure that a signed confirmation of the waiver is provided to the public body and DGS. As used in this Section, an affiliate is any entity that controls, is controlled by, or is under common control with, the contractor.

#### **LOBBYING AND INTEGRITY**

"Bidders are cautioned that communications with individuals other than the DPS Contracting Officer may result in incorrect and/or insufficient information being provided. In addition, the Bidder shall not, in connection with this or any other agreement with the Commonwealth of Virginia, directly or indirectly (1) offer, confer, or agree to confer any pecuniary benefit on anyone as consideration for any state officer or employee's decision, opinion, recommendation, vote, other exercise of discretion, or violation of a known legal duty, or (2) offer, give, or agree to give anyone any gratuity for the benefit of or at the direction or request of any state officer or employee. Upon request of the Commonwealth of Virginia's, Department of General Services, the Bidder shall provide any type of information deemed relevant to the Bidder's integrity or responsibility to provide the services or goods, described herein.

#### **NEW VEHICLE PREPARATION**

Vehicles shall be delivered clean and complete and ready for service including a current Virginia State Inspection. New vehicle service preparation must be performed by the dealer according to the manufacturer's specifications. Vehicles delivered without proper dealer preparation must be picked up, serviced, and re-delivered by the dealer at no additional cost to the ordering agency. The contractor shall deliver the vehicles ready to for use with all parts working correctly. Additionally the following shall apply: a. Temporary License: A 30 Day license tag shall be furnished with each vehicle unless Authorized Users waive, in writing, the 30 Day tag. b. Title Papers: All papers for titling purposes shall be delivered with each vehicle. c. State Inspection Stickers and Decals: Vehicles furnished shall conform to all applicable Federal and Motor Vehicle Safety Standards and all equipment shall conform to Title 46.2, Chapter 10, of the Code of Virginia and shall include a valid State Inspection Sticker. No dealer identifications such as sticker, decal, metal emblem and so forth will be accepted on automobiles furnished under this contract. d. Taxes: No Federal Taxes are to be included in the contract price at any time, including on tires. The Authorized Users as described herein shall furnish their Tax Exemption Registration number upon request. e. Vehicle Publications, Forms and Documents: The contractor shall furnish one (1) copy each of the following per vehicle: i. New Vehicle

Warranty Information Manual ii. New Vehicle Owner's Manual iii. Manufacturer's Statement of Origin (MSO) iv. Delayed Warranty Start Form, and any other such documents as necessary for delivery. v. Emissions Certifications: Stating the vehicle meets U.S. Government Standards for sale in the Commonwealth of Virginia.

#### **OPTIONS (ADD-ONS & DELETES)**

Bidders shall, for options not listed on the pricing schedule, provide a blanket discount off of the Manufacturer Suggested Retail Price (MSRP). After award of contract, contractor shall provide list of all options available for each vehicle on contract. For options that were not priced specifically in the bid/proposal, this list shall include a percentage off the Manufacturer Suggested Retail Price (MSRP), the MSRP for each listed option, and the final price with discount applied. The following shall also apply: a. The price listed is the full price of that option. There shall be no additional charges, shipping, delivery, installation, etc. added to any option. b. Unless an option is specifically identified in the bid/proposal as a dealer installed option, all options shall be factory installed by the manufacturer. c. If the base vehicle contains options which the Authorized User can and elects to delete, the price of those options shall be credited towards the purchase price of the vehicle. d. The Commonwealth reserves the sole right to determine what options are allowed to be sold on the contract and how they are categorized. The "categories" may include Options that will be available for purchase by restricted agencies, all authorized users, or by local government only. e. Options that have not been explicitly incorporated into the contract by a contract modification may be purchased as long as the approval from the Statewide Sourcing and Contracting Officer is granted to the Authorized User and the option is priced according to the blanket discount.

#### **ORDERS**

Authorized Users must order goods and/or services available from the Contract by issuing an eVA purchase order through the Commonwealth's electronic procurement website portal <http://www.eva.virginia.gov>.

#### **PAST MODEL YRS & STOCK VEHICLES**

Contractors are allowed to keep additional new unused vehicles as stock. Should the contractor keep new stock vehicles on this contract to cover immediate demand by the Commonwealth or localities the following shall apply: a. Only vehicles and specific model years that were explicitly incorporated into the contract can be sold as stock. b. Only new and unused vehicles shall be sold as stock vehicles. c. Stock vehicle prices cannot exceed the pricing for their specific model year but can be sold at a reduced rate with approval from the Statewide Sourcing and Contracting Officer. For example, model year 2021 vehicles shall always be sold at the agreed upon price for the 2021 model year or less and cannot be sold at a higher rate. If a lower price is offered by the contractor on a stock vehicle, a justification shall be sent to and approved by the Statewide Sourcing and Contracting Officer before that price can be applied to the vehicle. d. Vehicles shall not be sold after the expiration of the contract. The Commonwealth is not responsible for unsold stock at any time during or after the contract.

#### **PERIOD FOR PERFORMANCE OF PO**

To be valid, a purchase order issued under this Contract must be issued during the term of the Contract. The period specified for performance of the purchase order may extend past the term of the Contract. If a notice terminating this Contract is issued, the notice shall be construed as applying only to the Contract and not to any existing purchase order, unless the notice expressly states the intent to terminate the purchase order.

#### **PRICE ESCALATION/DE-ESCALATION**

"Price adjustments may be permitted for changes in the contractor's cost of providing goods and services. The PRODUCER PRICE INDEX/INDICES: Motor Vehicles 1411, and other relevant market conditions as determined appropriate and approved by DPS, will be used as guides to evaluate requested price changes. No price increases will be authorized for the current Model Year after the effective date of the contract. Price adjustments may only be allowed at the introduction of new model year to the satisfaction of the purchasing office. However, "across the board" price decreases are subject to implementation at any time and shall be immediately conveyed to the Commonwealth. Contractor shall request approval in advance for any price increase by notifying the purchasing office. Any approved price changes shall be effective on the agreed upon effective date of the pricing change. In order to receive approval, the contractor shall document the amount and proposed effective date of any general change in the price of materials. Documentation shall be supplied with the contractor's request for increase which will: (1) verify that the requested price increase is general in scope and not applicable just to the Commonwealth of Virginia; and (2) verify the amount or percentage of increase which is being passed on to the contractor by the contractor's suppliers. DPS will update the publicly posted contract and eVA catalog with the new pricing on the effective date. However, the contractor shall fill all purchase orders received prior to the effective date of the price adjustment at the old contract prices. The contractor is further advised that decreases which affect the cost of materials are required to be communicated immediately to the purchasing office. This IFB is for the 2022 model year version of the vehicles listed. If pricing from the manufacturer has not been issued to dealers then the dealers shall submit pricing based on the most recent model year at a rate at which the vehicles would have been sold to the Commonwealth, based on the details of this solicitation. If the manufacturer increases the price after the contract is awarded, the contractor shall be allowed to request an increase to the contract price in line with the rest of this term and condition."

#### **PRIME CONTRACTOR RESPONSIBILITIES**

Price adjustments may be permitted for changes in the contractor's cost of providing goods and services. The PRODUCER PRICE INDEX/INDICES: Motor Vehicles 1411, and other relevant market conditions as determined appropriate and approved by DPS, will be used

#### **PRODUCT AVAILABILITY/SUBSTITUTION**

Substitution of a product, brand or manufacturer after the award of contract is expressly prohibited unless approved in writing by the Contract Officer. The Agency may, at its discretion, require the contractor to provide a substitute item of equivalent or better quality subject to the approval of the Contract Officer, for a price no greater than the contract price, if the product for which the contract was awarded becomes unavailable to the contractor.

#### **PRODUCT INFORMATION**

The bidder shall clearly and specifically identify the product being offered and enclose complete and detailed descriptive literature, catalog cuts and specifications with the bid/proposal to enable the Commonwealth to determine if the product offered meets the requirements of the solicitation. Failure to do so may cause the bid/proposal to be considered nonresponsive.

#### **PROMPT PAYMENT DISCOUNTS**

Agency will pay within 30 days after acceptance. A prompt payment discount offered for prompt payment should be included in your bid where indicated. Discounts will not be calculated in determining net low bid.

#### **QUANTITIES**

Quantities set forth in this solicitation are estimates only, and the contractor shall supply at bid prices actual quantities as ordered, regardless of whether such total quantities are more or less than those shown.

#### **SALES AND SUPPORT SERVICE**

The contractor shall have a full time sales representative assigned to the Commonwealth to regularly assist authorized users, address problems, e-procurement concerns, and other matters. The contractor shall apprise the Commonwealth of any quality issues including recalls, upgrades, and product warnings that may affect product performance and safety. All service representatives, who are assigned to work the contract, shall have on-line access to information to provide immediate response to inquiries concerning the status of orders, delivery information, back-order information, statewide contract pricing, and general product information. Representatives shall be available by phone, fax or email. Such contact information shall be provided to the Commonwealth and any ordering entities. Contractor shall send authorized users an email confirmation of receipt of any purchase order they place against the contract. This confirmation shall include the options, color choices, etc. being placed. This requirement shall apply to all orders issued against this contract. Confirmation shall be sent within 10 days after receipt of an order and shall indicate the date the order was placed with the manufacturer. Confirmations shall be emailed to the authorized user's address shown on the purchase order and to anyone else the authorized user has requested the confirmation to go to.

#### **SCC IDENTIFICATION NUMBER**

Pursuant to Code of Virginia, §2.2-4311.2 subsection B, a bidder organized or authorized to transact business in the Commonwealth pursuant to Title

13.1 or Title 50 is required to include in its bid or proposal the identification number issued to it by the State Corporation Commission (SCC) as a bidder that is not required to be authorized to transact business in the Commonwealth as a foreign business entity under Title 13.1 or Title 50 or as otherwise required by law is required to include in its bid or proposal a statement describing why the bidder is not required to be so authorized. Indicate the above information on the SCC Form provided. Contractor agrees that the process by which compliance with Titles 13.1 and 50 is checked during the solicitation stage (including without limitation the SCC Form provided) is streamlined and not definitive, and the Commonwealth's use and acceptance of such form, or its acceptance of Contractor's statement describing why the bidder was not legally required to be authorized to transact business in the Commonwealth, shall not be conclusive of the issue and shall not be relied upon by the Contractor as demonstrating compliance.

#### **SB SUBCONTRACTING PLAN**

"a. Submission of Small Business Subcontracting Plan: It is the statewide goal of the Commonwealth that 42% of its purchases be made from small businesses certified by DSBSD. This includes discretionary spending in prime contracts and subcontracts. All bidders are required to submit a Small Business Subcontracting Plan. The contractor is encouraged to offer such subcontracting opportunities to DSBSD-certified small businesses. This shall include DSBSD-certified women-owned and minority-owned businesses and businesses with DSBSD service disabled veteran-owned status when they have also received DSBSD small business certification. Where it is not practicable for any portion of the goods/services to be subcontracted to other suppliers, the bidder shall note such on the Small Business Subcontracting Plan. No bidder or subcontractor shall be considered a small business unless certified as such by the Department of Small Business and Supplier Diversity (DSBSD) by the due date for receipt of bids or proposals. b. Evidence of Compliance with Small Business Subcontracting Plan: Each prime contractor who wins an award in which provision of a small business subcontracting plan is a condition of the award, shall deliver to the contracting agency or institution monthly reports substantiating compliance in accordance with the small business subcontracting plan. If a variance exists, the contractor shall provide a written explanation. A subcontractor shall be considered a Small Business for purposes of a contract if and only if the subcontractor holds a certification as such by the DSBSD. Payment(s) may be withheld until the purchasing agency confirms that the contractor has certified compliance with the contractor's submitted Small Business Subcontracting Plan or is in receipt of a written explanation of the variance. The agency or institution reserves the right to pursue other appropriate remedies for non-compliance to include, but not be limited to, termination for default. c. Prime Contractor Subcontractor Reporting: 1. Each prime contractor who wins an award greater than \$100,000, shall deliver to the contracting agency or institution on a monthly basis, all applicable information for each subcontractor listed on the Small Business Subcontracting Plan that are DSBSD-certified businesses or Employment Services Organizations (ESOs). The contractor shall furnish the applicable information to the purchasing office via the Subcontractor Payment Reporting tool accessible within the contractor's eVA account. 2. In addition each prime contractor who wins an award greater than \$200,000 shall deliver to the contracting agency or institution on a monthly basis, all applicable information on use of subcontractors that are not DSBSD-certified businesses or Employment Services Organizations. The contractor shall furnish the all applicable information to the purchasing office via the Subcontractor Payment Reporting tool accessible within the contractor's eVA account."

#### **TECHNICAL SERVICE SUPPORT**

The bidder shall provide information on their ability to furnish technical assistance, including training and demonstration of operating procedures, for new equipment purchased under this contract. During the life of the contract, the contractor shall provide technical service on technical applications; furnish operating manuals and schematic design, when available, for all equipment. Contractor is responsible for ensuring repair facilities have sufficient spare parts and labor to support all stated manufacturer's equipment sold to the Commonwealth. As an authorized distributor, a contractor shall guarantee and extend all manufacturers and/or dealer warranties. Contractor shall be able to track historical service requests, maintenance, and repairs.

#### **VA MOTOR VEHICLE DEALER LICENS**

In accordance with Code of Virginia § 46.2-1508, the motor vehicle manufacturer, distributor, or dealer ("bidder") certifies that it is licensed by the Virginia Department of Motor Vehicles to conduct business in the Commonwealth of Virginia. Further, the bidder shall maintain the required license throughout the course of the contract. Additionally, the bidder shall comply with the requirements of the Code of Virginia § 46.2-1566 through 46.2-1573.02, including Code of Virginia § 46.2-1572. The bidder shall immediately notify the Commonwealth of Virginia's Department of General Services, Division of Purchases and Supply in writing in the event its license is either not renewed, or revoked and/or it fails to comply with the other stated provisions in the Code of Virginia during the period in question.

#### **WARRANTY (VEHICLE)**

The contractor agrees that the goods or services furnished under any award resulting from this solicitation shall be covered by the most favorable commercial warranties the contractor gives any customer for such goods or services and that the rights and remedies provided therein are in addition to and do not limit those available to the Commonwealth by any other clause of this solicitation and rights and remedies permitted under applicable law. A copy of this warranty should be furnished with the bid/proposal. During the life of the contract, the contractor shall provide all warranty service and shall have their own repair facilities (unless the vehicle manufacturer requires the work performed by them or another party) with sufficient parts and labor to support the vehicles sold under this contract. Contractor shall track all vehicles that receive warranty work under this contract and may be asked to produce that report during the life of the contract. If available, contractor shall furnish operating manuals and schematic design for all vehicles.

#### **SUBCONTRACTS**

No portion of the work shall be subcontracted without prior written consent of the purchasing agency. In the event that the contractor desires to subcontract some part of the work specified herein, the contractor shall furnish the purchasing agency the names, qualifications and experience of their proposed subcontractors. The contractor shall, however, remain fully liable and responsible for the work to be done by its subcontractor(s) and shall assure compliance with all requirements of the contract.

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#### **Reminders**

Information not provided

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#### **Vendor List**

Information not provided

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#### **Free Form Vendor**

Information not provided

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#### **Publishing Options**

Pre-Bid Conference Type:

Category: **Equipment - Non-Technology**

Pre-Bid Conference Date:

Publish Date: **7/23/2021**

Close Date: **8/2/2021**

Open Responses Date: **8/3/2021**

Pre-Bid Conference Time:

Publish Time: **4:30 PM**

Close Time: **5:00 PM**

Open Responses Time: **1:00 PM**



<p><u>Vehicle Configuration</u></p> <p><b>DPS Contract # E194-93766</b>                      Effective: September 23, 2021 through September 22, 2026  <b>2023 Nissan Kicks FWD S, Crossover SUV. eVA Vendor: HALL AUTOMOTIVE (eVA CUST # C13056)</b>                      NIGP Commodity Code: 07180 SUV Type Vehicles (Incl. Carryalls)  <i>This form shall be used to order a model with the same options &amp; configuration per column. Please complete a separate spreadsheets if needed. Be sure to attach all spreadsheets to your Purchase Order. Complete the <u>yellow blocks</u> only.</i></p>	Option / Order Code	UNIT PRICE	VEHICLE CONFIGURATION - 1st VEHICLE ENTER ORDER QUANTITY (QTY) IN YELLOW COLUMN ONLY.		VEHICLE CONFIGURATION - 2nd VEHICLE ENTER ORDER QUANTITY (QTY) IN YELLOW COLUMN ONLY.		VEHICLE CONFIGURATION - 3rd VEHICLE ENTER ORDER QUANTITY (QTY) IN YELLOW COLUMN ONLY.	
2023 Nissan Kicks FWD S, Fleet Model, 4-Door, Hatchback, 5-Passenger, Front-Wheel Drive (FWD)	21012	\$21,700	1	\$ 21,700.00	1	\$ 21,700.00		\$ -
Additional Delivery Charges (Note: 50 Miles are included in the base price of each vehicle.) Only enter miles <u>in excess</u> of 50. This spreadsheet will auto calculate the excess mileage times the qty of vehicles ordered per column. This Additional Delivery Charge is for delivery points 51 miles and over from the Dealers shipping point.	n/a	\$1.80	115	\$ 207.00	115	\$ 207.00		\$ -
Privacy Glass (rear doors, quarter windows, and rear windows)	PRIV	\$450.00		\$ -		\$ -		\$ -
Keyless Remote Entry	STD	\$0.00		\$ -		\$ -		\$ -
Bluetooth Technology system capability	STD	\$0.00		\$ -		\$ -		\$ -
Blind Spot Monitoring System	STD	\$0.00		\$ -		\$ -		\$ -
Lane Departure Warning System	STD	\$0.00		\$ -		\$ -		\$ -
Carpeted Floor Mats with Cargo Mat	MAT	\$230.00		\$ -		\$ -		\$ -
Splash Guards	SGD	\$210.00		\$ -		\$ -		\$ -
Rear Spoiler	SPL	\$445.00		\$ -		\$ -		\$ -
Black Alloy Wheels	BAW	\$495.00		\$ -		\$ -		\$ -
Interior Electronics Package	IEP	\$575.00		\$ -		\$ -		\$ -
Center Arm Rest w/Storage	ARM	\$330.00		\$ -		\$ -		\$ -
SR Premium Package	SRP	\$1,200.00		\$ -		\$ -		\$ -
Upgrade to Nissan Kicks SV	n/a	\$2,250.00		\$ -		\$ -		\$ -
Upgrade to Nissan Kicks SR	n/a	\$2,890.00		\$ -		\$ -		\$ -
Service Manuals - service/shop manuals, wiring diagrams for the current model year	SERV	\$550.00		\$ -		\$ -		\$ -

**Standard Colors**

(No default color - Customer must pick one when ordering)

Electric Blue Metallic	B51	\$0.00		\$ -		\$ -		\$ -
Gun Metallic	KAD	\$0.00		\$ -		\$ -		\$ -
Super Black	KH3	\$0.00		\$ -		\$ -		\$ -
Fresh powder	QM1	\$0.00		\$ -		\$ -		\$ -
Total Cost for Each Base Vehicle Plus Options				\$ -		\$ -		\$ -
				\$ 21,907.00		\$ 21,907.00		\$ -

Note to State Agencies & Public Bodies - Options above are only options which may be ordered. No other options available on this contract.

Enter Color and Other Information or Instructions in Yellow Block to the Right (as needed) ----->	Grand Total for Order \$ 43,814.00
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**For State Agencies / Other Users:** Use this spread sheet to configure your vehicle. Use a separate column when ordering multiple vehicles with different options. Enter quantity numbers for the base vehicle and each option you want to order in yellow columns. Enter information in additional yellow columns when ordering multiple vehicles with different options. When completed, save this spreadsheet to your hard drive. Login to the eVA system. Go to "add items page," click on the non-catalog tab. Enter your description as follows: (Enter Contract Number) see attached spread sheet." When you get to the comments section of the requisition, check the attach comments box, select attach file option, and attach this spread sheet as your attached file.



**FLUVANNA COUNTY BOARD OF SUPERVISORS  
AGENDA ITEM STAFF REPORT**

**TAB K**

<b>MEETING DATE:</b>	October 5, 2022				
<b>AGENDA TITLE:</b>	Dewberry Project Agreement #15 for On-Call Water and Sewer Plan Review				
<b>MOTION(s):</b>	<b>I move the Board of Supervisors approve Project Agreement #15 between Fluvanna County and Dewberry Engineers Inc. for on-call water and sewer plan review assistance on a lump sum basis, negotiated for each individual task, with a total not-to-exceed limit of \$50,000 and further authorize the County Administrator to execute the agreement subject to approval as to form by the County Attorney.</b>				
<b>STRATEGIC INITIATIVE?</b>	Yes	No	<b>If yes, list initiative(s):</b>		
		X			
<b>AGENDA CATEGORY:</b>	Public Hearing	Action Matter	Presentation	Consent Agenda	Other
				<b>X</b>	
<b>STAFF CONTACT(S):</b>	Donna Allen, Purchasing Officer				
<b>PRESENTER(S):</b>	Donna Allen, Purchasing Officer				
<b>RECOMMENDATION:</b>	Approve				
<b>TIMING:</b>	Immediate				
<b>DISCUSSION:</b>	<p>Project Agreement #15 with Dewberry Engineers Inc. assists with plan review for design and construction documents submitted to the County by applicants who intend to connect to the County’s water and sewer infrastructure.</p> <ul style="list-style-type: none"> <li>• Meet with County virtually to review the proposed plan</li> <li>• Obtain all application documents applicable to the review and confirm the schedule</li> <li>• Meeting will be conducted for each review</li> <li>• Will Submit a request via email with the anticipated level of effort for each task prior to starting the review</li> <li>• Comments will be summarized by Dewberry and addressed to the County for their review</li> <li>• County will be responsible for formally issuing the comments to the applicant</li> <li>• Dewberry will track comments, rounds of revisions, the cost to review, and review fees.</li> </ul>				
<b>FISCAL IMPACT:</b>	Budgeted in the ZXR Project and the fees for plan review will come from new applicant fees.				
<b>POLICY IMPACT:</b>	N/A				
<b>LEGISLATIVE HISTORY:</b>	N/A				
<b>ENCLOSURES:</b>	<ul style="list-style-type: none"> <li>• Dewberry Engineers, Inc. Project Agreement #15</li> <li>• Proposal for Professional Engineering Services - On-Call Plan Review Services</li> </ul>				

<b>REVIEWS COMPLETED:</b>	Legal	Finance	Purchasing	HR	Other
	<b>X</b>	<b>X</b>	<b>X</b>		



Dewberry Engineers Inc. | 804.290.7957  
4805 Lake Brook Drive, Suite 200 | 804.290.7928 fax  
Glen Allen, VA 23060 | www.dewberry.com

September 20, 2022

Mr. Eric Dahl  
County Administrator  
County of Fluvanna  
132 Main Street  
Palmyra, Virginia 22963

**VIA E-MAIL**

**RE: Proposal for Professional Engineering Services  
On-Call Plan Review Services**

Dear Mr. Dahl:

Dewberry Engineers Inc. (Dewberry) is pleased to submit our proposal to provide professional services for plan review services. Dewberry's Project Understanding, Scope of Services, and Fee have been developed based on phone and email correspondence. The Work will be performed in accordance with the Term Agreement for Professional Engineering Services, executed October 8, 2018.

### **PROJECT UNDERSTANDING**

The Fluvanna County (County) has requested that Dewberry assists with plan review for design and construction documents submitted to the County by applicants who intend to connect to the County's water and sewer infrastructure.

Dewberry understands that individual plan reviews will be in accordance with the latest version of the Utility Standards Manual at the time of plan submission.

For each plan review, Dewberry will prepare a comment response letter to summarize any items Dewberry recommends being addressed prior to the plans being deemed approvable by Dewberry. Dewberry will provide all comments to the County for their review.

### **SCOPE OF SERVICES**

For each plan review assigned under this task order, the scope of services will involve the following items:

1. Meet with the County virtually to review the proposed plan, obtain all application documents applicable to the review and confirm the schedule. This meeting will be conducted for each review, including subsequent reviews.
2. Dewberry will submit a request via email with the anticipated level of effort for each task prior to starting the review.
3. Comments will be summarized on Dewberry letterhead and addressed to the County for their review.
4. The County will be responsible for formally issuing the comments to the applicant.
5. Dewberry will track comments, rounds of revisions, costs to review, and review fees.

### **SCHEDULE**

The schedule for the completion of individual plan review tasks will be developed as those tasks are assigned under this agreement.

Generally, plan review tasks will be completed within 2 weeks of receipt of the request.

Mr. Eric Dahl  
Proposal for Professional Engineering Services  
On-Call Plan Review Services  
September 20, 2022

## FEE

Compensation to Dewberry for plan review assistance under this agreement will be on a lump sum basis, negotiated for each individual task, with a total not-to-exceed limit of \$50,000.

## CLARIFICATIONS OR REQUIREMENTS

1. Comments will be provided to the County and should be taken under advisement.
2. The County will be responsible for issuing the comments to the developer.
3. Site visits are assumed to be excluded from this scope unless expressly requested by the County and included in the initial level of effort estimate.

## TERMS AND CONDITIONS

Services under this agreement will be provided in accordance with the terms and conditions of Dewberry's Term Agreement for Professional Engineering Services, which is incorporated into this proposal by reference.

We look forward to the opportunity to serve Fluvanna County on this project. If you have any questions, or if you require additional information, please feel free to contact us.

Sincerely,

Dewberry Engineers Inc.



Richard Kincheloe, PE  
Principal Engineer | Associate



Dan Villhauer, PE, LEED AP  
Vice President

Q:\PROPOSAL\2022\Fluvanna County\2022.09.20 On-Call Plan Review Proposal.docx

**PROJECT AGREEMENT # 15**  
**TERM CONTRACT BETWEEN COUNTY AND ARCHITECT/ENGINEER FOR**  
**PROFESSIONAL SERVICES**  
**ON-CALL WATER AND SEWER PLAN REVIEW SERVICES**

This Project Agreement #15 and Agreement Amendment (the Project Agreement”) made this \_\_\_\_\_ day of \_\_\_\_\_, 2022, between Fluvanna County, Virginia (the “County”), a political subdivision of the Commonwealth of Virginia, and Dewberry Engineers Inc. (the “Consultant”), a New York corporation authorized to transact business in Virginia, is an addendum to that TERM CONTRACT BETWEEN COUNTY AND ARCHITECT/ENGINEER FOR PROFESSIONAL SERVICES dated the 31<sup>st</sup> day of October, 2018 (including all exhibits, and as modified by any amendments or addendums thereto the “Term Contract”). All defined terms in the Term Contract shall have the same meaning in this Project Agreement unless the context used herein requires otherwise.

Whereas, pursuant to the Term Contract the County shall issue written task orders to the Consultant as services are needed;

Whereas, the Consultant submitted its proposal “RE: Proposal for Professional Engineering Services On-Call Plan Review Services” dated September 20, 2022, which is attached hereto as **Exhibit 1 (the “Proposal”)** and made a material part hereof;

Whereas, the County desires that the Consultant complete as-needed on-call review of plans related to its water and sewer systems (the “On-Call Services”) being the work as set forth in the Proposal; and

Whereas, the Consultant desires to perform the As-Needed Services which includes as all work and services necessary and related thereto.

For good and valuable consideration, the parties hereby agree as follows:

**ARTICLE I: THE AGREEMENT**

The foregoing recitations are incorporated by reference into this Project Agreement.

This Project Agreement is an addendum to and made a material part of the Term Contract. The parties hereto agree that except as specifically and expressly modified hereby that Term Contract remains in full force and effect and the provisions of the Term Contract are incorporated herein and are a material part hereof.

**ARTICLE II: TASK ORDER**

Consultant shall provide all work and On- Call Services as needed and necessary or desired to complete Services on task order issued hereunder consistent with all provisions of this Project Agreement, Exhibit 1 and the Term Contract.

The County’s project manager for technical inquiries relating to this Project Agreement shall be:

Mr. Eric Dahl  
County Administrator/Director of Finance

132 Main Street  
Palmyra, VA 22963  
Phone: (434) 591-1912  
E-mail: [edahl@fluvannacounty.org](mailto:edahl@fluvannacounty.org)

Billing inquiries should be directed to Donna Allen, Purchasing Officer, whose contact information appears below in Article VI.

For each plan review under this Project Agreement for Services, a separate task order shall be issued and signed by an authorized representative of the County (each a “Plan Review Task Order”). The following provisions apply to each Plan Review Task Order issued under this Project Agreement:

- i) Each Plan Review Task Order must be in a writing signed by an authorized representative of the County to be valid and binding on the County;
- ii) The Consultant shall have no claim for compensation greater than the approved amount in a Plan Review Task Order for those specific On-Call Services set forth therein;
- iii) The Consultant agrees that it is willing and able during the Term, as defined below, to provide On-Call Services on an “as needed” basis. The work may include, but is not limited to, formal engineering services, review of plans in accordance with applicable law, including specifically but without limitation the Fluvanna County Code, and related or similar services as more specifically described herein and in the specific Task order. The purposes, functions, criteria and general requirements for the On-Call Services on the task or particular project will be set forth in the Plan Review Task Order in writing.
- iv) The Consultant will provide a not-to-exceed estimate for the review of each plan which will be issued as a separate Plan Review Task Order. Consultant shall charge hourly rates subject to the not to exceed limit set forth in the Task Order.

### **ARTICLE III: EXHIBITS AND RESOLVING CONFLICTS**

The rights and duties of the County and Consultant applicable to the County’s projects under this Project Agreement are set forth in the following Agreement Documents:

- (i) This Project Agreement;
- (ii) Exhibit 1 hereto;
- (iii) The Term Contract including exhibits thereto; and
- (iv) The County of Fluvanna General Terms Conditions and Instructions to Bidders and Contractors, being a portion of Attachment 1 which is attached to and a part of the Term Contract.

Whenever possible, the terms of the above Agreement Documents shall be read together, however in the event of a conflict, the order of preference above shall govern which Agreement Document will control. In other words, (i) shall control over (ii) to (iv) above, and (ii) shall control over (iii) and (iv), and so forth.

### **ARTICLE IV: FEES**



The estimates in each Plan Review Task Order are not-to exceed amounts. The hourly fees up to the not-to-exceed total per task shall be payable by the County upon proper invoice by the Consultant as described herein for each Plan Review Task Order. The Consultant shall submit invoices to the County upon final completion of the On-Call Services on each Plan Review Task Order. The invoice shall describe the services rendered with specificity. The Consultant will be paid within forty-five (45) days of receipt of a valid invoice following final acceptance of all work by the County on each Plan Review Task Order. No invoice may be provided by the Consultant to the County until the items or services including any deliverables have been delivered to, inspected by and accepted by the County. In no event shall the total fees invoiced or due under this Project Agreement for all the Plan Review Task Orders in the aggregate exceed \$50,000.00 total. Notwithstanding anything to the contrary contained in Exhibit 1 hereto, the Consultant shall be paid for the hourly rate for the title/type of person actually performing the work as set forth in Exhibit 3 to the Term Contract up to not more than the not-to-exceed flat fees for the Task Order Services. The actual hourly fees charged by the Contractor for the Services will be based on the rates set forth on Exhibit 3 to the Term Contract and will vary based upon the person completing the Services (for example, \$60 per hour for "Surveyor I", etc.). No subcontractors are authorized to complete Services on this Task Order. The County shall be billed for increments of an hour based on Consultant's standard procedure except as otherwise required by the Term Contract.

The fee includes all fees, costs and charges of any kind to perform all the services and work, including supplying at its own cost and expense any necessary tools, equipment or materials, necessary or desirable for completion of the task specified.

#### **ARTICLE V: TERM**

The Term of this Project Agreement shall commence upon signature of this Project Agreement by the County and then shall continue coextensively with the Term Contract (which renews each December 27<sup>th</sup> automatically unless the County notifies the Contract otherwise, and if renewed will continue through and until December 26, 2023). Notwithstanding any other provision of this Contract, the County is not required to purchase any On-Call Services from Consultant and the County may choose to purchase On-Call Services or similar services from any other person or entity at any time for any reason.

Consultant must with due diligence and dispatch assiduously pursue each Plan Review Task Order to completion, and the On-Call Services for each Plan Review Task Order shall be completed within 2 (two) weeks of issuance by the County of the Plan Review Task Order except that if a different specific deadline is provided for in the Plan Review Task Order, then such specific deadline shall control. Time being of the essence for all deadlines for completion.

#### **ARTICLE VI: MISCELLANEOUS**

As appropriate to the context, the singular will include the plural and vice versa, and reference to one gender will include the others. This Project Agreement may be executed in one or more counterparts, each of which will be considered the Project Agreement for all purposes of proof. In addition to allowing electronic signatures upon an electronic copy of this Project Agreement, as provided by Virginia law, facsimile signatures upon any signature page will be considered to be original signatures. This Project Agreement contains the entire understanding of

the parties with respect to the subject matter hereof and is to be modified only by a writing signed by the parties to this Project Agreement. This Project Agreement will be binding upon and inure to the benefit of the respective parties and their successors. This Project Agreement is not assignable by either party, except by operation of law. The legal address for the County and for the Consultant and the addresses for delivery of Notices and other documents related to the administration of this Project Agreement are as follows:

County:  
ATTN: Donna Allen, Purchasing Officer  
Fluvanna County  
P.O. Box 540  
Palmyra, VA 22963  
Telephone (434) 591-1930  
FAX (434) 591-1911

Consultant:  
Dewberry Engineers Inc.  
ATTN: Richard Kincheloe  
4805 Lake Brook Drive, Suite 200  
Glen Allen, VA 23060  
Telephone: (804) 290-7957  
Facsimile: (804) 290-7928

Any party may substitute another address for the one set forth above by giving a notice in the manner required. Any notice given by mail will be deemed to be received on the fifth (5<sup>th</sup>) day after deposit in the United States mail. Any notice given by hand will be deemed to be received when delivered. Notice by courier will be deemed to have been received on the date shown on any certificate of delivery.

**In witness whereof the undersigned duly authorized representatives have executed this Project Agreement on the dates set forth beside their respective signatures.**

Consultant: Dewberry Engineers Inc. County: Fluvanna County

By: \_\_\_\_\_ Date: \_\_\_\_\_ By: \_\_\_\_\_ Date: \_\_\_\_\_  
Name: \_\_\_\_\_ Name: \_\_\_\_\_  
Title: \_\_\_\_\_ Title: \_\_\_\_\_

Approved as to form:

By: \_\_\_\_\_  
Fluvanna County Attorney, by Kristina M. Hofmann, Deputy Fluvanna County Attorney

**FLUVANNA COUNTY BOARD OF SUPERVISORS  
AGENDA ITEM STAFF REPORT**

**TAB L**

<b>MEETING DATE:</b>	October 5, 2022				
<b>AGENDA TITLE:</b>	Public Hearing for Chapter 21 Water and Sewage Disposal Ordinance				
<b>MOTION(s):</b>	<p><b><u>Motion #1:</u></b>  <b>I move the Board of Supervisors adopt:</b></p> <ul style="list-style-type: none"> <li>• <b>An ordinance to: (i) repeal Chapter 21 Water and Sewage Disposal of the Fluvanna County Code, in its entirety; (ii) adopt and reenact the proposed attached replacement Ordinance entitled Chapter 21 Water and Sewage Disposal of the Fluvanna County Code, in its entirety; and (iii) adopt the related proposed attached Appendix A entitled Water and Sewer Fee Schedule to be published as an appendix to the Fluvanna County Code; AND</b></li> <li>• <b>Further approve and adopt the proposed Fluvanna County Zion Crossroads Community Waterworks Utility Standards Manual, the Cross-Connection Control and Backflow Prevention Program Manual, and the Emergency Management Plan for Extended Power Outages, each dated September 2022.</b></li> </ul> <p><b><u>Motion #2:</u></b>  <b>I move the Board of Supervisors adopt the Utility Master Plan dated September 2022, as presented.</b></p>				
<b>STRATEGIC INITIATIVE?</b>	Yes	No	<b>If yes, list initiative(s):</b>		
		X			
<b>AGENDA CATEGORY:</b>	Public Hearing	Action Matter	Presentation	Consent Agenda	Other
		X			
<b>STAFF CONTACT(S):</b>	Eric Dahl, County Administrator, Bobby Popowicz, Asst. Public Works Director-Utilities Division, Calvin Hickman, Director of Public Works				
<b>PRESENTER(S):</b>	Eric Dahl, County Administrator and Richard Kinchloe, Dewberry Engineers				
<b>RECOMMENDATION:</b>	None				
<b>TIMING:</b>	None				
<b>DISCUSSION:</b>	<p><b>BACKGROUND:</b> Fluvanna County has targeted Zion Crossroads as a growth area. Water infrastructure is an important aspect to attracting and expanding business development in Fluvanna County. The County previously approved the project known as the Zion Crossroads Water and Sewer System. The system stretches nearly 4 miles of the Route 250 / Route 15 corridor. The service area stretches from Route 698, Memory Lane, east on Route 250 to Zion Crossroads, and south on Route 15 for a half mile. The</p>				

	<p>County also has sewer systems in downtown Palmyra which are covered under Chapter 21 of the Fluvanna County Code. Fork Union Sanitary District is covered primarily under Chapter 9 of the Fluvanna County Code, which is not being amended at this time. There are sections of Chapter 21 that apply to the Fork Union Sanitary District which is consistent with prior treatment under Chapter 21. The proposed ordinance changes, fees, manuals and plans have been prepared to address the significant increase in the abilities of the County's water and sewer system occasioned by the Project, as well as to address significant revisions to the Virginia Administrative Code Waterworks Regulations which were effective June 21, 2021 and to make other modifications deemed appropriate by staff to better manage the system and to address the financial impacts of the Project.</p> <p>The basis for the proposed water and sewer connection fees and rates analysis comes from the Utility Master Plan (UMP). The purpose of this UMP is to provide Fluvanna County with a roadmap for its planning of improvements, upgrades, extensions, and expansions to meet future needs while maintaining cost-effective water and wastewater service to a growing number of County costumers. The UMP provides a comprehensive evaluation of the County's water and wastewater systems within Zion Crossroads (ZXR), Fork Union Sanitary District (FUSD), and Palmyra Service Areas and identifies the recommended improvements and upgrades projected to be required through the Year 2045.</p>				
<b>FISCAL IMPACT:</b>	<p>Appendix A together with applicable sections of Chapter 21 sets forth the fees, charges, interest and penalties which will be charged for use of the County's Water and Sewer Systems (use/volume/etc.). Such amounts must be used for the sole purpose of constructing, operating or maintaining the public water and sewer system of the County, including that they may be used for retirement of debt incurred for the same.</p>				
<b>POLICY IMPACT:</b>	N/A				
<b>LEGISLATIVE HISTORY:</b>	N/A				
<b>ENCLOSURES:</b>	<ul style="list-style-type: none"> <li>• Replacement ordinance entitled Chapter 21 Water and Sewage Disposal of the Fluvanna County Code, in its entirety, and to adopt Appendix A entitled Water and Sewer Fee Schedule to be published as an appendix to the Fluvanna County Code</li> <li>• Utility Standards Manual</li> <li>• Cross-Connection Control and Backflow Prevention Program Manual</li> <li>• Emergency Management Plan for Extended Power Outages</li> <li>• Presentation Utility Master Plan Overview and Connection Fee Rate Analysis</li> <li>• Utility Master Plan</li> </ul>				
<b>REVIEWS COMPLETED:</b>	Legal	Finance	Purchasing	HR	Other
	<b>X</b>	<b>X</b>			<b>X</b>

**AN ORDINANCE TO:**

**REPEAL CHAPTER 21 WATER AND SEWAGE DISPOSAL OF THE FLUVANNA COUNTY CODE, IN ITS ENTIRETY, INCLUDING WITHOUT LIMITATION ARTICLE 1. – IN GENERAL BEING SECTION 21-1-1 THROUGH AND INCLUDING SECTION 21-1-6 AND ALL SUBPARTS THEREOF, ARTICLE 2. – CROSS-CONNECTIONS AND BACKFLOW PREVENTION BEING SECTION 21-2-1 THROUGH AND INCLUDING 21-2-7 AND ALL SUBPARTS THEREOF, ARTICLE 3. – LAND APPLICATION OF BIOSOLIDS BEING SECTION 21-3-1 THROUGH AND INCLUDING 21-3-5 AND ALL SUBPARTS THEREOF, ARTICLE 4. – PUBLIC SEWER INCLUDING ALL OF ITS SUBARTICLES, SUBARTICLE I. - GENERAL PROVISIONS, SUBARTICLE II. – DEFINITIONS, SUBARTICLE III. – USE OF FLUVANNA COUNTY’S TREATMENT WORKS AND TREATMENT FACILITY, SUBARTICLE IV. – BUILDING SEWERS AND CONNECTIONS, SUBARTICLE V. – CONDITIONS TO USE THE FLUVANNA COUNTY TREATMENT WORKS, SUBARTICLE VI. INDUSTRIAL DISCHARGERS, SUBARTICLE VII. – PRETREATMENT, SUBARTICLE VIII. WASTEWATER SERVICE, CHARGES AND INDUSTRIAL COST RECOVERY, SUBARTICLE IX. – ENFORCEMENT, AND SAID ARTICLE 4. – PUBLIC SEWER BEING SECTION 21-4-1 THROUGH AND INCLUDING SECTION 21-4-53 AND ALL SUBPARTS THEREOF; AND**

**TO ADOPT AND REENACT A REPLACEMENT ORDINANCE ENTITLED CHAPTER 21 WATER AND SEWAGE DISPOSAL OF THE FLUVANNA COUNTY CODE, IN ITS ENTIRETY, INCLUDING WITHOUT LIMITATION ARTICLE I. IN GENERAL BEING SECTION 21-1-1 THROUGH AND INCLUDING SECTION 21-1-17 AND ALL SUBPARTS THEREOF, ARTICLE II. WATER INCLUDING ALL OF ITS DIVISIONS, DIVISION 1. GENERALLY, DIVISION 2. WATER SHORTAGE, DIVISION 3. CHARGES, DIVISION 4. CONNECTIONS; METERS, DIVISION 5. CROSS-CONNECTION CONTROL; BACKFLOW PREVENTION, AND DIVISION 6. PRIVATE WATER SUPPLY, AND SAID ARTICLE II. WATER BEING SECTION 21-2-1 THROUGH AND INCLUDING SECTION 21-2-120 AND ALL SUBPARTS THEREOF, ARTICLE III. SEWAGE DISPOSAL SYSTEMS INCLUDING ALL OF ITS DIVISIONS, DIVISION 1. GENERALLY, DIVISION 2. CONNECTIONS; FEES, DIVISION 3. INDUSTRIAL PRETREATMENT, DIVISION 4. PRIVATE SYSTEMS GENERALLY, DIVISION 5. CONVENTIONAL ONSITE SEWAGE, DIVISION 6. RESIDENTIAL ALTERNATIVE ONSITE SEWAGE SYSTEMS, DIVISION 7. RESIDENTIAL ALTERNATIVE DISCHARGING SEWAGE SYSTEMS, AND DIVISION 8. SANITARY PRIVIES, AND SAID ARTICLE III. SEWAGE DISPOSAL SYSTEMS BEING SECTION 21-3-1 THROUGH AND INCLUDING SECTION 21-3-140 AND ALL SUBPARTS THEREOF, ARTICLE IV. ASSESSMENTS FOR EXTENSION OF WATER LINES AND SANITARY SEWERS BEING SECTION 21-4-1 AND ALL SUBPARTS THEREOF, ARTICLE V. SERVICE DISTRICTS BEING SECTION 21-5-1 AND ALL SUBPARTS THEREOF, ARTICLE VI. CENTRAL SEWER OR SEWAGE WORKS BEING SECTION 21-6-1 THROUGH AND INCLUDING 21-6-2 AND ALL SUBPARTS THEREOF, ARTICLE VII. LAND APPLICATION OF BIOSOLIDS BEING SECTION 21-7-1 THROUGH AND INCLUDING 21-7-7-6 AND ALL SUBPARTS THEREOF; AND**

**TO ADOPT APPENDIX A ENTITLED WATER AND SEWER FEE SCHEDULE TO BE PUBLISHED AS AN APPENDIX TO THE FLUVANNA COUNTY CODE WHICH SETS FORTH SOME OF THE FEES, CHARGES, AND AMOUNTS TO BE COLLECTED RELATED TO WATER AND SEWER AND UNDER CHAPTER 21.**

BE IT ORDAINED by the Board of Supervisors of the County of Fluvanna, Virginia, that the Fluvanna County Code be, and such Code is hereby, amended, as follows:

- (1) Chapter 21 Water and Sewage Disposal of the Fluvanna County Code is hereby repealed in its entirety, including without limitation Article 1. – In General being section 21-1-1 through and including section 21-1-6 and all subparts thereof, Article 2. – Cross-Connections and Backflow Prevention being section 21-2-1 through and including 21-2-7 and all subparts thereof, Article 3. – Land Application of Biosolids being section 21-3-1 through and including 21-3-5 and all subparts thereof, Article 4. – Public Sewer including all of its Subarticles, Subarticle I. - General Provisions, Subarticle II – Definitions, Subarticle III. – Use of Fluvanna County’s Treatment Works and Treatment Facility, Subarticle IV. – Building Sewers and Connections, Subarticle V. – Conditions to Use the Fluvanna County Treatment Works, Subarticle VI. Industrial Dischargers, Subarticle VII. – Pretreatment, Subarticle VIII. wastewater service, charges and industrial cost recovery, Subarticle IX. – enforcement, and said Article 4. – Public Sewer being section 21-4-1 through and including section 21-4-53 and all subparts thereof; AND
- (2) The attached replacement ordinance entitled Chapter 21 Water and Sewage Disposal is hereby adopted and reenacted in its entirety as Chapter 21 Water and Sewage Disposal of the Fluvanna County Code, including without limitation Article I. In General being Section 21-1-1 through and including Section 21-1-17 and all subparts thereof, Article II. Water including all of its Divisions, Division 1. Generally, Division 2. Water Shortage, Division 3. Charges, Division 4. Connections; Meters, Division 5. Cross-Connection Control; Backflow Prevention, and Division 6. Private Water Supply, and said Article II. Water being Section 21-2-1 through and including Section 21-2-120 and all subparts thereof, Article III. Sewage Disposal Systems including all of its Divisions, Division 1. Generally, Division 2. Connections; Fees, Division 3. Industrial pretreatment, Division 4. Private Systems Generally, Division 5. Conventional Onsite Sewage, Division 6. Residential Alternative Onsite Sewage Systems, Division 7. Residential Alternative Discharging Sewage Systems, and Division 8. Sanitary Privies, and said Article III. Sewage Disposal Systems being Section 21-3-1 through and including Section 21-3-140 and all subparts thereof, Article IV. Assessments for Extension of Water Lines and Sanitary Sewers being Section 21-4-1 and all subparts thereof, Article V. Service Districts being Section 21-5-1 and all subparts thereof, Article VI. Central Sewer or Sewage Works being Section 21-6-1 through and including 21-6-2 and all subparts thereof, Article VII. Land Application of Biosolids being Section 21-7-1 through and including 21-7-7-6 and all subparts thereof; AND
- (3) The attached Appendix A entitled Water and Sewer Fee Schedule is hereby adopted and is to be published as an appendix to the Fluvanna County Code.

- CODE OF ORDINANCES  
Chapter 21 WATER AND SEWAGE DISPOSAL

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**Chapter 21 WATER AND SEWAGE DISPOSAL<sup>1</sup>**

**ARTICLE I. IN GENERAL**

**Sec. 21-1-1. Definitions.**

For the purpose of this Chapter, the following words and phrases shall have the following meanings, whether capitalized or not, unless the context clearly indicates a different meaning:

*Act or CWA* means the Federal Water Pollution Control Act, also known as the Clean Water Act, 33 U.S.C. § 1251 et seq., as amended from time to time, including federal regulations adopted pursuant thereto. For the purposes of this Chapter, it includes any applicable State program requirements.

*Applicable Law(s)* means all State, Federal, and local laws, rules, statutes, ordinances, regulations or similar restrictions or provisions which apply and specifically including without limitation any affecting water and sewage disposal, waters, or related thereto and specifically including without limitation the applicable standards and limitations and the provisions of this Chapter.

*Applicable standards and limitations* means all State, interstate, and federal standards and limitations to which a discharge, a sewage sludge use or disposal practice, or a related activity is subject under the CWA (33 U.S.C. § 1251 et seq.) and the law, including effluent limitations, water quality standards, standards of performance, toxic effluent standards or prohibitions, best management practices, pretreatment standards, and standards for sewage sludge use or disposal under §§ 301, 302, 303, 304, 306, 307, 308, 403, and 405 of CWA.

*Applicant* means a person or persons, group, entity, or business or industrial establishment that has requested utility services for a particular premises such as the establishment of a new, or the extension of an existing, water system. All applicants are jointly and severally liable for payment; moreover, an applicant will be considered to have authority to act on behalf of and bind all property owners.

*ASTM* means the American Society for Testing and Materials.

*Authorized Representative of Industrial User* means:

- (1) A principal executive officer of at least the level of vice president, if the industrial user is a corporation; or
- (2) A general partner or proprietor if the industrial user is a partnership or sole proprietorship respectively;

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History—Prior Chapter 21 Water and Sewage Disposal [as amended prior to \_\_\_\_\_, 2022; adopted 6-20-2007; Comp. 1974, Ch. 12] in its entirety was repealed on \_\_\_\_\_, 2022 (Prior Chapter 21 is referred to in subsequent history notes as “prior Sec 21-\_\_-\_\_”). This replacement Chapter 21 Water and Sewage Disposal in its entirety was adopted and reenacted on \_\_\_\_\_, 2022.

Cross reference(s)—General Provisions, Ch. 1; Cross reference(s)—Administration, Ch. 2; Cross reference(s)—fire protection and public safety, Ch. 8; Cross reference(s)—; Zoning, Ch. 22; Cross reference(s)— Subdivisions, Ch. 19.

State Law reference(s)—General Provisions for Public utilities, Code of Va., § 15.2-2109 et seq.; Sewage Disposal Systems Generally, Code of Va., § 15.2-2122 et seq.; Approval of Sewage Systems by Counties, Code of Va., § 15.2-2126 et seq.; Water Supply Systems Generally, Code of Va., § 15.2-2134 et seq.; Approval of Water Supply Systems by Counties, Code of Va., § 15.2-2149 et seq.; Virginia Water and Waste Authorities Act, Code of Va., § 15.2-5100 et seq.; Sanitary Districts, Code of Va., § 21-112.22 et seq.; Environmental Health Services, Code of Va., § 32.1-163 et seq.; Public Service Companies, Code of Va., § 56-1 et seq.; Waters of the State, Ports and Harbors, Code of Va., § 62.1-1 et seq.; Waterworks Regulations, 12 VAC 5-590-10 et seq.

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Chapter 21 - WATER AND SEWAGE DISPOSAL  
ARTICLE I. IN GENERAL

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- (3) For a limited liability company, manager or if managed by the members, the managing member; or
- (4) A duly authorized representative of the individual designated in 1, 2, or 3, above, if such representative is responsible for the overall operation of the facility from which the discharge to the Publicly Owned Treatment Works (POTW) originates. The authorization must be submitted to the Director prior to or together with any reports to be signed by the authorized representative.

*Backup facilities* means those portions of the County's water and sewer systems which are used, respectively, to deliver water to or collect wastewater from local areas. Included are the County's complete water and sewer systems, excluding those facilities defined herein as local facilities. Water system backup facilities include without limitation: source of supply and treatment facilities, water transmission mains, pumping stations, storage facilities, and general plant items. Sewer system backup facilities include without limitation: interceptor and trunk sewers, pumping stations and force mains, wastewater treatment and disposal facilities, and general plant items.

*Best management practices (BMPs)* means those schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to implement the prohibitions listed in Virginia Administrative Code Title 9 Section 25-31-770 or the Act and to prevent or reduce the pollution of surface waters. BMPs also include treatment requirements, operating procedures, and practices to control plant site run-off, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

*Biochemical oxygen demand (BOD)* means the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures, five days at 20 degrees centigrade, expressed in terms of weight and concentration (milligrams per liter, mg/l).

*Building drain* means that part of the lowest horizontal piping of a drainage system which receives the discharge of waste from inside the walls of the building and conveys it to the building sewer, beginning five feet outside the inner face of the building wall.

*Building sewer* means the extension from a building wastewater plumbing facility or building drain to the treatment works, public sewer or other place of disposal.

*Categorical pretreatment standards* means any National categorical pretreatment standard, as defined below.

*Central sewage works* means a sewage works designed to serve two or more units.

*Central sewer* means a sewer designed to serve two or more units.

*CFR* means the Code of Federal Regulations.

*Code* means the Fluvanna County Code of Ordinances.

*Combined sewer* means a sewer intended to receive both wastewater and storm or surface water.

*Connected but not metered* means any premises served by the County sewer system which do not have water consumption or wastewater discharge measured by an approved meter.

*Connection fee* means a nonrecurring charge payable to the County for connecting to the County water or sewer system.

*Connector* means the person or entity connecting to any County water or sewer system.

*Contract user or Contract customer* means any user of the County water or sewer system located outside the County or which has service requirements determined by the County Engineer to be so unique as to require a contractual agreement for service; and for such contract users the terms and conditions of water or sewer system use are unique and are established by contract approved by the Board of Supervisors rather than governed by the fee schedule adopted as an Appendix A to this Code.



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*County* means Fluvanna County.

*County Engineer* means the County Engineer, if one is so serving, or his designee; however, if the County does not have an acting County Engineer, then the County Engineer shall mean the Director or his designee. The County Engineer may hire or use an outside contract engineer as needed with respect to reviews of any engineering matters affecting this Chapter or applications, submittals or plans of any kind submitted under this Chapter.

*Cross-Connection Control and Backflow Prevention Program Manual* means the latest edition of the Cross-Connection Control and Backflow Prevention Program Manual as adopted by the Board of Supervisors.

*Customer* means any user of any water or sewer or related systems or services of any kind covered by this Chapter owned or operated by the County.

*Day* means the 24-hour period beginning at 12:01 a.m.

*Department* means the department which manages the operation of the County's water or sewer system as designated by the Board of Supervisors from time to time, currently the Department of Public Utilities which is a department of the Department of Public Works.

*Utility Standards Manual (USM)* means the design and standards and specifications as set forth in the latest edition of the Fluvanna County Utility Standards Manual as adopted by the Board of Supervisors.

*Development* means any construction, addition or expansion of a structure capable of using a water supply or sewage disposal.

*Director* means the person responsible for the operation of the Department which manages the operation of the County's water or sewer system, currently the Director of Public Works. The Director of Public works may delegate his authority under this Chapter to the Director of Public Utilities.

*Discharge* means and includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, dumping or addition of a substance (which may include a pollutant) into the POTW or surface waters from any point source.

*Discharge of a pollutant* means: (i) Any spilling, leaking, pumping, pouring, emitting, emptying, dumping or addition of any pollutant or combination of pollutants to the POTW or surface waters from any point source; or (ii) any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. This definition includes additions of pollutants into the POTW surface waters from: surface run-off which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a state, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any indirect discharger.

*Discharger* means person or persons, firm, company, industry or other similar sources of wastewater who introduce discharge into the POTW or surface waters from any point source.

*Easement* means an acquired legal right for the specific use of land owned by others.

*Environmental Protection Agency (EPA)* means the United States Environmental Protection Agency, or a duly authorized official of the EPA.

*Existing source* means any source of discharge that is not a new source or a new discharger.

*Fire service* means a connection to the water system from the main to the property line providing water to a private fire protection system.

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*Garbage* means the solid animal and vegetable wastes resulting from the domestic or commercial handling, storage, dispensing, preparation, cooking, or serving of foods and from the handling, storage and sale of produce.

*Groundwater* means all water obtained from sources not classified as surface water including any water, except capillary moisture, beneath the land surface in the zone of saturation or beneath the bed of any stream, lake, reservoir or other body of surface water wholly or partially within the boundaries of the State, whatever the subsurface geologic structure in which such water stands, flows, percolates or otherwise occurs.

*Health department* means the office of the Virginia Department of Health (VDH) whose duties encompass Fluvanna County.

*Health officer* means the Health Director of the health department.

*Indirect discharge* means the introduction of pollutants into the POTW from any nondomestic source regulated under Section 307(b), (c), or (d) of the Act; 33 U.S.C. § 1317.

*Indirect discharger* means a nondomestic discharger introducing pollutants to a POTW.

*Industrial sewage or Industrial wastes* means sewage or wastes (including without limitation water-borne solids, liquids, or gaseous wastes) resulting from any Industrial user, including without limitation industrial manufacturing, trade, business, or food processing, operation or process, or from the development of any natural resource or any mix of these with water or domestic sewage as distinct from domestic sewage. Industrial sewage or Industrial wastes includes any liquid or other wastes resulting from any process of industry, manufacture, trade, or business, or from the development of any natural resources and any wastes created by a facility engaged in the conversion or combining of materials into a new or different material, or the processing of materials or objects for use or reuse, generally not for sale at retail on the premises of the manufacturing or processing facility.

*Industrial user* means any nondomestic user or a source of indirect discharge, or a nondomestic discharge, into the POTW. Industrial User shall include commercial, business, institutional and other uses which are not residential uses.

*Install; repair; approved; standard* means in accordance with the specifications and standards established by the USM, this Chapter and applicable law and regulations (including without limitation the laws of the Commonwealth of Virginia and United States), or if not so established, then generally accepted within the water and sewer system industry in the Commonwealth of Virginia.

*Interference* means an indirect discharge that, alone or in conjunction with an indirect discharge or discharges from other sources, both: (i) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use, or disposal; and (ii) therefore is a cause of, or contributes to, a violation of any requirement of the POTW's VPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of biosolids use or sewage sludge disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA) (42 U.S.C. § 6901 et seq.), and including State regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA) the Clean Air Act (42 U.S.C. § 701 et seq.), the Toxic Substances Control Act (15 U.S.C. § 2601 et seq.), and the Marine Protection, Research and Sanctuaries Act (33 U.S.C. § 1401 et seq.), or any more stringent State standard (including those contained in any State sludge management plan prepared pursuant to Title IV of the Act) applicable to the method of disposal or use employed by the County.

*Local facilities* means those portions of the County's water and sewer systems which are used, respectively, to deliver water to or collect wastewater from individual users in local areas, subdivisions, and developments. It includes local water distribution mains and valves; local wastewater collection mains; water service lines; meter setters; meter boxes; wastewater lateral lines to the user's premises; and fire hydrants.

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*Local limits* means specific discharge limits developed and enforced by the County upon industrial and commercial facilities to implement the general and specific discharge prohibitions listed in Title 40 CFR Part 403, other applicable Federal State or local law, and any applicable specific limits set by any treatment facility used by or affected by the County waterworks or utilities.

*May* is permissible; *Shall* is mandatory.

*Municipality* means a city or town.

*Monitoring manhole* means a manhole with a 24-inch opening which is installed on the discharge line from a user in order to facilitate collection of wastewater from only that user.

*Multifamily unit* as used in this Chapter means two or more single-family units in one structure, including condominiums and townhouses.

*Multimeter installations* means the installation of two or more meters in the same or adjoining vault which are served by a single service connection.

*National categorical pretreatment standard(s)* means any regulation containing pollutant discharge limits promulgated by the EPA in accordance with Section 307(a), (b), (c) of the Act (33 U.S.C. Section 1317) which applies to industrial users. For this Chapter, this term includes prohibitive discharge limits established pursuant to 9 VAC 25-31-770.

*National pollution discharge elimination system permit (NPDES permit)* means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements under the CWA including without limitation pursuant to Sections 307, 402, 318, and 405 of the CWA.

*Natural outlet* means any outlet into a watercourse, pond, ditch, lake, or any other body of surface or groundwater.

*New discharger* means any building, structure, facility or installation: (i) From which there is or may be a discharge of pollutants; (ii) That did not commence the discharge of pollutants at a particular site prior to August 13, 1979; (iii) Which is not a new source; and (4) Which has never received a finally effective VPDES permit for discharges at that site. This definition includes an indirect discharger which commenced/commences discharging into surface waters after August 13, 1979.

*New source* shall have the same meaning as provided in Title 40 CFR Part 403.3(m).

*Nondomestic* means associated with industrial or commercial waste or facilities.

*Not connected* means not physically connected to the County system after having paid connection fees, thereby not receiving water from or discharging sewage into any County system.

*Offsite extension* means an extension to mains in the existing County utility system in accordance with plans approved by the Director not on a connector's property or in a public right-of-way adjacent to a connector's property. Pump stations and other appurtenances to mains will be included when in accordance with approved plans and built to serve others.

*Onsite extension* means an extension to the existing County utility system in accordance with plans approved by the Department, on a connector's property and/or in a public right-of-way adjacent to a connector's property.

*Owner* means the owner of any Premises affected by this Chapter or operator of any facilities or systems affected by this Chapter.

*Pass through* means a discharge that exits the POTW into state waters in quantities or concentrations that, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's VPDES permit (including an increase in the magnitude or duration of a violation).

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*Permit holder* means an applicant(s) for a permit whose permit was approved.

*Person* means any individual, firm, company, association, society, partnership, municipal corporation, governmental body or agency, corporation, municipality, legal entity or other similar organization, agency or group or other legal entity.

*pH* means the logarithm (base 10) of the reciprocal of the concentration of hydrogen ions expressed in grams per liter of solution in accordance with the requirements of Title 40 CFR Part 136 and the Standard Methods.

*Point source* means any discernible, confined, and discrete conveyance including any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater run-off.

*Pollutant* means any dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, medical waste, chemical wastes, industrial waste, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and any industrial, municipal and agricultural waste discharged into water and certain characteristics of the wastewater (i.e., pH, temperature, TSS, turbidity, color, BOD, COD, toxicity, odor).

*Premises* means the property to which utility services will be, are being or have been supplied.

*Pretreatment or treatment* means the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. The reduction or alteration can be obtained by physical, chemical or biological processes or process changes or other means, except as prohibited by the Act, or applicable federal or State Law or regulation.

*Pretreatment requirements* means any substantive or procedural requirement related to pretreatment imposed on an industrial user, other than a pretreatment standard, including without limitation, the duty to allow or carry out inspections, entry or monitoring activities; any rules, regulations, or orders.

*Pretreatment standard* means (i) any regulation containing pollutant discharge limits promulgated by the EPA in accordance with Section 307(b) and (c) of the Act, which applies to industrial users, (ii) any prohibited discharge standards, (iii) categorical pretreatment standards; and (iv) local limits.

*Properly shredded garbage* means garbage that has been shredded to such a degree that all particles will be carried freely under flow conditions normally prevailing in the treatment works, with no particle greater than one-half inch in any dimension.

*Publicly-owned treatment works or POTW* means any treatment works, as defined by the Act, and specifically those owned by the County, together the treatment plant receiving the waste. This definition includes any devices or systems used in the collection, storage, treatment, recycling, and reclamation of municipal sewage or liquid industrial wastes and any sewers, pipes and other conveyances which convey wastewater to a POTW treatment plant.

*Public sewer* means a sewer system owned and operated by the County.

*Residential* means a group of rooms, including cooking accommodations, occupied exclusively by one or more persons living as a single housekeeping unit, including any approved accessory dwelling unit.

*Residential user or Residential Customer or Class I User* shall apply to a user for a Residential Premises used only for human residency connected to the POTW. This customer category includes individually metered multi-family housing units.

*Sanitary sewage or Sanitary wastewater* shall mean wastewater discharged from dwellings, office or business buildings, or institutions or other structures used for human habitation, exclusive of industrial wastes.

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*Sanitary sewer means* a sewer which carries sanitary sewage and to which storm, surface and groundwaters are not intentionally admitted.

*Septage* means wastes removed from septic tanks, grease traps, portable toilets or the like. Septage includes any liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

*Septic tank* means sewage works consisting of single-story settling tank in which part of the heavy solids is settled and the organic solids decomposed by anaerobic bacterial action.

*Service charge* means a charge based on the size of the water meter. Where water is not metered, the charge may be a flat rate. Service Charge includes any sewer service charge, as and where applicable.

*Service connection* means a pipe wholly within a public right-of-way or easement conveying water to a premises including the meter; or the pipe from the building sewer or private sewer system to the collector sewer that conveys wastewater, which pipe is or will be wholly within a public right-of-way or easement.

*Service District* means a service district established pursuant to Article V of this Chapter 21.

*Sewage disposal system* means any arrangement of devices and structures used for treating sewage.

*Sewage sludge* or *Sludge* means any solid, semisolid, or liquid waste or residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes solids removed during primary, secondary, or advanced wastewater treatment, scum, domestic septage, portable toilet pumpings, type III marine sanitation device pumpings, and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

*Sewage works* means all facilities for collecting, pumping, treating and disposing of sewage.

*Sewer* means any pipe or conduit for carrying sewage.

*Sewerage system* means pipelines or conduits, pumping stations and force mains and all other construction, devices and appliances appurtenant thereto used for conducting sewage or industrial wastes or other wastes to a point of ultimate disposal, together with the treatment plant.

*Significant industrial user* or *Significant Discharger* shall have the same meaning as provided in Title 40 CFR Part 403.3(v) and includes without limitation any industrial user who is subject to categorical pretreatment standards; or who has significant impact, either singularly or in combination with other significant dischargers, on the treatment works or the quality of its effluent. Significant Industrial User includes those defined as such under 9 VAC 25-31-10.

*Significant noncompliance* shall have the same meaning as provided in Title 40 CFR Part 403.8(f)(2)(viii).

*Significant violator* means any person who: (i) Fails to correct a violation for 45 days after notification of noncompliance; (ii) Shows a pattern of noncompliance; (iii) Shows a pattern of noncompliance over a 12-month period; (iv) Fails to accurately report noncompliance; or (v) Causes the County to exercise its emergency authority.

*Single-family residential unit* means a Residential group of rooms including cooking accommodations occupied exclusively by one or more persons living as a single housekeeping unit.

*Slug load* or *slug discharge* means any discharge at a non-routine or episodic flow rate or concentration which could cause a violation of this Chapter or in any other way violate the POTW's regulations, local limits, or permit conditions and specifically including any discharge of water, sewage or industrial waste which in concentration of any given constituent, or in quantity of flow, exceeds for any period of duration longer than 15 minutes more than five times the average 24-hour concentration of flows during normal operation; or any discharge of a non-routine, episodic nature, including but not limited to, an accidental spill or a non-customary batch discharge.

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*Standard methods* means the latest edition of Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association, Water Environment Federation and American Water Works Association.

*State* means the Commonwealth of Virginia.

*Storm sewer* or *Storm drain* means a sewer for conveying storm, surface, and other waters, which is not intended to be transported to a treatment works, but excludes sewage and industrial wastes.

*Stormwater* means stormwater run-off, snow melt run-off, and surface run-off and drainage.

*Strong waste* means a wastewater discharged to the POTW that exceeds 250 milligrams per liter (250mg/l) of suspended solids and/or a BOD of 250 milligrams per liter (250 mg/l), or discharge of fats, grease or oils in excess of local limits.

*Subsurface disposal field* means the process of sewage disposal in which the sewage effluent is applied to land by distribution beneath the surface through open-jointed pipes or tiles laid in trenches.

*Surface water* means: (i) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (ii) All interstate waters, including interstate "wetlands"; (iii) All other waters, such as inter/intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (a) Which are or could be used by interstate or foreign travelers for recreational or other purposes, (b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce, or (c) Which are used or could be used for industrial purposes by industries in interstate commerce; (iv) All impoundments of waters otherwise defined as surface waters under this definition; (v) Tributaries of waters identified in paragraphs (i)—(iv) of this definition; (vi) The territorial sea; and (vii) Wetlands adjacent to waters other than waters that are themselves wetlands, identified in (i)—(vi) of this definition.

*Suspended solids* means all solids that either float on the surface of or are in suspension in water, sewage, wastewater, or other liquids, and which are removable by laboratory filtering. Quantitative determination of suspended solids shall be made in accordance with the provisions of 40 CFR Part 136.

*Toxic or Toxic Pollutant* means any of the pollutants designated as toxic by the Act including without limitation under § 307(a)(1) of the CWA or, in the case of sludge use or disposal practices, any pollutant identified in regulations implementing § 405(d) of the CWA.

*Treasurer* means the Fluvanna County Treasurer.

*Treatment facility* means only those mechanical power-driven devices necessary for the transmission and treatment of pollutants (e.g., pump stations, unit treatment processes).

*Treatment works* means any devices and systems used for the storage, treatment, recycling and/or reclamation of sewage or liquid industrial waste, or other waste necessary to recycle or reuse water, including intercepting sewers, outfall sewers, sewage collection systems, individual systems, pumping, power and other equipment and their appurtenances, extensions, improvements, remodeling, additions, or alterations, and any works, including land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment, or any other method or system used for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste or industrial waste, including waste in combined sewer water and sanitary sewer systems.

*Underground leak* means a water leak on the premises of the user whose system is connected to the County system, which leak is in pipes only and then only if the pipe cannot be seen without digging or destroying property, but excluding leaks due to faulty installation of private systems, even if underground, and leaks due to mechanical failure or malfunction.

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*U.S.C.* means the United States Code.

*User* means a person or persons, as defined above, including any business or industrial establishment that benefits from the use of utility services or any County POTW and includes an applicant.

*User permit* or *Permit* means a permit, certificate or other equivalent document issued by the Director or County POTW to the User to implement the requirements of this Chapter and which may permit the connection to any utility service or County POTW and/or introduction of wastes into the treatment works.

*VAC* means Virginia Administrative Code.

*VDH* means the Virginia Department of Health.

*Virginia Pollutant Discharge Elimination System permit* or *VPDES permit* means a document issued by the Virginia State Water Control Board or State Water Control Board authorizing, under prescribed conditions, the potential or actual discharge of pollutants from a point source to surface waters and the use of biosolids or disposal of sewage sludge. Under the approved state program, a VPDES permit is equivalent to an NPDES permit.

*Volume charge* means a charge in proportion to volume of water used or sewage contributed.

*VPDES* means the Virginia Pollutant Discharge Elimination System permit program, as administered by the Commonwealth of Virginia.

*VPDES application* or *application* means the standard form or forms, including any additions, revisions or modifications to such forms, approved by the administrator and the board for applying for a VPDES permit.

*Wastewater* means the liquid and water-carried industrial or domestic waste from dwellings, commercial buildings, industrial facilities and institutions, together with any groundwater, surface water and stormwater, whether treated or untreated, which is contributed into or permitted to enter the POTW.

*Waterworks Regulations* means Title 12 Health, Agency 5 Department of Health, Chapter 590 Waterworks Regulations of the Virginia Administrative Code.

In the case of any terms not defined above, the Board of Supervisors hereby adopts by reference all definitions included in 9 VAC 25-31-10, Definitions. Each and every reference herein to any code, statute or regulation shall be deemed to refer to the same, or to any successor statute or regulation which addresses substantially the same subject matter, as the same may be amended from time to time.

History prior Sec. 21-4-9. – definitions (Ord. 6-20-07; Ord 11-18-15).

**Sec. 21-1-2. Penalty; Classification of and penalties for violations; continuing violations; injunctive relief.**

- (A) Generally, acts which this Chapter declares to be unlawful, or any other violation of this Chapter, shall be punishable as provided in Section 1-10 of the County Code unless specific provisions of this Chapter provide otherwise. In addition, any person or user that violates the provisions of this Chapter shall be subject to a fine of up to \$2,500.00 per day for each day the violation continues if convicted hereunder. Each day, or portion thereof, a violation continues shall constitute a separate violation.
- (B) It is unlawful for any person to knowingly makes any false statements, representation or certification in any application, record, report, Permit, plan or other document filed or required to be maintained pursuant to this Chapter, or who falsifies any monitoring device or method required under this Chapter.
- (C) In addition to the foregoing, the County Attorney is hereby authorized to take appropriate action by injunction or other appropriate proceeding to restrain, correct, or abate any violation or attempted

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violation of this Chapter or any regulation adopted hereunder, applicable federal or State Pretreatment Requirements, any order of the County issued pursuant to this Chapter, or a permit issued under this Chapter. The County Attorney is further authorized to petition the court for a writ of mandamus or by other appropriate proceeding of cause compel enforcement of this Chapter including by any State or federal authority of any rules or regulations adopted to regulate any of the activities set out in this Chapter.

- (D) In addition to any criminal penalties provided under this Article, any person who violates any provision of this Article may be liable to the County in a civil action for damages.

History prior Sec. 21-5-51 – legal action (Ord. 6-20-07); Sec. 21-4-52. – penalties (Ord. 6-20-07); and Sec. 21-4-53 falsifying information (Ord. 6-20-07).

**State Law reference**— Authority of Board of Supervisors to prescribe fines and imprisonment for violations of ordinances, see Code of Va., § 15.2-1429; as to punishment for conviction of misdemeanors, see Code of Va., § 18.2-11 and 18.2-12.

Cross-Reference Chapter 1, Section 1-10 General Penalty; continuing violations.

**Sec. 21-1-3. Approval of development not using public water and sewer; Systems not covered by Chapter.**

For any development which will not use public water and/or sewer, and before any development of a sewage disposal system not specifically covered by this Chapter, the State Health Department must inspect the property and approve the water supply and/or sewage disposal plans, and any well must be pressure tested and found by the health department to be adequate. If required by applicable law, the State Water Control Board shall also approve the plans.

The Fork Union Sanitary District is specifically covered by Chapter 9 of the Code and is also covered by certain provisions of this Chapter 21 to the extent permitted by applicable law. If Chapter 9 and Chapter 21 of the Code have conflicting provisions, then for services provided by or related to the Fork Union Sanitary District the provisions of Chapter 9 of the Code shall control with respect to those services and the related facilities, systems, and customers of the Fork Union Sanitary District. When a provision of this Chapter applies to a customer of the Fork Union Sanitary District or a property or system served by the Fork Union Sanitary District, then (i) any rights of entry, inspection, or similar requirement granted to the County hereunder shall also be granted to the authorized employees and agents of the Fork Union Sanitary District; and (ii) any reporting, application, or other requirements to be made to the County shall be made to the Fork Union Sanitary District.

History prior Sec. 21-1-2. – systems not covered by chapter (Comp. 1974, ch. 12).

**Sec. 21-1-4. Sewage Disposal—Description of approved methods.**

For the purposes of this Chapter, an approved method of disposal of human excrement shall be deemed to be:

- (1) A properly installed and properly functioning flush toilet connected to one (1) of the following:
  - a. An approved public or privately owned sewage disposal system; or
  - b. An approved properly installed septic tank system.
- (2) An existing standard pit privy constructed, operated and maintained in accordance with applicable law subject to the approval and monitoring, as applicable, by the Virginia VDH; new pit privies shall be allowed by waiver in accordance with applicable State Law and specifically the Uniform Statewide Building Code, and only if approved by the Virginia VDH.



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History prior Sec. 21-1-1. – Approved method of disposal of human excrement required (Comp. 1974, ch. 12).

**Sec. 21-1-5. Wastewater Disposal.**

It shall be unlawful to construct or maintain any privy, privy vault, septic tank, cesspool or other facility intended or used for the disposal of sewage or wastewater, except in accordance with this Chapter, and in accordance with Applicable Laws.

History prior Sec. 21-4-13. -Wastewater disposal (Ord. 6-20-07).

**Sec. 21-1-6. Sewage Disposal; Sites under construction.**

In order to prevent the spread of contagious diseases among persons or animals and for the prevention of the pollution of water which is dangerous to the health or lives of persons residing in the County, the owner of every parcel of real property in the County upon which is constructed, reconstructed or repaired any building or structure shall provide reasonable facilities for the lawful and sanitary disposal of human excrement for the use of persons engaged in such construction, reconstruction or repair. Such facilities shall comply with this Chapter, all applicable regulations of VDH and all other applicable law. It shall be sufficient compliance with this Section to provide access to approved temporary or permanent sewage disposal facilities within 500 feet of the building or structure which is under construction.

History prior Sec. 21-1-1.1. – same; sites under construction\* (Ord. 6-20-18).

**Secs. 21-1-7. Wastewater Disposal; Sites under construction.**

In order to prevent the spread of contagious diseases among persons or animals and for the prevention of the pollution of water which is dangerous to the health or lives of persons residing in the County, the owner of every parcel of real property in the County upon which is to be constructed, reconstructed or repaired any building or structure shall provide reasonable facilities for the lawful and sanitary disposal of wastewater for the use of persons engaged in such construction, reconstruction or repair. Such facilities shall comply with this Chapter, all applicable regulations of VDH and all other applicable law.

**Sec. 21-1-8. - Waste disposal.**

It shall be unlawful for any person to place, deposit, or permit to be deposited in any condition that is unsanitary or unhygienic on public or private property within the County, or in any area under the jurisdiction of the County, any human or animal excrement, garbage, or other objectionable waste.

History prior Sec. 21-4-11. – Waste disposal (Ord. 6-20-07).

**Sec. 21-1-9. Notice to correct violations.**

If upon any inspection, the Director, the County Administrator, the County Engineer, or a health officer or any of their authorized agents shall find any violation of this Chapter or the provisions of any permit issued under it, he shall direct to the owner or the person to whom the permit was issued, as applicable, a written notice to make the necessary corrections within the time as shall be specified therein. This is not a limitation on the rights of the County to take immediate action if and as permitted by this Chapter. Those penalties for violations of the Chapter under Section 21-1-2 are not limited by this Section 21-1-9 and can be pursued notwithstanding any notice hereunder.

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History prior Sec. 21-1-4. – Notice to correct violations (Min. Bk. 5, pp. 95-96, 144; Min. Bk. 7, p. 277; Comp. 1974, ch. 12).

**Sec. 21-1-10. - Severability.**

If any part, Section, subsection, sentence, clause or phrase of this Chapter or its application to any persons or circumstances is for any reason held to be unconstitutional or invalid by the final judgment of a court of competent jurisdiction, such decision shall not affect the constitutionality or validity of the remainder of this Chapter or other applications thereof.

History prior Sec. 21-4-7. – Severability (Ord. 6-20-07).

**Sec. 21-1-11. – Interpretation and Amendments of this Chapter.**

This Chapter may be amended, as provided by general law, from time to time. Any requirements of this Chapter shall be in addition to and not a waiver of any other requirements of Applicable Law including without limitation any requirements of the Zoning or Subdivision Ordinances of this Code and the Uniform Statewide Building Code.

History prior Sec. 21-4-8. – Amendments of this Article (Ord. 6-20-07).

**Sec. 21-1-12. Fees and charges generally; and payment for inspection.**

- (A) All fees and charges payable under the provisions of this Chapter shall be paid to Fluvanna County. Such fees and charges shall be as set forth herein or as established in the fee schedule adopted as an Appendix A to this Code or as specifically set forth in this Code.
- (B) All user fees, penalties and charges collected under this Article (and the treatment works user charge schedule) shall be used for the sole purpose of constructing, operating or maintaining the public water and sewer system of the County, including without limitation the POTW and treatment works of Fluvanna County, or the retirement of debt incurred for the same.
- (C) All fees and charges payable under the provisions of this Chapter are due and payable upon the receipt of notice of charges. Unpaid charges shall become delinquent and shall be subject to penalty and interest charges as specifically set forth in this Code in Section 21-1-17.
- (D) Notwithstanding the foregoing, payment for inspections shall be at the hourly rate for the person doing the inspection on water and sewer lines.

History prior Sec. 21-4-4 – Fees and charges (Ord. 6-20-07).

State Law Reference(s) Authority for above Section, Code of Va., § 15.2-2119, §15.2-2119.1, and §15.2-2119.4.

**Sec. 21-1-13. Liens—Taxes and charges to constitute lien.**

To the extent permitted by Section 15.2-2118, all fees, delinquent amounts, late fees, interest, assessments, taxes or charges imposed by this Chapter for water or sewer or use thereof shall automatically be a lien on the real estate served by such water line or sewer. To the extent 15.2-2118 is inapplicable to the County, all fees, delinquent amounts, late fees, interest, assessments, taxes or charges imposed by this Chapter for water or sewer or use thereof shall constitute a lien against the property only in accordance with Section 15.2-2119. Nothing in this provision shall not relieve the tenant or resident of such property from his obligation to pay such charges.

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Hist. Prior Sec. 21-4-44. – Wastewater service charges (Ord. 6-20-07).

State Law reference(s)—Authority for above Section, Code of Va., § 15.2-2118; enforcement of such lien, § 15.2-2119, § 15.2-2120.

**Sec. 21-1-14. Enforcement of Liens.**

Any such lien, when properly docketed in the Clerk's office of the Circuit Court, may be enforced in the same manner as other taxes to the County, or by terminating water service, provided the public health and safety will not be endangered thereby.

State Law reference—Authority for above Section, Code of Va., § 15.2-2120.

**Sec. 21-1-15. Interpretation.**

A word importing the masculine or neuter gender only may extend and be applied to females and to corporations as well as males, and vice versa. A word importing the singular number only may extend and be applied to several persons or things as well as to one person or thing; and a word importing the plural number only may extend and be applied to one person or thing, as well as to several persons or things. Any reference to a specific provision of Federal, State, or local law referenced in this Chapter shall mean such provision of law, as amended from time to time, or as set forth in any successor provision dealing with substantially the same subject.

**Sec. 21-1-16. Delegation of Authority.**

The Director may specifically delegate authority to employees as his agents from time to time as deemed appropriate by the Director.

**Sec. 21-1-16.1. Administration.**

The Director shall implement and enforce the provisions of this Chapter.

Hist. Prior Sec. 21-4-3. – Administration (Ord. 6-20-07).

**Sec. 21-1-17. Interest for failure to pay accounts when due.**

Any person failing to pay any account or amounts due under this Chapter on or before its due date shall incur a late penalty on such delinquent amounts in the amount of \$10.00 or ten percent of the overdue delinquent amount, whichever is greater. The late penalty shall be added to the amount due from such person. No penalty will be added to any account if the failure to pay by the due date was not in any way the fault of the responsible person as determined by the Director. Interest at the rate of ten percent annually from the first day following the day such account is due shall be collected upon the principal and late penalty(ies) of all such delinquent accounts.

State Law Reference(s) - Authority for above Section, Code of Va., § 15.2-2119 and §15.2-105.

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**ARTICLE II. WATER**

*DIVISION 1. GENERALLY*

**Sec. 21-2-1. Purpose, Management and control of waterworks generally.**

The purpose of this Article is to provide for the maximum possible beneficial public use of the Fluvanna County waterworks through regulation of construction, water use, and wastewater discharges; to provide for equitable distribution of the costs of the waterworks; and to provide procedures for complying with the requirements contained herein.

The Director, who shall work with the County Engineer as needed, shall have the general management and control of the waterworks and the properties appertaining thereto.

**Sec. 21-2-2. Records of mains, etc.**

The Director shall keep on file in his office suitable records showing the size and location of all existing water mains, service connections and appurtenances thereto.

**Sec. 21-2-3. Service generally.**

The Director shall establish procedures and give all orders to his agents to set, reset, take out and change meters, turn on and turn off water service, protect water system equipment, bill and collect for water service, and all other orders required in connection with furnishing water to customers. The Director's agents shall perform these orders reasonably promptly. The Director may delegate any of these functions to the County Engineer in the Director's discretion as deemed appropriate by the Director.

**Sec. 21-2-4. Right of entry by County.**

Every person occupying premises to which water service is provided shall permit any authorized County employee or agent to enter the premises at reasonable times to examine the service lines, meters or other equipment and to take up, repair or remove them so as to determine compliance with this Code, this Chapter, or other County regulations or applicable law. Examinations shall comply with all constitutional requirements.

**Sec. 21-2-5. Obstructing valves, etc.; wasting water; liability for damages.**

No person shall place any building material, rubbish or any other matter on the stopcock or valve of a water main or service pipe, obstruct access to any fixture connected with the waterworks or open any pipe, fire hydrant, meter, meter box or valve so as to waste water. No person shall use water for which he has not made proper application pursuant to Section 21-2-38 of this Chapter unless authorized by the Director or by the provisions of this Code, with specific reference to this Chapter. The owner of the premises shall be responsible for water obtained illegally from the owner's service connection. In addition to any other penalty that may be imposed, any person defacing or destroying waterworks property shall be held liable for its repair or replacement.

**Sec. 21-2-6. Use of water in cases of disrepair or fire.**

Notwithstanding any other provisions of this Chapter, the occupant of premises supplied with County water whose hydrant or pipe is out of order may use water from the hydrant or pipe on another property with the

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owner's permission. Any person may use County water to put out a fire in an emergency, and fire companies may use County water to practice and to examine, clean and put their engines and hoses in good condition.

**Sec. 21-2-7. Extensions to existing lines.**

No extensions shall be made to existing water lines without written approval of the Director and the County Engineer. The application fee can be found in the County's fee schedule adopted as an Appendix A to this Code. Applicants for approval shall submit at least four copies of plans and specifications prepared by a registered engineer licensed to do business in the state. In the case of subdivisions, site plans and plans of development only, a licensed land surveyor may prepare plats, plans and profiles to the extent and in the manner permitted by Section 54.1-408 of the Code of Virginia. No construction shall commence until approval has been obtained from the Director, County Engineer, and any other applicable governing body or department. Extensions to existing private lines is discussed in Section 21-2-117.

**Sec. 21-2-8. Connections to existing water mains.**

- (A) *Connection required.* Every occupied building located on property within the County where the public water system is at the property line, or within a street, alley, right-of-way or easement abutting such property, shall be connected with such system.
- (B) *Mandatory connection; exceptions.* Unless otherwise required by the Code, connection will not be required where:
- (1) Providing public water to the property requires an extension of the water system other than an installation of a service lateral 400 feet or less in length; or
  - (2) The residential structures, buildings or properties are located more than 200 feet from the property line nearest the public water; or
  - (3) Any one single-family residential unit, but not excepting a residential subdivision;
  - (4) Any occupied buildings are utilizing private water systems at the time public water service is made available to the property, provided such water systems are operated and maintained in strict conformance with the requirements of all governmental agencies having jurisdiction over such systems and are not altered, enlarged or replaced without the appropriate approval(s) and permit(s) of such governmental agencies.
- (C) *Exclusive use of public water; exceptions.* Once a building or other facility is connected to the public water system, the water from the public system shall be consumed or used in and about the premises on which such building or facility is located to the exclusion of all other sources; provided, however, that a development or facility may use an alternative water source solely for nonpotable water purposes. The alternative water source used solely for nonpotable water purposes shall not be interconnected to the public water source and shall meet all other Applicable Law.
- (D) Additionally, in any Service District, a building or structure not existing as of the inception of such Service District shall be required to connect to the public water supply system whenever the distance from the public water supply system to the building or structure is 500 feet or less. Except that, for one single-family residential dwelling not existing as of the date of inception of the applicable Service District located on a lot of record as of the same date, the distance for mandatory connection shall be 200 feet.
- (E) Such connections shall be made, if approved by the Director and County Engineer, upon application and payment of a connection fee and deposit, which fee and deposit amount are as set forth in the County's fee schedule adopted as Appendix A.

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**Sec. 21-2-9. Fire hydrant painting.**

For all public fire hydrants, the body (barrel) and discharges (nozzles) shall be fire hydrant red in color with either a reflective top coat or a reflective element mixed in with the red. The bonnet shall be fire hydrant red in color with either a reflective top coat or a reflective element mixed in with the silver/aluminum. All hydrant discharge caps are to be fire hydrant red in color. Manufacturer color specifications shall be submitted to the Director for approval prior to installation. This coloring scheme is not applicable to dry hydrants.

**Sec. 21-2-10. Use of public water for irrigation.**

No public water supply may be used for irrigation, except as may be approved in writing by the Director. The Director may set reasonable conditions upon any use of the public water supply for irrigation.

**Sec. 21-2-11. Defacing or injuring system.**

- (A) It shall be unlawful for any person to maliciously, willfully, or negligently break, damage, destroy, uncover, deface, injure, disturb, or tamper with any structure, appurtenance or equipment which is connected to the County's water system or is a part of the County's waterworks, public water supply and distribution system, or any appurtenance thereto.
- (B) It shall be unlawful for any unauthorized person to break, damage, destroy, uncover, deface, injure, disturb, or tamper with any structure, hydrant, meter, valve, pipe or other fixture which is connected to the County's water system or is a part of the County's waterworks, public water supply and distribution system, or any appurtenance thereto.
- (C) In addition to criminal charges arising under Section 21-1-2 related to any activities described in (A) and (B) above, such person shall be held liable for any repair or replacement to the County's water system or any part of the County's waterworks, public water supply and distribution system or appurtenances thereto.

**Sec. 21-2-12. Unauthorized use of public water.**

- (A) It shall be unlawful for any person to divert or remove, or cause another person to divert or remove, water from a fire hydrant or other unauthorized location on the public water supply and distribution system, without written authorization from the Director.
- (B) In addition to criminal charges arising hereunder, any person unlawfully removing water from the public water supply and distribution system shall be held liable for the water used at standard rates. If the amount of water unlawfully removed is uncertain, a flat fee of \$500.00 shall be assessed per day that water was removed.

**Sec. 21-2-13. Hydrant meters.**

- (A) *Provision of hydrant meters, deposit required.* A hydrant meter shall be leased from the County for the purpose of recording water withdrawn from County-approved fire hydrants upon submittal of a signed lease agreement to the Director and payment of the lease deposit found in the County's fee schedule adopted as an Appendix A to this Code.
- (B) *Water usage and administrative charges.* Water usage charges for water consumed through hydrant meters can be found in the County's fee schedule adopted as an Appendix A to this Code. If usage is less than 1,000 gallons over a one-year period, the meter shall be returned to the County and the agreement terminated. A monthly administrative charge found in the County's fee schedule adopted as

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an Appendix A to this Code, shall also be assessed to each lessee for every month a hydrant meter remains in the possession of such person. If lessee fails to pay total amount due by the due date, a late payment penalty in the amount of \$10.00 or ten percent of the overdue amount, whichever is greater, will be added to lessee's bill. This late payment penalty shall be charged in each month that there is an overdue amount on any overdue balance.

- (C) *Monthly meter reading reports; billing based on estimate where no report given.* Meter readings certified by the lessee must be provided to the Department by the 10<sup>th</sup> day of each month for recording and billing. If lessee fails to report meter readings as required in this paragraph, the Director shall estimate a water usage based on an average of the last two billing periods. To the extent there is an increase in the estimated billing amount, a late payment penalty in the amount of \$10.00 or ten percent, whichever is greater, will be added to the increased billing amount.
- (D) *Annual inspections; lease terminated.* All meters must be returned to the Department annually on or before the yearly anniversary date of the signed lease agreement for a condition check and reading verification. If meters are not returned to the County within ten days of the anniversary date a fee of \$25.00 plus \$1.00 per day thereafter will be added to the billing amount or deducted from the deposit. If such failure to return or delinquency of a hydrant meter billing amount continues for a period of 15 days following written notice of such failure or delinquency, such lease shall automatically terminate, the lease deposit will be forfeited, and the County may take possession of the meter. The notice shall be sent by first class mail to the person leasing the meter and shall specify that lease termination, deposit forfeiture and meter repossession will result if such failure or delinquency continues beyond the 15-day period. Such service shall not thereafter be provided to such lessee unless the meter is returned or repossessed, a new lease agreement signed, a new deposit is paid and any delinquent amounts are paid. Meters must be available for inspection by County personnel at any reasonable time.
- (E) *Damage to County equipment.* If the hydrant meter is damaged or in any way tampered with, the cost to repair or replace the equipment will be at the expense of the lessee. If it is found that the backflow prevention device has been compromised or tampered with, the lease agreement will be terminated and the deposit will be forfeited.
- (F) *Lost or stolen equipment.* The lessee shall notify the County immediately if the meter is lost or stolen. The lessee shall reimburse the County for the cost of the meter within 30 days of such notification.

**Secs. 21-2-14 – 21 -2-20. Reserved.**

*DIVISION 2. WATER SHORTAGE*

**Sec. 21-2-21. Authority of County Administrator to make emergency declaration.**

The County Administrator is hereby authorized to declare emergencies in any or all areas supplied by the County affecting the use of water during any period in which there is a water shortage. In addition, the County may issue requirements for mandatory water use reductions during water shortage emergencies declared by the County or other regulatory authority consistent with Sections 15.2-923 and 15.2-924 of the Code of Virginia or other applicable law. During such emergency, for the protection of the health, safety and welfare of the residents of the County Administrator may require that certain uses of water, not essential to public health, safety and welfare, be reduced, restricted or curtailed.

**Sec. 21-2-22. Use of water.**

In addition to any other use limitations or requirements instituted during such emergency by the County Administrator pursuant to Section 21-2-21 it shall also be unlawful for any person whose water supply is furnished

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from a County-owned or -operated water system during any declared emergency to water or sprinkle lawns, gardens or to use water for any purposes not reasonably essential to public health, safety and welfare, between the hours of 7:00 a.m. and 10:00 p.m. each day or such other period of time as is deemed necessary by the County Administrator. All portions of the County water supply and distribution system using water from the County water system shall fall under such water use restrictions as may be imposed by Fluvanna County upon a declaration by the County Administrator.

**Sec. 21-2-23. Notice of declaration.**

In declaring an emergency pursuant to this division, the County Administrator shall post a notice on the County's website and a written notice of emergency at the front door of the courthouse and at two prominent places in the affected areas in which such emergency is declared; in addition, thereto, he shall run an item in a newspaper of general circulation in the area in which such emergency has been declared.

**Secs. 21-2-24—21-2-30. Reserved.**

*DIVISION 3. CHARGES*

**Sec. 21-2-31. Reading meters.**

In order to facilitate the rendering of bills for water consumed and the collection thereof, the Director shall usually cause all water meters to be inspected and read monthly, but at least bi-monthly, in order that proper bills may be prepared and presented to each customer. Notwithstanding the foregoing, on occasion consumption may be estimated; however, not more than two (2) consecutive bills will be estimated except in emergencies. It shall be the responsibility of the owner, user and/or tenant of the premises to keep the meter box free from debris or any obstacle or animal which will hinder the reading of the meter.

**Sec. 21-2-32. Collection generally; promulgation of rules and regulations.**

Water and Sewer customers' accounts and collection shall be under the supervision and control of the Director, who may, from time to time, make such rules and regulations, subject to the approval of the County Administrator and the Board of Supervisors, as may be found necessary or deemed advisable under this Chapter and consistent with applicable law.

**Sec. 21-2-33. Payments for water generally; service deposit by tenant.**

- (A) A customer set up fee, found in the County's fee schedule adopted as an Appendix A to this Code, shall be charged on the first bill of every new water or sewer account whether established by a new customer or an existing customer, and on any account being transferred to a new responsible person. Water bills shall be paid at the County Treasurer's office or to an agent appointed to receive such payments. Any appointed agents are authorized to accept payments for the total amount due only. The Treasurer may appoint one or more agents to receive monies from the sale of water; however, all deposits or advance payments for water, refunds to depositors of advance payments for water, refunds to depositors of advance payments, refunds on account errors or other proper refunds shall only be made at the Treasurer's office. Bills shall be considered as paid only after the payment is properly validated by the Treasurer.
- (B) In addition to (A), persons applying for service to property that they do not own will be required to have the property owner submit to the Department a written authorization permitting such tenant or lessee to



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obtain water or sewer in the name of such lessee or tenant and the form of such authorization must comply with Section 15.2-2119.4 of the Code of Virginia. In addition, the County requires a deposit, to be held by the County as surety, without interest, so long as the service is continued to such tenant or lessee in an amount as required under Section 15.2-2119.4(B) of the Code of Virginia unless such deposit is not permitted pursuant to Section 15.2-2119.4(J). The deposit amount can be found in the County's fee schedule adopted as an Appendix A to this Code. Applicants may be granted one week for the posting of the deposit if the application is made other than in person. Deposits not received within such time shall be billed to the customer's account. When service is discontinued, the deposit shall be applied to the final bill, and if the deposit exceeds the amount owed, the excess will be refunded except as provided in Section 21-2-40 below. Delinquent charges, late fees, interest and other fees attributable to a under this Chapter shall accrue to a tenant or lessee as would apply to an owner.

State Law Reference(s) Authority for above Section, Code of Va., § 15.2-2119 and §15.2-2119.4.

**Sec. 21-2-34. Payment per meter reading generally; relief in certain cases.**

All water passing through a meter will be charged whether used or wasted, beginning with the installation of the meter; provided that, where underground leaks occur in water pipes or metered services and the owner, agent, or tenant shall have promptly made and provided adequate proof of all necessary repairs, the Director may rebate the amount which is in excess of double the amount of the average monthly bills for the premises. The Director may grant this relief where an unknown problem results in metered water consumption in excess of double the average monthly bills and, in the Director's judgment, the water was not beneficially used. Adjustments for an unknown problem will be limited to once in a three-year period per customer unless an extreme hardship exists. The average monthly bill shall be determined by averaging the monthly bills for the corresponding billing cycle from the previous three years. If there is insufficient historical billing data, the Director may determine the average monthly bill with the billing data available. Provided, however, that in no event shall an adjustment be made that would result in an amount less than necessary to cover the volume, administrative, and other costs for the water actually provided.

**Sec. 21-2-35. Billing frequency.**

Bills shall normally be rendered monthly. The Director may direct bimonthly billing of customers' accounts if deemed to be in the best interest of the County.

**Sec. 21-2-36. Overdue bills; disconnection for nonpayment generally.**

- (A) The due date for all utility bills for water and sewer service shall be 30 days from the issuance of the bill. If the total amount due for water or sewer service is not remitted by the due date, the account is deemed delinquent and consistent with Section 21-1-17 a late charge of ten percent of the amount due or \$10.00, whichever is greater, shall be assessed on all outstanding bills more than 30-calendar-days old. The late charge shall be applied once per account per delinquency regardless of the type of service provided (water, sewer, or both). A notice of delinquency will be issued if the delinquent amount and late charge are not paid within 30 days of the due date. In addition, all outstanding bills delinquent more than 30-calendar-days from the issuance of the bill will accrue interest at the rate and as set forth in Section 21-1-17. If a person is unable to pay the full amount due on the account, the Director may agree to a payment plan allowing the full amount due on the account to be paid over a specific period of time only if and as permitted by Applicable Law. No late charge shall be imposed for failure to pay any account, if such failure was not in any way the fault of the user consistent with Section 21-1-17. Interest on overdue amounts and late penalties shall apply as set forth in Section 21-2-17.

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- (B) If the delinquent charges, fees, and interest are not paid within 30 days after the due date for a commercial or industrial user, or 60 days after the due date for a residential user, the supply of water to the premises shall be discontinued unless specifically prohibited by Applicable Law. A written notice that water service will be discontinued shall be issued at least ten business days prior to cessation of service. If the delinquent charges, fees, and interest are not paid within those ten business days, water service will be discontinued. Notwithstanding the foregoing, certain provisions of other applicable law may prohibit the Director from discontinuing service for some users in accordance with the preceding clauses, in the event the Director determines it is not permitted by other applicable law to discontinue service for a specific user, the Director shall only discontinue such user's service at such later time when and if permitted by the other applicable law.
- (C) Payment in full of all delinquent charges, fees, and interest and a reconnection charge as may be found in the County's fee schedule adopted as Appendix A to this Code, payable in advance will be required before the water supply is restored. So long as the premises are occupied by the person who is in default on account of nonpayment of any such bill, including the appropriate reconnect charge, water shall not be restored to such premises. Water shall not be supplied to any premises on the application or for the benefit of any person who is in default by reason of nonpayment of any such bill, including the appropriate reconnect charge. If a user vacates the premises, the outstanding charges may be transferred to any other premises within the County where the user has service and if not paid within the time specified service may be discontinued at the latter premises.

State Law Reference(s) Authority for above Section, Code of Va., § 15.2-2119, §15.2-2119.1, and §15.2-2119.4.

**Sec. 21-2-37. Charges when meter is broken.**

If a water meter fails to register properly for any cause, and the customer has received the usual or necessary supply of water during the time of such failure of the meter to register, then it shall be lawful to bill the customer for such amount as is shown to be the average monthly amount of water consumed on his premises for the preceding six-month-period, if available, or for a longer period if deemed proper by the Director, or for the percentage of this consumption shown by the test of the meter. This section 21-2-37 also applies to users of sewer only with respect to a water meter from a non-County source.

**Sec. 21-2-38. Application for water service where service exists.**

Under the provisions of this Chapter as hereinafter provided, water or sewer may be supplied to any premises upon proper application to the Director, who shall work with the County Engineer, which application must be made at least three days prior to occupancy. In the event the occupant has failed to make application, he shall be secondarily liable for all water consumed and all sewer usage made from the previous regular reading, and the supply of water shall be shut off until such time as proper application is made.

**Sec. 21-2-39. Responsibility of moving tenant; new service for delinquent user.**

When the tenant of a premises using water and/or sewer is about to move, he shall give the Director at least three (3) days' notice thereof that the water shall be stopped, or he will be chargeable for any water that may pass through the meter before it was cut off and/or sewer use. Any user leaving a premises without paying for the water consumed or sewer used by him therein up to that time shall not have the use of water or sewer in the premises to which he may move until the amount so due from him shall have been paid; except that such service shall be provided on a lot or premises where the customer's landlord was paying utility bills for the customer and the customer was not in default in his payments to the landlord.

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**Sec. 21-2-40. Water service and volume charges.**

(A) *Charges.* The charges for water service shall consist of a service charge, plus a volume charge, as set by the Board of Supervisors from time to time and set forth in Appendix A. These charges are categorized as follows:

- (1) *Service charge.* All users billed monthly for water service in accordance with Section 21-2-35 shall pay the amount fixed from time to time by the Board of Supervisors for each meter.
- (2) *Volume charge.* In addition to the service charges, the volume charges shall apply to all water delivered and are listed separately in the monthly bill.

(B) *General provisions.*

- (1) Any bills rendered for less than a full billing period shall have the service charge prorated according to days of use, plus the actual volume charge; except that the minimum prorated bill shall be fixed from time to time by the Board of Supervisors for all services (water, sewer) combined. When service is discontinued, the deposit shall be applied to the final bill, and if the deposit exceeds the amount owed, then credit balances on final bills of less than \$5.00 shall not be refunded unless requested by the user in writing within six months of the date the final bill was issued. Credit balances to be refunded shall be mailed to the last known address of user on file with the Department.
- (2) Charges shall begin as required by contract or when the appropriate connection fees are paid.
- (3) Rates for service provided to contract users shall be established by contract with users; and such contract must be approved by the Board of Supervisors.
- (4) The volume charge on multimeter installations shall be applied to the sum of the volume.

**Secs. 21-2-41—21-2-80. Reserved.**

*DIVISION 4. CONNECTIONS; METERS*

**Sec. 21-2-81. Connections generally.**

Upon approval of the application of an owner or tenant, water from the main in the street or alley shall be conducted to the property line of the applicant by means of a suitable service line, and there shall be placed on the service pipe near the property line a meter yolk and a water meter. All meters shall be the property of the County. The applicant shall be responsible for all charges after the meter has been set.

**Sec. 21-2-82. Location of meter.**

Meters, when located on premises and not in the street easements or alleys, shall in all cases be set in places accessible to the County including without limitation the Director, the Department and County Engineer, and each of their agents. The location of the meter, if on the premises, is to approved by the Director and County Engineer. Should the meter be changed at the request of the owner from one location to another, the whole cost of such change shall be paid by the owner. In addition:

- (1) Water meters for new customer services shall be installed on the premises where practicable in a location which will assure against freezing or damage. They shall be installed as near as possible to the point of entry of the water service pipe. Customers shall be responsible for cost of repairs from the meter to the premises.
- (2) Water meters installed on the premises shall be used with an outside reading device.

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- (3) Water meters installed on the premises shall not be covered or so obstructed as to prevent ready access for maintenance or repairs.
- (4) After proper installation of water meters, all meters shall be sealed by the Department, which seals shall not be broken except by authority of the Department.
- (5) No water meter shall be moved or relocated except by Department employees.
- (6) Meters which cannot be installed on the premises will be installed at or near the property line.
- (7) Neither the County nor the Department shall not be held responsible for water damage caused by burst water meters or connections.
- (8) In case of meter damage causing leakage, the customer may shut off the water at the valve at the end of the service line.

Except for (4) and (5) above, this Section 21-2-82 specifically applies to persons who use a water source other than the County System, including a private well, community well system, or any other water source, where such person is connected to the County's sewer system or POTW. Water usage from such other system will be used for calculation of charges, such as volume charges, under Division 2 of Article III of this Chapter. The County must approve a person's meter on all water sources and for all wastewater which discharges into the County's sewer system or POTW. Such meter shall be subject to inspection and access by the County. In addition for any such person with premises using only County sewer services and not County water services (i) as to such water meter any authorized County employee or agent may access and inspect the same and is granted a right of entry to the premises to do so; and (ii) the person agrees to provide information related to its water consumption, billing, usage, any meter issues or repairs and any other necessary information as necessary and from time to time upon request to the County to the extent such is relevant in calculating any volume or other charges or amounts under this Chapter related to such County sewer or POTW services. A person whose premises are served only by the County's sewer and POTW, shall provide necessary information such as an issue or repair of their meter to the County within twenty-four hours of occurrence, and such person shall provide other information to the County from time to time upon request as is necessary for the County to enforce the provisions of this Chapter and for billing purposes.

**Sec. 21-2-83. Liability of County for water failure; authority to shut off for repairs or additions.**

No person shall be entitled to damages or to have any portion of a payment refunded for any stoppage of supply of water including without limitation any stoppage occasioned by choking or accident to either the service pipe or meter, or for the stoppage of water due to failure of the water supply, or for stoppage for the purpose of additions or repairs; and the Director or County Engineer shall have the right to shut off the water to make repairs, additions to pipes and meters, or other public purpose.

**Sec. 21-2-84. Disconnection of meter.**

No water meter shall be disconnected, moved or disturbed without the Director's approval.

**Sec. 21-2-85. Damage to meter.**

After a water meter is placed on the pipe supplying any premises, the owner of the premises shall be responsible for any damage to such meter. The cost of replacements or repairs shall be paid by such owner to the County; and in the event such bill for damages is not paid within five days after presentation, the Director shall cause the water to be turned off to the premises and shall not turn it on again until the charges shall have been paid. It shall be the duty of the Director to investigate and determine in each case the responsibility for the damage and the cost of the renewal or repairs.

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**Sec. 21-2-86. Setting meters; title to meters; installation charges.**

All meters shall be set by the Director or their authorized agent and shall be the property of the County. No meter shall be set until proper application has been made and approved by the Director. The applicant upon installation of the meter shall be responsible for payment of all charges.

**Sec. 21-2-87. Water connection fees—Generally.**

Except as specifically set forth below, the costs and expenses incidental to any installation and connection to the County's waterworks shall be borne by the owner. The owner shall indemnify the County from any loss or damage that may directly or indirectly be occasioned by the installation of the connection.

The total water connection fee shall consist of costs and considerations associated with (1) a basic connection fee, (2) local facilities, (3) any applicable Service District additional connection fee, (4) offsite extensions, (5) an oversized main credit policy, to the extent applicable, and (6) any other fees or considerations set forth in this Chapter or as established by the Board of Supervisors on the fee schedule being Appendix A to this Code. Any fees shall be assessed all connectors, and the payment shall accompany the application for connection to.

- (1) *Basic connection fee.* The basic connection fee for all applicants is to cover the cost of the water meter and its installation and partial payment for backup facilities, water capacity and distribution system. The basic connection fee, which will be fixed from time to time by the Board of Supervisors and set forth on the fee schedule being Appendix A to this Code, shall be assessed all connectors, and the payment shall accompany the application for connection to the water system.
- (2) *Local facilities.* The connector shall pay for all local facilities subject to the application of the oversized mains credit policy.
  - (a) Where local facilities are not available to the connector's property, the connector shall be responsible for the full cost of the local facilities required to serve the connector's property. Developers of new subdivisions shall install local water facilities in accordance with the Director and County Engineer's specifications. Along any public right-of-way or easement where the property owner desires service for his own personal use (i.e., a single-family residential unit in which the owner intends to reside), the County will approve the extension of local facilities at the owner's expense.
  - (b) Where local facilities are available to the connector's property and where the costs of said local facilities have not been previously assessed against the property being connected, a local facility fee equal to such costs as determined by the Director and the County Engineer shall be required.
- (3) *Service District additional connection fee.* In any Service District, the availability of water capacity, certain mains, pump stations and local facilities are paid through debt service on bonds, funded by a special tax on real estate parcels within the district. An additional local facilities fee above the normal connection fees in place at the time of connection to County water service shall be imposed for each connection if so set forth in this Chapter or in any ordinance related to the applicable Service District.
- (4) *Offsite extensions.* The connector shall pay for all offsite extensions required to provide service to the connector's property, subject to the offsite and oversized mains credit policy.
- (5) *Offsite mains credit policy.* The Director shall give a credit against the basic water connection fee, not to exceed the actual cost of such oversizing or extension, for the specific property being served by any offsite water main extension in excess of 500 feet required to provide water service to that property. No credit shall be given for offsite extensions of less than 500 feet, and the amount of the credit shall

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- be based upon the length of the extension greater than 500 feet. Credits for construction of the water main extension will be computed based on unit prices taken from recent bids received by the County or arms- length bids received by the applicant, whichever is less. Credits only apply against basic water connection fees and credits not used are lost. Credits will be lost if not used for the specific property being served by the offsite water main extension within five years of the date of execution of the utility service connection agreement unless a different expiration date or an extension is approved by the Board of Supervisors. The specific property, or portion thereof, being served by any extension must specifically be set out by the property owner in the utility service connection agreement for credits to apply.
- (6) *Credits for oversizing of lines and facilities by property owners.* Where the property owner extending the public water system is required to oversize lines or other facilities such that they are larger than necessary to adequately serve the property for the convenience of the County and at the County's specific request, credits against the basic water connection fee, not to exceed the cost of such oversizing, may be allowed in accordance with the following:
- (a) For lines and facilities located within the proposed subdivision or other development, the cost of oversizing shall be limited to the difference in estimated construction cost between the oversized facilities and facilities sized to serve only the proposed subdivision or other development ("the difference in estimated construction cost").
  - (b) For lines and facilities which are not located within the proposed subdivision or other development, the cost of oversizing shall be limited to the difference in estimated construction cost plus an additional 20 percent of the difference in estimated construction costs.
  - (c) The amount of oversizing credits shall be determined by the Director based on reviewing the County's current contracts, recent bids received by the County, other public bids for similar work performed in the area, or other objective criteria.
  - (d) Credits utilized shall be credited towards basic water connection fees due for the connection of units located on the property served by the extension as identified by the contract for such extension. In no event shall the credits utilized exceed the applicable water connection fees charged for improvements constructed on the identified properties. Credits shall expire five years from the date of the utility service agreement unless a different expiration date or an extension is approved by the Board of Supervisors. Any credits not utilized shall be void after the date of expiration.
- (7) *Offsite and oversized mains credit policy.* When a water main or other appurtenance provided is both offsite and oversized as specified in subsections (5) and (6) above, the amount of the credit shall be the sum of:
- (a) The difference in cost between the size of the water main or other appurtenance provided and the size of the water main or other appurtenance necessary to adequately serve the property for the onsite project and the first 500 feet of the offsite extension (oversizing credit) calculated and subject to those provisions set forth in (5) above; and
  - (b) 100 percent of the cost of the offsite extension in excess of 500 feet calculated and subject to those provisions set forth in (6) above.

**Secs. 21-2-88—21-2-100. Reserved.**

*DIVISION 5. CROSS-CONNECTION CONTROL; BACKFLOW PREVENTION*

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**Sec. 21-2-101. Definitions.**

The following words, terms and phrases, when used in this division, shall have the meanings ascribed to them in this Division 5, except where the context clearly indicates a different meaning:

*Air gap separation* means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying pure water to a tank, plumbing fixture or other device and the rim of the receptacle.

*Approved* means accepted by the Director as meeting an applicable specification stated or cited in this Article or other applicable law, or as suitable for the proposed use.

*Atmospheric vacuum breaker* means a device which prevents backsiphonage by creating an atmospheric vent when there is either a negative pressure or subatmospheric pressure in a water system.

*Auxiliary water system* means any water system on or available to the premises other than the waterworks. These auxiliary waters may include water from another purveyor's waterworks; or water from a source such as wells, lakes, or streams; or process fluids; or used water. They may be polluted or contaminated or objectionable, or constitute a water source or system over which the water purveyor does not have control.

*Backflow* means the flow of contaminants, pollutants, process fluids, used water, untreated waters, chemicals, gases, nonpotable waters into any part of a waterworks.

*Backflow prevention device* means any approved device, method or type of construction intended to prevent backflow into a waterworks.

*Backsiphonage* means the flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply system from any source other than its intended source caused by the sudden reduction of pressure in the potable water supply system.

*Barometric Loop* means a fabricated piping arrangement rising at least thirty-five (35) feet at its topmost point above the highest fixture it supplies. It is utilized in water supply systems to protect against backsiphonage.

*Consumer* means any person who drinks water from a waterworks

*Consumer's water system* means any water system located on the consumer's premises, supplied by or in any manner connected to a waterworks.

*Contamination* means any introduction into pure water of microorganisms, wastes, wastewater, undesirable chemicals or gases.

*Cross-connection* means any connection or structural arrangement, direct or indirect, to the waterworks whereby backflow can occur.

*Degree of hazard* means an evaluation of the potential risk to health and the adverse effect upon the waterworks.

*Double gate-double check valve assembly* means an approved assembly composed of two (2) single, independently acting check valves including tightly closing shutoff valves located at each end of the assembly and petcocks and test gauges for testing the watertightness of each check valve.

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*Health hazard* means any condition, device or practice in a waterworks or its operation that creates, or may create, a danger to the health and well-being of the water consumer.

*Interchangeable connection* means an arrangement or device that will allow alternate but not simultaneous use of two sources of water.

*Owner* means any Person who has legal title to, license to operate, or license to inhabit, a property upon which a backflow preventer is required.

*Pollution* means the presence of any foreign substance (chemical, physical, radiological or biological) in water that tends to degrade its quality so as to constitute an unnecessary risk or impair the usefulness of the water.

*Pollution hazard* means a condition through which an aesthetically objectionable or degrading material may enter the waterworks or a consumer's water system.

*Pressure vacuum breaker*: A device containing one or two independently operated spring-loaded check valves and an independently operated spring-loaded air inlet valve located on the discharge side of the check or checks. The device includes tightly closing shut-off valves on each side of the check valves and properly located test cocks for the testing of the check valve(s).

*Process fluid* means any fluid or solution which may be chemically, biologically or otherwise contaminated or polluted which could constitute a health, pollution or system hazard if introduced into the waterworks. This includes, but is not limited to:

- (1) Polluted or contaminated waters;
- (2) Process waters;
- (3) Used waters originating from the waterworks which may have deteriorated in sanitary quality;
- (4) Cooling waters;
- (5) Contaminated natural waters taken from wells, lakes, streams or irrigation systems;
- (6) Chemicals in solution or suspension; and
- (7) Oils, gases, acids, alkalis, and other liquid and gaseous fluids used in industrial or other processes, or for firefighting purposes.

*Program* means this Chapter 21, Article II, Division 5 together with the County's Cross-Connection Control and Backflow Prevention Program Manual.

*Pure water or Potable Water* means water fit for human consumption that is sanitary and normally free of minerals, organic substances and toxic agents in excess of reasonable amounts and adequate in quantity and quality for the minimum health requirement of the persons served. For State Law reference, see Code of Va., § 32.1-167.

*Reduced pressure principal backflow prevention device*. A device containing a minimum of two independently acting check valves together with an automatically operated pressure differential relief valve located between the two check valves. During normal flow and at the cessation of normal flow, the pressure between these two checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the check valves at less than the supply pressure. The unit shall include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks. These devices shall be of the approved type.



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*Residential Dual Check* means an assembly of two spring-loaded, independently operating check valves without tightly closing shut-off valves and test cocks. Generally employed immediately downstream of the water meter to act as a containment device.

*Service connection* means the point of delivery of finished water from a waterworks to a consumer's water system, fire protection system, irrigation system, and to all other points where finished water is delivered through the distribution system to a consumer. Generally, the service connection occurs at the water meter, or at the distribution main if no water meter is installed, or in the case of an owner of both the waterworks and the building supplied, the point of entry into the building. Service connections may be permanent, temporary, or emergency.

*System hazard* means a condition posing an actual, or threat of, damage to the physical properties of the waterworks or a consumer's water system.

*Used water* means any water supplied by a water purveyor from the waterworks to a consumer's water system after it has passed through the service connection.

*Waterworks* means system that serves piped water for human consumption to at least 15 service connections or 25 or more individuals for at least 60 days out of the year. All structures, equipment and appurtenances used in connection with the collection, storage, purification, treatment and distribution of pure water, except the piping and fixtures inside the building where such water is delivered.

*Water purveyor.* An individual, group of individuals, partnership, firm, association, institution. corporation, municipal corporation, county or authority which supplies water to any person in this county from or by means of any waterworks.

*Water service entrance:* That point in the owner's water system beyond the sanitary control of the Department; generally considered to be the outlet end of the water meter and always before any unprotected branch.

*Waterworks* means a system that serves piped water for human consumption to at least 15 service connections or 25 or more individuals for at least 60 days out of the year. "Waterworks" includes all structures, equipment, and appurtenances used in the storage, collection, purification, treatment, and distribution of potable water except the piping and fixtures inside the building where such water is delivered.

History prior Sec. 21-2-2. - Definitions (Comp. 1974, ch. 12; Ord. 11-18-15).

**Sec. 21-2-102. State regulations adopted.**

The Board of Supervisors hereby adopts by reference the regulations of VDH, 12 VAC 5-590-10 et seq. regarding waterworks including the Waterworks Regulations. Specifically, the Board of Supervisors hereby adopts by reference Section 580, 600, 610 and 630, regarding cross-connection control and backflow prevention in waterworks, of the state Waterworks Regulations, as it may be amended from time to time, or applicable successor provisions. The provisions of this Article II, Division 5, shall apply to the Fork Union Sanitary District as well as to all other County waterworks.

History prior Sec. 21-2-1. - State regulations adopted (Comp. 1974, ch. 12; Ord. 11-18-15).

**Sec. 21-2-103. Article supplementary to plumbing codes.**

This division is a supplement to the applicable plumbing and other building codes.

History prior Sec. 21-2-7. – Article supplementary to plumbing codes (Comp. 1974, ch. 12).

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**Sec. 21-2-104. Inspections generally.**

It shall be the duty of the County through its Director and County Engineer to cause inspections to be made of properties served by the waterworks where cross-connection with the waterworks is deemed possible. The frequency of inspections and re-inspections, based on potential health hazards involved, shall be established by the County in the cross-connection control and backflow prevention program and as approved by VDH and the Board of Supervisors.

History prior Sec. 21-2-3. - Inspections (Comp. 1974, ch. 12; Ord. 11-18-15).

**Sec. 21-2-105. Right of entry; inspection of property served by County waterworks.**

In addition to rights of access under Section 21-2-4, the Director, County Engineer or any authorized representative of the County waterworks (which includes the Fork Union Sanitary District), as applicable, shall have the right to enter at any reasonable time properties served by a connection to the waterworks of the County or the Fork Union Sanitary District, as applicable, for the purpose of (i) inspecting the piping systems for cross-connections, (ii) inspecting structural or sanitary hazards, (iii) inspecting any known violations of this division or corrections related thereto; (iv) determining if violations of this division exist; or (vi) any other proper purpose under this Chapter. Upon request, the owner or occupant of property served shall furnish to the inspection agency pertinent information regarding the piping system or systems on such property. The refusal of such information or refusal of access, when requested, shall be deemed evidence of the presence of an unauthorized cross-connection and an unlawful violation of this Chapter.

History prior Sec. 21-2-4. - Right of entry of district representative; refusal of access or information deemed evidence of cross-connection (Comp. 1974, ch. 12).

**Sec. 21-2-106. Denial or discontinuance of service; protection of waterworks.**

No service connection shall be permitted by the County, including the Fork Union Sanitary District, unless the County's water system is protected as required by this division, and other Applicable Laws. Water service to any premises shall be discontinued by the County if the required backflow preventer is not installed, tested, and maintained, or if it is found that the required backflow preventer has been removed, bypassed, or if an unprotected cross connection exists on the premises. Service shall not be restored until such conditions or defects are corrected. The Director or County Engineer may deny or discontinue the water service to a consumer if the required backflow prevention device is not installed by providing for a physical break in the service line until the owner has corrected the condition to the satisfaction of the Director. If it is found that the device has been removed or bypassed or if a cross-connection exists on the premises, or if the pressure in the waterworks is lowered below ten psi gauge, the County Engineer shall take positive action to ensure that the waterworks is adequately protected at all times. Water service to such premises shall not be restored until the deficiencies have been corrected or eliminated in accordance with State Waterworks Regulations and to the satisfaction of the Director and County Engineer.

History prior Sec. 21-2-5. – Denial or discontinuance of service; protection of waterworks (Comp. 1974, ch. 12).

**Sec. 21-2-107. Protection of pure water; unsafe outlets to be labeled.**

The potable water made available on the properties served by the waterworks shall be protected from possible contamination or pollution by enforcement of this division and the plumbing codes under Applicable Law. Any water outlet which could be used for domestic purposes and is not supplied by the pure water system shall be labeled as "Water Unsafe for Drinking" in a conspicuous manner.

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History prior Sec. 21-2-6. - Protection of pure water; unsafe outlets to be labeled (Comp. 1974, ch. 12; Ord. 11-18-15).

**Sec. 21-2-108. Authority; responsibility; enforcement.**

Pursuant to the Federal Safe Drinking Water Act of 1974 (42 U.S.C. Section§ 300f et seq.), as amended, and the Code of Virginia (see Section 32.1-167 et seq. of the Code of Virginia), as amended, the County, and its Fork Union Sanitary District, have the primary responsibility for preventing water from unapproved sources, or other liquids, mixtures or substances, from entering the public potable water system. Pursuant to the Waterworks Regulations and its provision for cross connection control and backflow prevention in waterworks (12 VAC 5-590-580 et seq.), as amended, as a condition for the issuance and continued used of the operation permit for the waterworks, each owner of a waterworks including the County, and Fork Union Sanitary District, shall establish and enforce a program of cross connection control and backflow prevention consistent with the extent of the system and the type of consumer served. In administering this Program, the County is required to establish and enforce local ordinances to prevent water from unapproved sources, or other liquids, mixtures or substances, from entering the public potable water system. The County's Program shall consist of Article II, Division 5 of this Chapter together with the County's Cross-Connection Control and Backflow Prevention Program Manual. The County's Cross-Connection Control and Backflow Prevention Program Manual shall be updated from time to time by the Director and approved by the Board of Supervisors.

The County is invested with the authority and responsibility for the implementation of the Program and for the enforcement of the provisions of the Program and shall be responsible for the protection of the public pure water distribution system from contamination or pollution due to the backflow of contaminants or pollutants through a service connection. If, in the judgment of the Director or the County Engineer, an approved backflow-prevention assembly is required for the safety of the water system, the Director or the County Engineer shall give notice in writing to the owner to install such an approved backflow-prevention assembly(s) at specific location(s) on owner's premises. The owner shall install such approved assembly(s) at owner's expense; and failure, refusal, or inability on the part of the owner to install, test, and maintain said assembly(s) shall constitute grounds for discontinuing water service to the premises until such requirements have been satisfactorily met. If the Director requires that the public supply of pure water be protected by containment, the owner shall be responsible for water quality beyond the outlet end of the containment device and must utilize fixture outlet protection for that purpose.

Any violation by an owner of this division including the Program shall consistent a violation of this Code and shall be subject to the provisions of Section 21-1Section-2, which is incorporated herein by reference as a material part hereof.

**Sec. 21-2-109. Cross-connection control and backflow preventer requirements.**

All required cross-connection control or backflow preventers or systems must be:

- (1) consistent with all requirements and provisions of the Program;
- (2) installed on the service line to an owner's water system before the first branch line leading off the service line; and
- (3) designed, installed and maintained in such a manner as to follow the Cross-Connection Control and Backflow Prevention Program Manual, U.S. Environmental Protection Agency, Office of Water Programs, Water Supply Division, 2003; the BOCA Basic Plumbing Code, 1978; and Section 580-630 of the Waterworks Regulations.

An existing backflow preventer shall be allowed by the County to continue in service provided that the degree of hazard and the effectiveness of the existing backflow preventer are compatible, and do not result in a risk to the public health. Where the degree of hazard has increased, as in the case of a residential service

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connection converting to a non-residential use such as a business establishment, any existing backflow preventer must be upgraded as required. A backflow preventer must be installed in the event that no backflow preventer was present or a degree of hazard exists as determined by the Director.

**Sec. 21-2-110. County Program requirements; Customer Program requirements.**

The County, and its Fork Union Sanitary District, shall:

- (1) Operate and enforce its Program in compliance with all Applicable Laws. This Program shall be carried out in accordance with the Virginia Uniform Statewide Building Code and shall be a continuing Program;
- (2) For new service connections, have its Director provide onsite evaluation and/or inspection of plans to determine the type of backflow preventer, if any, that shall be required of the owner;
- (3) For service connections existing prior to the adoption of this division, have its Director conduct evaluations and inspections of plans and/or premises and inform the owner in writing of any modifications or corrective action deemed necessary, the method of achieving the modification or corrective action and the time allowed for the modification or corrective action to be completed;
- (4) Not allow any cross connection to remain unless it is protected by an approved backflow preventer which shall be tested in accordance with the Program to ensure satisfactory operation;
- (5) Inform the owner of any failure to comply, the corrective actions required and the mandatory schedule for compliance; and
- (6) Discontinue water service immediately if the County determines at any time that a threat to the public health exists.

The Owner shall:

- (1) Be responsible for the elimination or protection of all cross connections and backflow on his premises at the owner's expense;
- (2) After having been informed in writing by the County, shall the owner's expense, install, maintain, and test, or have tested, all backflow preventers on his premises in accordance with the Program;
- (3) Notify the County immediately upon the occurrence any malfunction and correct any malfunction of the cross-connection control or backflow preventer which occurs or which is revealed by periodic testing at the owner's cost
- (4) Inform the County of any proposed or modified cross-connections and any existing cross connections of which the owner is aware, but the County may be unaware of;
- (5) Not install a bypass around any backflow preventer unless there is a backflow preventer of the same type on the bypass. Owners who cannot shut down operation for testing of the device(s) must supply additional devices necessary to allow testing to take place;
- (6) Install and modify any cross-connection control and backflow preventers only in a manner consistent with the Program and approved by the County. The owner shall install only backflow preventers approved by the County. The connection, interconnection, or cross connection between a private well or other private water source and the County system, including any Fork Union Sanitary District systems, is strictly prohibited; and

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- (7) The owner shall be responsible for device testing and associated fees and costs of any kind. Device testing shall be performed only by qualified persons in accordance with the Program. Pursuant to the Waterworks regulations, starting January 1, 2023, persons testing and repairing backflow prevention assemblies and backflow prevention devices shall be certified by a Commonwealth of Virginia tradesman certification program (identified by the Department of Professional and Occupational Regulation as backflow prevention device workers). Until January 1, 2023, persons testing and repairing backflow prevention assemblies and backflow prevention devices shall be qualified to perform such work as demonstrated by possessing a certification or license from a local or state agency having legal authority or shall possess a certificate of completion of applicable vocational training acceptable to the owner.

State Law reference – Virginia Administrative Code Title 12, Agency 5, Chapter 590, Section 630.

**Sec. 21-2-111. Notice of violations.**

The County shall notify the owner of any building or premises in or on which there is found a violation of this Program, being this Chapter 21, Article II, Division 5, and the Cross-Connection Control and Backflow Prevention Program Manual. The County shall set a schedule by which the owner shall have the defect removed or corrected. Upon failure of the owner to have the defect removed or corrected within the specified time, the County may discontinue or deny service to such premises. Notwithstanding the foregoing, without any advance notice to the owner, the County may immediately discontinue service where such service would cause a threat to public health.

It shall be a violation of the Code for an owner to knowingly permit a violation to remain uncorrected after the expiration of time set by the County pursuant to this Section in accordance with Section 21Section-1-2 of the Code. Each day of failure to comply with the requirements of this Section, after the specified time, shall constitute a separate violation.

**Secs. 21-2-112—21-2-114. Reserved.**

*DIVISION 6. PRIVATE WATER SUPPLY*

**Sec. 21-2-115. Private well standards.**

Development utilizing a private well as a potable water source shall conform to the following criteria:

- (1) All bored wells shall have a minimum output of one gallon per minute. All bored wells shall contain storage capacity within the well for 24 hours of service.
- (2) All drilled wells shall have a minimum output of one gallon per minute and storage capacity for 24 hours of service. Drilled wells yielding more than three gallons per minute output shall not require such storage.
- (3) Storage capacity requirements shall be based on health department regulations on estimated water usage.
- (4) All wells, drilled or bored, shall be grouted to a minimum depth of 20 feet.
- (5) All wells, drilled or bored, shall be grouted by the well contractor within two business days of the completion of the well. The well borehole and casing shall be protected from surface water intrusion, foreign materials and animals until the grout is installed.

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- (6) A water sample shall be obtained by an individual approved by the health department and tested with negative results for coliform bacteria and compliance with all health department regulations for potable water prior to the issuance of a County certificate of occupancy.

**Sec. 21-2-116. Permit required for private water wells.**

- (A) In addition to any permit required by VDH for the construction of any private water well pursuant to Section 32.1-176.4 of the Code of Virginia or other applicable law, the owner of each property in the County shall obtain a County permit from Fluvanna County prior to the construction of any private water well for which a permit is required pursuant to the said Section 32.1-176.4 of the Code of Virginia. Such County permit issued by the County shall be issued jointly with, and upon the same terms as, the permit issued by the Commonwealth.
- (B) The applicant for a County permit hereunder shall pay to Fluvanna County a fee as set forth on that Fee Schedule, being Appendix A hereto.
- (C) Any applicant who shall be exempt from the payment of fees for the issuance of a permit for such system by the VDH shall likewise be exempt from the payment of any fee hereunder. Any applicant denied a construction permit based upon the regulations of VDH governing such construction and eligible for refund of the state application fee shall be eligible for refund of the County application fee upon the same terms.

History prior Sec. 21-1-6. – Permit required for private water wells (Comp. 1974, ch. 12).

**Sec. 21-2-117. Approval of private water wells.**

Notice must be given to the Board of Supervisors at least 90 days before any Person may begin construction of a private water supply serving any nonresidential or serving three or more residential connections. Notification to the Board of Supervisors must be given both 1) in writing to the Director, who shall inform the Board of Supervisors, and 2) in person before the Board of Supervisors at a regular meeting of the Board of Supervisors. Notice also shall be given to VDH, provided, however, that notice does not need to be given if the extension of water distribution piping has a diameter of eight inches or less and serves less than 15 equivalent residential connections or if not required under applicable law. The applicant must state in the notice that he or she gives the number and nature of connections to which service will be given under the certificate applied for, and the Board of Supervisors may require more information as the board deems necessary.

After the Director notifies the Board of Supervisors of the proposal, it may disapprove the proposal if it finds that such water system does not have an adequate source of supply or that the system is not capable of serving the proposed number of connections by reason of inadequate pipes, mains, conduits, pumping stations, or otherwise. In the event that the Board of Supervisors has not disapproved the application by the end of 70 days from the time the applicant appeared before the Board of Supervisors, the applicant may proceed with construction. However, he must first notify the chairman of the Board of Supervisors and the County Administrator by mail of his intention to proceed.

Service cannot be extended in excess of the number of connections for which approval has been given, and if extension is desired, the person desiring such must proceed in the same manner as in the case of an original application.

Any person who fails/refuses to notify the Board of Supervisors of either 1) construction or installation of a water system or 2) a proposed extension beyond the number of connections for which approval was originally given is in violation of this Code and shall be subject to Section 21-1-2. The same applies in the event that a proposal has been disapproved and the person proceeds despite being disapproved.

Notwithstanding the foregoing, all other provisions of applicable law including without limitation any zoning, site plan, special use permit, or related provisions of any ordinances and the Uniform Statewide Building

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Code apply in addition to the requirements of this Section and the Person shall also comply with and seek other required approvals if and as required by other applicable law.

**Secs. 21-2-118—21-2-120. Reserved.**

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**ARTICLE III. SEWAGE DISPOSAL SYSTEMS<sup>2</sup>**

*DIVISION 1. GENERALLY*

**Sec. 21-3-1. Purpose, Management and control of sewerage works generally.**

The purpose of this Article is to provide for the maximum possible beneficial public use of the Fluvanna County treatment works through regulation of sewer construction, sewer use, and wastewater discharges; to provide for equitable distribution of the costs of the treatment works; and to provide procedures for complying with the requirements contained herein.

The Director who shall work with the County Engineer shall have the general management and control of the sewerage works of the County and the properties appertaining thereto.

History prior Sec. 21-4-1. – Purpose (Ord. 6-20-07; Ord. 11-18-15).

**State Law reference**— County's authority regarding public sewer, see Code of Va., § 15.2-2122 et seq. State law regarding public sewer, see Code of Va., § 62.1-44.2 et seq.

**Sec. 21-3-2. Records of system.**

The County Engineer shall maintain on file in his office suitable plans and records showing the size and location of all of the County wastewater sewerage system and appurtenances.

**Sec. 21-3-3. Right of entry by County.**

In addition to any other right of entry contained in this Chapter, every person occupying premises to which sewer service is provided shall permit any authorized County employee or agent to enter the premises at reasonable times to examine the service lines, valves, meters or other equipment and to take up, repair, replace, or remove them so as to determine compliance with this Code, this Chapter, or other County regulations or applicable law. Examinations shall comply with all constitutional requirements.

**Sec. 21-3-4. Defacing or injuring system.**

- (A) It shall be unlawful for any person to maliciously, willfully, or negligently break, damage, destroy, uncover, deface, injure, disturb, or tamper with any structure, manhole, vent, pipe, fixture, appurtenance or equipment which is a part of the County's sewerage system or any treatment works, or any appurtenances thereto.
- (B) It shall be unlawful for any unauthorized person to break, damage, destroy, uncover, deface, injure, disturb, or tamper with any structure, manhole, vent, pipe or other fixture connected with or a part of the County's sewerage system or any treatment works, or any appurtenances thereto.

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<sup>2</sup>State Law reference(s)— General provisions for public utilities, Code of Virginia § 15.2-2109 et seq.; Sewage disposal systems generally, Code of Virginia § 15.2-2122 et seq.; Approval of sewage systems by counties, Code of Virginia, § 15.2-2126 et seq.; Miscellaneous services, etc., in certain Localities, Code of Virginia § 15.2-2157 et seq.; Sewage disposal, Code of Virginia § 32.1-163 et seq.; septic tank permits, Code of Virginia, §§ 32.1-164.1, 32.1-164.1:01.



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- (C) In addition to criminal charges arising under Section 21-1-2 related to any activities described in (A) and (B) above, such person shall be held liable for any repair or replacement to the County's sewerage system or any treatment works, or any appurtenances thereto.

History prior Sec. 21-4-6. – Vandalism (Ord. 6-20-07).

**Sec. 21-3-5. Certain wastes prohibited.**

It shall be unlawful to discharge or place or cause to be discharged or placed or to permit the discharging or placing into the POTW, including any public sewage system and any public sanitary sewer, or any portion thereof, any of the following waste, waters, pollutants, toxins, materials, substances, or effluents:

- (1) Any liquid or vapor having a temperature which is or is likely to contain heat in amounts which are likely to accelerate the biodegradation of wastes, causing the formation of excessive amounts of hydrogen sulfide in the treatment works or inhibit biological activity in the treatment facilities.
- (2) Any water or wastes including strong waste containing more than 250 mg/l of suspended solids or more than 250 mg/l of BOD or other characteristics in concentrations not normally found in sanitary sewage shall be considered strong wastewaters.
- (3) Any flammable or explosive liquid, solid or gas; and any other substance or material which does or is likely to create a fire or explosion hazard including, but not limited to, gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid, or gas; and waste stream with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using test methods specified in 40 CFR 261.21;
- (4) Any garbage, debris, or other waste materials that has not been properly shredded including without limitation: (i) raw garbage other than from residential garbage grinders; (ii) ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, wax, whole blood, tar, plastics, hair and fleshings, entrails, paper dishes, cups, milk containers wood, paunch manure, or similar item or substance, whether such has been ground by a garbage grinder or is whole; and (iii) any other object or thing that causes obstruction of the flow in sewers or interference with the operation of the POTW or the sewer system.
- (5) Any waters or waste having a concentration of acidity and alkalinity of less than pH 5.0 or more than pH 9.0 or having any other corrosive property that causes or is likely to cause damage or injury or constitutes a hazard to the POTW's structures, equipment, or personnel.
- (6) Any wastewater containing a substance that injures or interferes or is likely to injure or interfere with any wastewater treatment process or which after treatment constitutes or likely to constitute or create any hazard to human life or the environment.
- (7) Any wastewater containing a substance that is not susceptible to treatment by a POTW.
- (8) Any wastewater containing a pollutant that passes through a POTW.
- (9) Any wastewater containing a substance that would render unlawful the operation of any wastewater treatment system or plant through which it passes.
- (10) Any wastewater, noxious or malodorous gas, vapor, fumes, or substances that creates a public nuisance or any hazard to human life or the environment.
- (11) Any stormwater, surface water, groundwater, subsurface water, roof runoff (unless part of a metered cistern-fed rainwater reuse system), uncontaminated cooling water, or unpolluted industrial process waters. Stormwater and all other unpolluted drainage shall not be discharged to the public sewer system but may be discharged into storm drains or natural outlets in accordance with Applicable Law.
- (12) Any gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, sulfides, radioactive waste, steam

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- condensate, petroleum/non-biodegradable cutting or mineral oils, and any other substance which the County, state, or EPA has notified the user is a fire hazard to the system.
- (13) Solid or viscous substances which may cause obstruction to the flow in the sewerage or other interference with the proper and efficient operation of the sewage works or wastewater treatment facilities.
  - (14) Any waste or water containing pollutants or toxic or poisonous solids, liquids, or gases in sufficient quantity, either singularly or by interaction with other waters or wastes, in sufficient quantity at the point of entry into the system, to injure or interfere with any sewage works or wastewater treatment process, to constitute a hazard to humans, animals or the environment, create a public nuisance, create a toxic effect or any hazard in the receiving waters, or to exceed the limitations set forth in a categorical pretreatment standard.
  - (15) Any wastewater with a color objectionable to the Director not removed in the treatment process.
  - (16) Any wastewater having a temperature which will inhibit biological activity in the POTW resulting in interference, but in no case wastewater with a temperature at the introduction into the POTW which exceeds 105 degrees Fahrenheit, or any liquid or vapor introduced into the POTW having a temperature of 140 degrees Fahrenheit or greater.
  - (17) Any pollutants, including oxygen-demanding pollutants, (BOD, etc.) released at a flow rate and/or pollutant concentration which will cause interference.
  - (18) Any other material deemed by the Director to be inconsistent with the lawful operation or best management of the POTW.
  - (19) Any other material that the Director deems to be inconsistent with the best management and operation of the POTW.
  - (20) Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not.
  - (21) Any waters or wastes containing iron, chromium, copper, zinc, and similar objectionable or toxic substances or wastes requiring excessive disinfection, to such degree that any such material received in the composite sewage at the sewage treatment works exceeds the limits established by the Director for such materials.
  - (22) Any water or waste containing fats, wax, grease or oils, whether emulsified or not, petroleum based 100 mg/l and animal/vegetable based 300 mg/l or containing substances which may solidify or become viscous at temperatures between 32- and 140-degrees Fahrenheit, except if otherwise specifically provided for in this Chapter.
  - (23) Any water or wastes containing phenols or other odor producing substances, in such concentrations exceeding limits which may be established by the Director as necessary, after treatment of the composite sewage, to meet the requirements of the state, federal, or other public agencies of jurisdiction for such discharge to the receiving waters.
  - (24) Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Director in compliance with applicable state or federal regulations.
  - (25) Any wastes or waters containing suspended or dissolved solids of such character and quantity that unusual attention or expense is required to handle such materials at the POTW or related facilities.
  - (26) Any substance in an amount exceeding local limits as established by the Director. Local limits shall be enforced pursuant to this Article. Local limits shall also be used to establish permit limits.
  - (27) Any substance, discharge, water, wastewater or material which exerts or causes:

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- (a) Unusual concentration of inert suspended solids (such as, but not limited to, Fuller's earth, lime slurries, and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate).
- (b) Excessive odor or discoloration as determined by the Director for purposes of meeting the County's VPDES permit(s), as such permit(s) may be amended from time to time (such as, but not limited to, dye wastes and vegetable tanning solutions).
- (c) Unusual biochemical oxygen demand, chemical oxygen demand, or disinfection requirements in such quantities as to constitute a significant load on the sewage treatment works.
- (d) Unusual volume of flow, rate of discharge, or concentration of wastes constituting slugs loads, as defined herein, which is sufficient to cause interference in the operation and performance of the treatment facilities.

(28) Any trucked or hauled pollutants except as may be specifically approved the County.

If, in establishing discharge restrictions, discharge limits, or pretreatment standards pursuant to this Article, the Director establishes concentration limits to be met by a user, the Director in lieu of concentration limits, may establish mass limits of comparable stringency for an individual user at the request of such user. Upon approval by the State, such limits should become pretreatment standards.

History prior Sec. 21-4-28. - Restricted discharges (Ord. 6-20-07; Ord. 11-18-15).

**Sec. 21-3-6. Removal of manhole covers.**

It is unlawful for any person, other than a duly authorized County employee or a person with written permission from the Director, to remove any manhole cover.

**Sec. 21-3-7. Grease traps.**

All new food preparation facilities, such as restaurants and bakeries, shall be required to construct an outside grease trap or interceptor for the retention of grease, fats and oils generated by that business.

In addition, for any user, including any existing user, grease, oil and sand traps or interceptors shall be provided by the owner when, in the opinion of the Director, they are necessary for the proper handling of waters or wastes containing such ingredients or any other of a flammable or harmful nature.

All traps and interceptors shall be of a design and type and capacity approved by the Director and the County Engineer. They shall be of substantial construction, watertight, and equipped with easily removable covers which when bolted in place shall be gas and watertight.

Where installed, all grease, oil and sand traps and interceptors shall be maintained by the owner, at the owner's expense, in continuously efficient operation at all times.

**Sec. 21-3-8. Monitoring facilities.**

- (A) A monitoring manhole shall be required on all new construction or renovations or modifications to existing facilities, where the discharge originating in the new, renovated or modified facility is, or will have the potential to be, nondomestic in nature.
- (B) The Director shall have the authority to require installation of a monitoring manhole in instances where the Director or the County Engineer determines that a manhole is required. The monitoring manhole shall be approved by the Director and shall be installed at the expense of the discharger.

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- (C) The discharger shall provide a monitoring manhole with a 24-inch opening to allow inspection, sampling and flow measurements of the building and/or internal drainage systems. The monitoring manhole shall be located upon the premises except in those instances when the Director determines that such a location would be impractical or cause undue hardship on the discharger, in which case, the Director may allow the manhole to be constructed upon County property or easements.
- (D) There shall be ample room in or near such monitoring manhole to allow accurate sampling and preparation of samples for analyses. The monitoring manhole shall be maintained at all times in a safe, accessible and proper operating condition at the expense of the discharger.

**Sec. 21-3-9. Removal of plug from service line.**

It shall be unlawful for any person to remove any plug from the sanitary sewer service line for any purpose other than to make a house connection. Such person shall dry the trench in which the house sewer is laid and remove the plug in such a way as to present the entry of any groundwater, surface water, trench water, silt or any combination thereof into the sewer system.

**Sec. 21-3-10. Service to be provided to property line.**

Upon approval of the application of an owner or tenant, sewer service will be provided from the existing main in the street, alley or easement to the property line of the applicant.

**Sec. 21-3-11. Extensions to existing lines.**

No extensions shall be made to existing sewer lines without written approval of the Director and the County Engineer. The application fee can be found in the County's fee schedule adopted as an Appendix A to this Code. Applicants for approval shall submit at least four copies of plans and specifications prepared by a registered engineer licensed to do business in the state. In the case of subdivisions, site plans and plans of development only, a licensed land surveyor may prepare plats, plans and profiles to the extent and in the manner permitted by Section 54.1-408 of the Code of Virginia. No construction shall commence until approval has been obtained from the County Engineer. Extensions to existing private lines is discussed in Section 21-3-\_\_\_\_\_.

**Sec. 21-3-12. Connections to existing sewer lines.**

- (A) The owner of all houses, buildings or properties used for human occupancy, employment, recreation or other purposes situated within the County and abutting on any street, alley, right-of-way, or easement in which there is located a public sanitary or combined sewer of the County, is hereby required at his expense to install suitable toilet facilities therein, and to connect such facilities directly with the proper public sewer in accordance with the provisions of this Chapter. After the connection to the public sewer is made, an owner will be required to abandon all septic tanks, privies, cesspools and similar private sewage disposal facilities. The abandoned private sewerage facilities may be required to be filled with suitable material only after it has been determined by the appropriate local or state agency that a potential public health hazard exists or that the existence of the private sewerage system in an unfilled condition may cause an unsafe condition.
- (B) Mandatory connection; exceptions. Unless otherwise required in the Code, connection will not be required where:
  - (1) Providing public sewer to the property requires an extension of the sewer system which is more than an installation of a service lateral 400 feet in length;

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- (2) The house, buildings or properties used for human occupancy, employment, recreation or other purposes are located more than 400 feet from the nearest the public sewer;
  - (3) Such house, buildings or properties which at the time a public sewer is made available thereto are served by septic tank systems meeting County, VDH and state water control board requirements; provided that, such septic tank systems are operated and maintained at all times in strict conformance with the requirements of said governmental agencies having jurisdiction over such systems and are not altered, enlarged, modified, repaired or replaced without the appropriate approval(s) and permit(s) of such government agencies;
  - (4) Such buildings are outside the service area (the area where utility services are planned) as established by the County's comprehensive plan;
  - (5) Any one single-family residential unit, but not excepting a residential subdivision; or
  - (6) If the connection would need to be made directly to the force main.
- (C) Additionally, in any Service District, a building or structure constructed after the initial creation of the Service District pursuant to this Chapter shall be required to connect to the public sewer system whenever the distance from the public sewer system to the building or structure is 500 feet or less. Except that in a Service District, for one single-family residential dwelling not existing as of the inception of the applicable Service District located on a lot of record as of the same date, the distance for mandatory connection shall be 300 feet. Such connections shall be made, if approved by the Director, upon payment of a connection fee, which is set by the Board of Supervisors.
- (D) A separate and independent building sewer shall be provided for every building except where one building stands at the rear of another on an interior lot such that no private sewer is available or can be constructed to the rear building through an adjoining alley, courtyard, or driveway. When this occurs, the building sewer serving the front building may be extended to the rear building and the whole considered as one building sewer. The County assumes no obligation or responsibility for damage caused by or resulting from any single building sewer which serves more than one building.

History prior Sec. 21-4-17. - Separate connections required (Ord. 6-20-07).

**Sec. 21-3-13. Industrial cost recovery.**

Users of the POTW or County's treatment works and treatment facilities will also be assessed industrial cost recovery charges if and as required by the Act or other applicable law.

History prior Sec. 21-4-45. - Industrial cost recovery (Ord. 6-20-07).

**Sec. 21-3-14. Discharging sewage onto land or into water body.**

It is unlawful under Applicable Law to discharge wastewater or septage without a VPDES permit to any natural outlet or on land within the County or in any area under its jurisdiction. Wastewater or septage discharges to the County's treatment works are not authorized unless permitted by the Director in accordance with provisions of this Chapter.

History prior Sec. 21-4-12. – Wastewater discharges (Ord. 6-20-07).

**Sec. 21-3-15. Sewage disposal required.**

It shall be unlawful for the owner of any house, warehouse, building or other structure where human beings congregate or are employed to use or occupy or to rent or lease the property for use or occupancy until such

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house, structure, place or building is supplied with an approved method of disposal of human excrement that complies with the requirements of Applicable Law and this Chapter.

History prior **Sec. 21-1-1** – approved method of disposal of human excrement required (Comp. 1974, ch. 12).

**Sec. 21-3-16. Maintenance of sewage disposal system; pump-out requirement.**

It shall be unlawful for any owner, tenant or lessee of premises supplied with a sanitary privy, flush toilet or other approved device for the disposal of human excrement and other household sewage to allow it or cause it to be unsanitary. All private sewage disposal systems, including conventional onsite sewage systems, alternative onsite sewage systems and alternative discharging sewage systems, are recommended to be pumped out at least once every 5 years, and records evidencing each pump-out be maintained by the owner of the premises. In addition, alternative onsite sewage systems and alternative discharging sewage systems shall have all manufacturer's recommended maintenance performed on the schedule prescribed by the manufacturer, and records of such maintenance retained by the owner of the premises as required by this Chapter.

**Secs. 21-3-18—21-3-30. Reserved.**

*DIVISION 2. CONNECTIONS; FEES*

**Sec. 21-3-31. Connection by applicant.**

Any person, the owner of a lot or parcel of land, desiring or required to have such lot or parcel of land connected to the sanitary sewer or County POTW, shall make application to do so to the Director. Persons applying for service to property that they do not own which is not connected to the County water system will be required to pay a customer set up fee and make a deposit as set out by the County's fee schedule adopted as Appendix A to this Code, or such deposit as the Director may deem necessary in consideration of anticipated consumption. The deposit shall not to exceed one anticipated billing period, to be held by the County as surety without interest, so long as the service is continued. Applicants may be allowed one week for the posting of the deposit, if the application is made other than in person. When service is discontinued, the deposit shall be applied to the final bill, and if the deposit exceeds the amount owed, then a balance on final bills of less than \$5.00 shall not be refunded unless requested by the user in writing within six months of the date the final bill was issued. Credit balances to be refunded shall be mailed to the last known address of user on file with the Department.

**Sec. 21-3-32. Sewer connection fees—Generally.**

Except as specifically set forth below, the costs and expenses incidental to any installation and connection to the County's treatment works shall be borne by the owner. The owner shall indemnify the County from any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer.

The total sewer connection fee, as set by the County from time to time, shall consist of costs and considerations associated with (1) a basic connection fee, (2) local facilities, (3) any applicable Service District additional connection fee, (4) offsite extensions, (5) an oversized main credit policy, to the extent applicable, and (6) any other fees or considerations set forth in this Chapter or as established by the Board of Supervisors on the fee schedule being Appendix A to this Code. Any fees shall be assessed all connectors, and the payment shall accompany the application for connection.

- (1) *Basic connection fee.* The basic connection fee to all applicants represents a partial payment for backup facilities, treatment capacity and the public collection/distribution system. The basic connection fee, which will be fixed from time to time by the Board of Supervisors, shall be assessed all connectors, and

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- the payment shall accompany the application for connection to the sewer system. The basic connection fee shall be based upon water meter size or, if utilized, upon sewer meter size.
- (2) *Local facilities.* The connector shall pay for all local facilities subject to the application of the oversized mains credit policy.
- (a) Where local facilities are not available to the connector's property, the connector shall be responsible for the full cost of the local facilities required to serve the connector's property. Developers of new subdivisions shall install local sewer facilities in accordance with the Director and County Engineer's specifications and in accordance with any other provisions of this Code and applicable law. Along any public right-of-way or easement where the property owner desires service for his own personal use (i.e., a single-family residential unit in which the owner intends to reside), the County will have the local facilities extended at the owner's expense.
- (b) Where local facilities are available to the connector's property and where the cost of said local facilities has not been previously assessed against the property being connected, a local facilities fee equal to such cost as determined by the Director shall be required.
- (3) *Service District additional connection fee.* In any Service District, the availability of wastewater treatment capacity, pump stations, certain mains and local facilities are paid through debt service on bonds, funded by a special tax on real estate parcels within each district. An additional local facilities fee equal to 20 percent of the normal connection fees in place at the time of connection to County sewer service shall be imposed for each connection if no portion of the parcel was in the district prior to such district's creation.
- (4) *Offsite extensions.* The connector shall pay for all offsite extensions required to provide service to the connector's property, subject to the offsite and oversized mains credit policy.
- (5) *Offsite mains credit policy.* The Director shall give a credit against the basic sewer connection fee for any offsite sewer main extension in excess of 400 feet required to provide sewer service to the property. No credit shall be given for offsite extensions of less than 400 feet, and the amount of the credit shall be based upon the length of the extension greater than 300 feet. Credits for construction of the sewer main extension will be computed based on unit prices taken from recent bids received by the County or arms- length bids received by the applicant, whichever is less.
- Credits utilized shall be credited towards sewer connection fees due for the connection of units located on the property served by the extension as identified by the contract for such extension. In no event shall the credits utilized exceed the applicable sewer connection fees charged for improvements constructed on the identified properties. Credits shall expire five years from the date of the utility service agreement unless a later expiration date or an extension is approved by the Board of Supervisors. Any credits not utilized shall be void after the date of expiration.
- (6) *Credits for oversizing of lines and facilities by property owners.* Where the property owner extending the public sewer system is required to oversize lines or other facilities for the convenience of the County at the County's specific request, which includes increasing the depth of lines or other facilities, credits against the basic sewer connection fee, not to exceed the cost of such oversizing or extension, may be allowed in accordance with the following:
- (a) For lines and facilities located within the proposed subdivision or other development, the cost of oversizing shall be limited to the difference in estimated construction cost between the oversized facilities and facilities sized to serve only the proposed subdivision or other development ("the difference in estimated construction cost").

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- (b) For lines and facilities which are not located within the proposed subdivision or other development, the cost of oversized shall be limited to the difference in estimated construction cost plus an additional 20 percent of the difference in estimated construction costs.
  - (c) The amount of oversized credits shall be determined by the Director based on the County's current contracts, recent bids received by the County, other public bids for similar work performed in the area, or other objective criteria.
  - (d) Credits utilized shall be credited towards sewer connection fees due for the connection of units located on the property served by the extension as identified by the contract for such extension. In no event shall the credits utilized exceed the applicable sewer connection fees charged for improvements constructed on the identified properties. Credits shall expire five years from the date of the utility service agreement unless a different expiration date or an extension is approved by the Board of Supervisors. Any credits not utilized shall be void after the date of expiration.
- (7) *Offsite and oversized mains credit policy.* When a sewer main or other appurtenance provided is both offsite and oversized as specified in subsections (5) and (6) above, the amount of the credit shall be the sum of:
- (a) The difference in cost between the size of the sewer main or other appurtenance provided and the size of the sewer main or other appurtenance necessary to adequately serve the property for the onsite project and the first 300 feet of the offsite extension (oversizing credit) calculated and subject to those provisions set forth in (5) above; and
  - (b) 100 percent of the cost of the offsite extension in excess of 300 feet.

History prior Sec. 21-4-16. – Connection Costs (Ord. 6-20-07).

**Sec. 21-3-33. Sewer service charges and rates—Generally.**

- (A) *Charges.* The charges for sewer service shall consist of a service charge, plus a volume charge, as set by the Board of Supervisors from time to time and set forth in Appendix A. These charges are categorized as follows:
- (1) *Service charge.* All users billed monthly for sewer service in accordance with Section 21-2-35 and shall pay the amount fixed from time to time by the Board of Supervisors for each water meter or sewage meter which serves the premises to which sewer service is available.
  - (2) *Volume charge.* In addition to the service charges, the volume charge shall apply, based on measured volume of water or wastewater, and that charge is listed separately in the monthly bill. For residential units, other than multifamily, monthly sewer volume charges shall be based on the lesser of actual usage or usage determined from the first meter reading cycle of the calendar year. For the purpose of this provision, if the first reading is estimated as provided in Section 21-2-31 or if the user joins the system after the first reading cycle, or an allowance is made for an underground leak during the first billing cycle, billing shall not exceed charges for 15,000 gallons for other than a single-family residential unit, and 8,000 gallons for a single-family residential unit. For users of sewer service only, Section 21-2-82 applies to the calculation and reading of non-County water meters for volume charges. Water meters shall be read in accordance with Article II of this Chapter.
  - (3) *Strong waste and Industrial waste charges.* In addition to the foregoing charges, there will be charged to applicable individual users a strong waste charge and an industrial waste charge as fixed from time to time by the Board of Supervisors.
- (B) *General provisions.*



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- (1) Any bills rendered for less than a full billing period shall have the service charge prorated according to days of use, plus the actual volume charge; except that the minimum prorated bill shall be fixed from time to time by the Board of Supervisors for all services (water, sewer) combined. Credit balances on final bills of less than \$5.00 shall not be refunded unless requested in writing by the user within six months of the final bill. Credit balances to be refunded shall be mailed to the last known address of user on file with the Department.
- (2) Charges shall begin as required by contract or when the appropriate connection fees are paid.
- (3) Rates for service provided to contract users shall be established by contract with the users.
- (4) The volume charge on multimeter installations shall be applied to the sum of the volume.
- (5) Whenever any user obtains all or part of the water supply from sources other than the water distribution system of the County, the quantities of wastewater may be determined either from the total metered water consumption from both County and private supplies or from the metered quantities of wastewater discharged into the wastewater system. All meters on private supplies and all wastewater meters shall be provided and maintained to produce an accurate record of the true quantities of water and wastewater discharged into the wastewater system. All costs of meter installation, calibration and maintenance shall be borne by the user. The type of meter shall be approved by the County Engineer, and the meter shall be accessible at all times for inspection by the County Engineer.

**Sec. 21-3-34. Same—Relief in certain cases.**

Where the sewer charge is based on the amount of sewage entering the system and if an allowance is made for an underground water leak, then an allowance may be made against the sewer charge for the same quantity of sewage as the quantity of water allowed. Reference is hereby made to Section 21-2-34.

**Sec. 21-3-35. Same -- Payments for sewer generally; service deposit by tenant.**

Sewer bills and deposits shall be paid at the Treasurer's office or to an agent appointed to receive such payments as otherwise provided in this Chapter. Collection generally, promulgation of rules and regulations, Payment for sewer generally, service deposits by tenants, overdue bills, late fees, interest and disconnection for nonpayment of sewer services are addressed in Sections 21-2-32, 21-2-33, 21-2-34, 21-2-35, 21-2-36, 21-2-37, 21-2-38, 21-2-39 and 21-1-17.

**Secs. 21-3-36—21-3-60. Reserved.**

*DIVISION 3. INDUSTRIAL PRETREATMENT*

**Sec. 21-3-61. Categorical pretreatment standards.**

All persons subject to categorical pretreatment standards shall comply with the requirements of any applicable federal categorical pretreatment standard, including all reporting requirements of the general pretreatment regulations set forth at Section 403.12, Title 40 of the CFR and with any applicable, stricter local limits contained in the County's pretreatment program or required by law or agreement or this Chapter. No person shall discharge or cause to be discharged to any POTW wastewaters containing substances subject to an applicable categorical pretreatment standard in excess of the quantity prescribed in such categorical pretreatment standards.

History prior Sec. 21-4-29. – Categorical pretreatment standards (Ord. 6-20-07).

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**Sec. 21-3-62. Permit required—Existing and new users.**

- (A) All significant industrial users proposing to connect to or to contribute to the POTW shall obtain a permit before connecting or contribution to the POTW. In addition, it shall be unlawful for any significant discharger and any person, without having first obtained a wastewater discharge permit from the Director, to discharge, cause to be discharged, or permit to be discharged into the POTW any substance which requires control or treatment by the discharger in order to:
- (1) Make or render the substance susceptible to treatment by the wastewater treatment plant or avoid deleterious effects upon the POTW or treatment facilities, processes, equipment, or receiving waters, or constitutes a public nuisance or hazard; or
  - (2) Prevent the pass through of such substance through the POTW; or
  - (3) Prevent interference by such substance with the normal operation of the POTW; or
  - (4) Continue the lawful operation of the POTW.
- (B) A permit shall be required of (i) each industrial and commercial user listed in the Act or to which the Act may apply, (ii) each person who discharges a substance requiring, in the Director's judgment, control due to a wastewater constituent, its character, volume or strength, or (iii) if required by the POTW or this Chapter.
- (1) While the Director should initially rely upon the Federal Categorical Pretreatment Standards to protect wastewater facilities or receiving waters, if any wastewater which contains substances or possesses characteristics shown to have deleterious effect upon the treatment works or treatment facilities, processes, equipment, or receiving waters, or constitutes a public nuisance or hazard, is discharged or is proposed for discharge to the wastewater sewers, the Director may require any or all of the following:
    - (a) Pretreatment by the user or discharger to a condition acceptable for discharge to the treatment works;
    - (b) Control over the quantities and rates of discharge;
    - (c) The development of compliance schedules to meet any applicable pretreatment requirements;
    - (d) The submission of reports necessary to assure compliance with applicable pretreatment requirements;
    - (e) Carry out all inspection, surveillance, and monitoring necessary to determine compliance with applicable pretreatment requirements;
    - (f) Obtain remedies for noncompliance by any user. Such remedies may include injunctive relief, the civil penalties specified in Article IX of this Article, or appropriate criminal penalties; or
    - (g) Reject the wastewater if evidence discloses that discharge will create unreasonable hazards or have unreasonable deleterious effects on the treatment works or treatment facilities.
  - (2) When considering the above alternatives, the Director shall assure that conditions of the County's permit are met. The Director shall also take into consideration cost effectiveness, the economic impact of the alternatives, and the willful noncompliance of the discharger. If the Director allows the pretreatment or equalization of wastewater flows, the installation of the necessary facilities shall be subject to review.
  - (3) Where pretreatment or flow-equalizing facilities are provided or required for any wastewater, they shall be maintained continuously in satisfactory and effective operation at the expense of the owner.

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- (c) Applicants must submit an application fee required by Appendix A with their application for the permit. In support of the application, the person applying for the permit shall submit, in units and terms appropriate for evaluation, the following information:
- (1) Name, address, and location, (if different from mailing address of applicant); and
  - (2) SIC number according to the Standards Industrial Classification Manual, Bureau of the Budget, 1987, as amended; and
  - (3) Wastewater constituents and characteristics including but not limited to those mentioned in Section 21-3-5 of this Article as determined by a reliable analytical laboratory; sampling and analysis shall be performed in accordance with procedures established by the EPA pursuant to Section 304(g) of the Act and contained in 40 CFR, Part 136, as amended; and
  - (4) Time and duration of contribution; and
  - (5) Average daily and peak wastewater flow rates, including daily, monthly and seasonal variations, if any; and
  - (6) Site plans, floor plans, mechanical and plumbing plans and details to show all sewers, sewer connections, and appurtenances by their size, location and elevation; and
  - (7) Description of activities, facilities and plant processes on the premises including all materials which are or could be discharged; and
  - (8) The nature and concentration of any pollutants in the discharge. A statement identifying the applicable pretreatment standards and requirements, and a statement regarding whether or not the pretreatment standards are being met on a consistent basis and if not, whether additional operation and maintenance and/or additional pretreatment is required for the User to meet applicable categorical pretreatment standards; and
  - (9) If additional pretreatment and/or operation and maintenance will be required to meet the categorical pretreatment standards, the shortest schedule by which the user will provide such additional pretreatment. The completion date in this schedule shall not be later than the compliance date established for the applicable pretreatment standard. The following conditions shall apply to this schedule:
    - (i) The schedule shall contain increments of progress in the form of dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment required for the user to meet the applicable Pretreatment Standards (e.g., hiring an engineer, completing preliminary plans, completing final plans, executing contract for major components, commencing construction, completing construction, etc.).
    - (ii) No increment referred to in paragraph (i) shall exceed one year.
    - (iii) Not later than 14 days following each date in the schedule and the final date for compliance, the user shall submit a progress report to the Director including, as a minimum, whether or not it complied with the increment of progress to be met on such date and, if not, the date on which it expects to comply with this increment of progress; the reason for delay, and the steps being taken by the user to return the construction to the schedule established. In no event shall more than one year elapse between such progress reports to the Director; and
  - (10) Each product produced by type, amount, process or processes and rate of production; and
  - (11) Type and amount of raw materials processed (average and maximum per day); and
  - (12) Number of type of employees, and hours of operation of plant and proposed or actual hours of operation of pretreatment system; and

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(13) Any other information as may be deemed by the County to be necessary to evaluate the permit application.

The County will evaluate the data furnished by the user and may require additional information. After evaluation and acceptance of the data furnished, the County may issue a user permit subject to terms and conditions provided herein.

- (d) Each permit shall:
- (1) Require discharge standards that meet the Act, Applicable law, and this Chapter; and
  - (2) Require the discharger to meet the reporting requirements under the Act, Applicable Laws and regulations, and this Chapter, including self-monitoring report requirements; and
  - (3) Require all pretreatment to comply with the Act, Applicable Laws and regulations, and this Chapter; and
  - (4) Specify that violations of permit conditions, including those for reporting, constitute a violation of Fluvanna County Code; and
  - (5) Require the applicant to submit the permit fee required by Appendix A; and
- (e) In the case of promulgation of any revised, new or amended categorical pretreatment standard or related Applicable Law, the user permit of users subject to such standards shall be revised to require compliance with such standard if they are more restrictive than the local limits developed by the POTW within the timeframe prescribed by such standard and shall submit any required revisions to their Permit or the information required by subsection (c) within 180 days of the issuance of such standard. Where a user, subject to a categorical pretreatment standard, has not previously submitted an application for a user permit as required by subsection (c), the user shall apply for a user permit within 180 days after the promulgation of the categorical pretreatment standard. Any revised, new or amended Applicable Law which is more stringent shall immediately supercede the otherwise applicable provisions of this Article.

History prior Sec. 21-4-35. – User permits (Ord. 6-20-07); Sec. 21-4-39. – Wastewater with special characteristics (Ord. 6-20-07); and Sec. 21-4-42. – Effect of federal law (Ord. 6-20-07).

**Sec. 21-3-63. Permit—Conditions.**

- (a) All significant dischargers and persons subject to categorical pretreatment standards who discharge to the POTW or otherwise required to have a permit under Section 21-3-62, shall comply with the requirements of any applicable federal categorical pretreatment standard and all Applicable Law, including all reporting requirements of any applicable federal pretreatment regulations, along with any applicable, stricter, local limits. More stringent limitations shall be imposed by the Director in those cases where he deems it appropriate to do so. In the case of conflict, the more stringent limitations shall apply.
- (b) Each permit shall contain specific limits imposed on the discharge for which the permit is being issued.
- (c) A schedule for self-monitoring, to include frequency, required analyses and specific conditions required for the discharge, are to be included in each permit.
- (d) Each permit shall contain a compliance schedule for those dischargers who cannot meet permit limits when issued, but who can be expected, by installation of additional equipment, change in operation or other factors, to comply within a reasonable amount of time. This provision, however, does not require the Director to allow for a compliance schedule. Compliance schedules in lieu of immediate compliance are at the Director's discretion.

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- (e) Each authorized representative of the permit holder shall take instruction annually from the Virginia Department of Environmental Quality on waste minimization.
- (f) Each permit holder shall immediately notify the Director when slug discharges occur. Additionally, each permit holder must provide written notification to the Director within five (5) days of a slug discharge.
- (g) The Director may include the following as permit requirements: recordkeeping; reporting; compliance with specific effluent standards; monitoring; sampling; analysis; installation of monitoring facilities; installation and use of other technological equipment necessary for compliance with this Chapter and the use of best management practices for the reasonable reduction of the volume, strength and toxicity of wastes discharged to the POTW; a slug discharge control plan; and to make and carry out inspections, monitoring, sampling, analysis, and surveillance.
- (h) The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the user at its own expense. All devices used to measure wastewater flow and quality shall be calibrated annually to ensure accuracy.
- (i) Each permit may contain any additional conditions deemed appropriate by the Director.

**Sec. 21-3-64. Same—Amendments; expiration; reapplication.**

- (a) Permits may be amended by the Director from time to time:
  - (1) For the purpose of incorporating changes in federal, state, or local law or requirements;
  - (2) When existing permit conditions are determined by the Director to be inadequate to ensure compliance with the requirements of the Act, any state requirements or the requirements of this Chapter;
  - (3) To impose the terms of a compliance schedule; or
  - (4) To address any modifications, changes, replacements, or repairs at any facility relating to discharges or discharge systems which are subject to a permit
- (b) Permits shall be issued for no longer than five years. Applicants desiring to continue to discharge substances after the expiration of the permit shall submit to the Director a reapplication not less than 90 days prior to the permit's expiration date. Reapplication shall be processed in accordance with the initial application procedure.
- (c) The permit holder shall notify the County of any changes to its operation which may impact the regulated substances, the permit, or the wastewater discharged.
- (d) Persons required to have a permit or pretreat wastewater in accordance with this Article shall have an authorized representative of the Owner sign all permit applications and related reports, and such must also be certified by a qualified professional. At least annually, Persons required to have a permit or pretreat wastewater in accordance with this Article shall provide a certification to the Director indicating whether applicable permit and pretreatment requirements are being met on a consistent basis and, if not, describing the additional operation and maintenance or additional pretreatment required for the user to meet the permit or pretreatment requirements. Such certification must also be certified by a qualified professional. If additional pretreatment or operation and maintenance will be required to meet the permit or pretreatment requirements, the user shall submit a plan (including schedules) to the Director as described in Section 21-3-62. The plan (including schedules) shall be consistent with applicable conditions of the County's Permit and Applicable Law.

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History prior Sec. 21-4-40. – Compliance with pretreatment requirements (Ord. 6-20-07); and Sec. 21-4-43. – Certification (Ord. 6-20-07).

**Sec. 21-3-65. Suspension or revocation.**

- (a) The Director is authorized and empowered to make rules for the suspension or revocation of permits. Such rules shall provide for reasonable notice to the permit holder of a possible revocation or suspension and opportunity for a hearing. The rules may provide for suspension or revocation when:
  - (1) The permit holder is no longer in compliance with either the applicable effluent standards or the permit requirements;
  - (2) The substance discharged by the permit holder reasonably threatens the health, safety, or welfare of the public;
  - (3) A substance discharged by the permit holder presents a danger to the environment; or
  - (4) A substance discharged by the permit holder interferes with or threatens the lawful operation of the POTW.
- (b) Upon suspension of a permit, discharge of all substances by the permit holder shall cease until all violations are corrected to the satisfaction of the Director.
- (c) Upon revocation of a permit, discharge of all substances by the former permit holder shall cease unless and until a new permit is issued.

**Sec. 121-3-66. Correction of violations.**

- (a) Each permit holder shall, at all times, observe the permit conditions. If the Director reasonably believes that the permit requirements are being or have been violated, the Director will notify the permit holder in writing of each violation. Within seven days after notice, the permit holder shall provide the Director a written report including a description of the action being taken to correct the violation, a statement of the date by which the violation will be corrected, and any other information required by the Director. Notwithstanding this requirement to give notice, nothing in this Section shall prevent the Director from immediately suspending or revoking a permit.
- (b) Each permit holder shall provide protection from accidental discharge of prohibited materials or other substances regulated by this Chapter. Facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the permit holder's own expense. Detailed plans showing facilities and operating procedures to provide this protection shall be submitted to the Director with the permit application. The detailed plans shall be reviewed for approval by the Director before a permit is issued. In the case of an accidental discharge, it is the responsibility of the permit holder to immediately call to notify the County of the incident. The notification shall include a description of the discharge, type of waste, concentration and volume, and proposed corrective actions. Initial notice shall be followed within five days by written notice which shall include the same information as well as a description of measures taken by the user to prevent similar future occurrences.

**Sec. 21-3-67. Notice to employees.**

- (a) A notice shall be permanently posted on the permit holder's bulletin board and near each location where wastes may be discharged advising employees whom to call in the event of an accidental or unlawful discharge.

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- (b) Each permit holder shall have an employee education program, whereby the employees involved in waste management are instructed as to the requirements of the permit holder's permit. A copy of the program shall be submitted with each permit application.

**Sec. 21-3-68. Permit not transferable.**

The discharge permit is not transferable. It is issued for a specific operation based upon information submitted. Any new dischargers shall apply for a new permit.

**Sec. 21-3-69. Inspection and sampling.**

- (a) The County shall inspect the facilities of any discharger to determine compliance with this Chapter or any permit issued pursuant to this Chapter. Persons or occupants of premises where wastewater is created, discharged, or monitored shall allow the Director ready access at all reasonable times and at all parts of the premises for the purpose of inspection, sampling and records examination or other performance of his duties.
- (b) When required by the Director, the owner of any property serviced by a building sewer carrying industrial user wastewater discharges shall provide suitable access and such necessary meters and other devices in the building sewer to facilitate observation, sampling, and measurement of the wastewater. Such access shall be in a readily and safely accessible location and shall be provided in accordance with plans approved by the Director. The access shall be provided and maintained at the owner's expense so as to be safe and accessible at reasonable times.
- (c) The Director shall consider such factors as the volume and strength of discharge, rate of discharge, quantities of toxic materials in the discharge, treatment facility removal capabilities, and cost effectiveness in determining whether or not access and equipment for monitoring significant dischargers and industrial user wastewater discharges shall be required.
- (d) Where the Director determines access and equipment for monitoring or measuring significant dischargers or industrial user wastewater discharges is not practicable, reliable, or cost effective, the Director may specify alternative methods of determining the characteristics of the wastewaters discharge which will, in the Director's judgment, provide a reasonably reliable measurement of such characteristics.
- (e) Measurements, tests, and analyses of the characteristics of wastewater required by this Article shall conform to 40 CFR, Part 136 and be performed by a qualified laboratory. When such analyses are required of a discharger, the discharger may, in lieu of using the County's laboratory, make arrangement with any qualified laboratory, including that of the discharger, to perform such analyses.
- (f) Fees for any given measurement, test, or analysis of wastewater required by this Article and performed by the County shall be the same for all classes of dischargers, regardless of the quantity or quality of the discharge and shall reflect only direct cost. Costs of analyses performed by an independent laboratory at the option of discharger shall be borne directly by the discharger.

History prior Sec. 21-4-37. – Provision for Monitoring (Ord. 6-20-07).

**Sec. 21-3-70. Confidential information.**

All records and information received are subject to the Virginia Freedom of Information Act and shall be public except that information constituting trade secrets or otherwise subject to an exception by State Law may not be subject to mandatory public disclosure if the owner of such information specifically and properly identifies the same and complies with all requirements of the Virginia Freedom of Information Act in requesting such information not be disclosed.

**Sec. 21-3-71. Local limits.**

Local limits shall be the most stringent of all those limits set for the treatment plants serving the waterworks and all other applicable limits set by the Waterworks Regulations, Applicable Law and this Code.

**Sec. 21-3-72. Violations, penalties and notices.**

- (a) Any person who violates any provision of this division, any permit conditions, or the terms of any compliance schedule entered into with the Director shall be guilty of a misdemeanor and, upon conviction thereof, be punished in accordance with Section 21-1-2 of this Chapter. Each violation shall constitute a separate offense.
- (b) At least seven days before commencing legal action, the Director shall make reasonable efforts to give written notice, to the violator or discharger, of any violations of either this division or the permit conditions. However, this Section does not limit in any way the Director's authority to execute, without notice, a search warrant in order to secure information necessary for prosecution of known or suspected violations. Furthermore, if the Director determines that the violations pose an immediate threat to the health, safety or welfare of the public, the environment, or the POTW, then no notice shall be required, and the Director may immediately initiate corrective enforcement action.
- (c) In order to remedy a violation of either this division or the permit conditions, the Director may, in addition to other remedies available, do any or all of the following:
  - (1) Seek equitable relief in a court of law;
  - (2) Disconnect all of the sewer connections of the discharger and plug his sewer line; and
  - (3) Discontinue County water service.
- (d) Annually, in a local paper of general circulation in the County, the Director shall publish a list of significant violators of pretreatment standards.

**Sec. 21-3-73. Damage to the POTW.**

If any drainage or substance discharged results in any deposit, obstruction or damage to the POTW, related appurtenances, or other real or personal property, or alters the nature or quality of the sludge generated by the wastewater treatment plant so as to increase the cost of either safe sludge removal or sludge disposal, then the person causing such deposit, obstruction or damage shall be liable for the cost of all such damage and/or prompt repairs or removals.

History prior Sec. 21-4-38. – Costs of damage (Ord. 6-20-07).

**Sec. 21-3-74. Specifically prohibited discharges.**

- (a) No industrial user of the POTW shall discharge or cause to be discharged into the system the following liquids or materials:
  - (1) Any material which creates or may create a fire or explosion hazard at any point in the POTW, including, but not limited to, waste-streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Celsius, using test methods specified in applicable federal regulations.
  - (2) Any material which has a pH below 5.0, unless specifically approved by the Director based on a finding that the POTW will accommodate such material
  - (3) Any material which would cause corrosive structural damage to any part of the POTW.
  - (4) Any solids or viscous matter, such as, but not limited to, oil and grease, in an amount which may cause obstruction or interference in the POTW.



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- (5) Any material, including oxygen-demanding matter, that, by its constituents, character, volume, strength, or any combination thereof, may cause or contribute to an interference with the normal operation of the POTW.
  - (6) Heat to a degree which would inhibit biological activity or cause wastewater treatment plant influent temperature to exceed 40 degrees Celsius or 104 degrees Fahrenheit.
  - (7) Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil in amounts that would or could cause interference or pass through.
  - (8) Matter that would or could result in the presence of toxic gases, vapors, or fumes in the POTW in a quantity or concentration that could cause worker health or safety problems.
  - (9) Any radioactive waste or isotopes of such half-life or concentration that do not comply with regulations or permits issued by the appropriate authority having control over their use, or which may cause damage or hazard to the POTW or its personnel, or pass through the POTW into the environment.
  - (10) Any trucked or hauled matter, unless specifically approved by the Director.
- (b) If the Director finds that any of the waters, wastes, or effluent set forth above are being discharged into the POTW, the industrial user will cause such discharge to be discontinued or will provide and install such facilities, devices, and equipment as necessary to prevent the consequences resulting from the discharge of such waters, wastes or effluent into the POTW. The character and capacity of the facilities, devices and equipment shall be acceptable to the Director, and shall be installed so as to be readily and easily accessible for observation, maintenance, operation, sampling, cleaning and inspection. The cost of providing, installing, maintaining, cleaning and operating these facilities, devices and equipment shall be borne by the industrial user. If the industrial user fails, refuses, or neglects to provide, install, maintain, clean or operate such facilities, devices and equipment, or fails, refuses or neglects to do so in a proper and efficient manner, then the industrial user will pay to the County such charges as the Director may proscribe for treating the effluent discharged by the industrial user into the POTW to prevent the negative consequences therefrom.

**Sec. 21-3-75. Jurisdictional enforcement—Nonexclusive.**

Enforcement of pretreatment violations will generally be in accordance with the County's Enforcement Response Plan pursuant to Section 21-3-76. The Director may take any, all, or any combination of actions against a noncompliant industrial user as specified in the plan; however, the Director may take other action against any industrial user when the circumstances place at risk the health, safety, and welfare of the public, the POTW, or personnel of the POTW.

**Sec 21-3-76. Enforcement Response Plan.**

- (a) The Director shall develop and administer an Enforcement Response Plan (ERP) to provide a systematic method to enforce the provisions of this Division 3, of Article III. This plan shall contain detailed procedures indicating how the Department will investigate and respond to instances of noncompliance. The plan shall, at a minimum:
  - (1) Describe how the Department will investigate instances of noncompliance;
  - (2) Describe the types of escalating enforcement responses the Director will take in response to violations and the time periods within which responses will take place;
  - (3) Identify (by title) the official(s) responsible for each type of response; and
  - (4) Adequately reflect the Director's responsibility to enforce all applicable pretreatment requirements and standards, as detailed in this Article.

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- (b) *Significant noncompliance with ERP.* The term significant noncompliance may be applicable to any industrial users and shall mean a violation which meets one or more of the following criteria:
- (1) Chronic violations of wastewater discharge limits, defined as those in which 66 percent or more of all of the wastewater measurements taken during a six-month period exceed (by any magnitude) a numeric pretreatment standard or requirement as defined by 9 VAC 25-31-10;
  - (2) Technical Review Criteria (TRC) violations, defined as those in which 33 percent or more of all of the wastewater measurements for each pollutant parameter taken during a six-month period equal or exceed the product of the numeric pretreatment standard or requirements as defined by 9 VAC 25-31-10 multiplied by the applicable TRC (TRC = 1.4 for BOD, TSS, fats, oil, and grease, and 1.2 for all other pollutants except pH);
  - (3) Any other violation of a pretreatment standard or requirement as defined by 9 VAC 25-31-10 (daily maximum, long-term average, instantaneous limit, or narrative standard) that the Director determines has caused, alone or in combination with other discharges, interference or pass through (including endangering the health of Departmental personnel or the general public);
  - (4) Any discharge of a pollutant that has caused imminent danger to human health, welfare or to the environment or has resulted in the Director's exercise of his emergency authority to halt or prevent such a discharge;
  - (5) Failure to meet, within 90 days after the schedule date, a compliance schedule milestone contained in a local control mechanism or enforcement order for starting construction, completing construction, or attaining final compliance;
  - (6) Failure to provide, within 30 days after the due date, required reports, including but not limited to baseline monitoring reports, ninety-day compliance reports, periodic self-monitoring reports, and reports on compliance with compliance schedules;
  - (7) Failure to accurately report noncompliance; or
  - (8) Any other violation or group of violations which the Director determines will adversely affect the operation or implementation of the County's pretreatment program.
- (c) *Appeal to Director.* Any person objecting to a notice of violation issued by the Director under this Division 3 of Article III shall have the right to appeal the same to the Director. Such appeal shall be filed in writing with the Director within 30 days or, if sooner, the time specified for compliance in the Director's notice of violation. The Director shall review the notice of violation, the degree of hazard to the integrity of the sanitary sewer system, the immediacy of the threat to the public health and safety, and the possibility of long-term damage to the environment posed by such violation. Based upon such criteria the Director may affirm, modify or vacate any ERP action.
- (d) *Immediate suspension under certain circumstances.* Notwithstanding the provisions of this Section, the Director may take any action under Section 21-3-72 concurrently with any action allowed under this Section and whenever the Director determines that a person is discharging substances into the public sewer system which pose an immediate threat to the health, safety or welfare of the public, the environment, the public sewer system or the wastewater treatment plant, the Director shall immediately suspend any discharge permit issued to such person and shall discontinue County water and/or sewer service to such person.

**Secs. 21-3-77—21-3-80. Reserved.**

*DIVISION 4. PRIVATE SYSTEMS GENERALLY*

**Sec. 21-3-81. When connection to private sewer required.**

Except if required to connect to the County public sewer system pursuant to this Chapter, if a private sewer is within 300 feet of the building or structure for which a septic tank or other local wastewater disposal system is proposed to be installed, the owner of the building shall connect to the same, if the owner of the private sewer consents. If a private sewer is within 300 feet of a building for which a septic tank or other local wastewater disposal system is to be repaired, the owner shall connect to the sewer if the health officer determines that correction of an unsanitary condition due to a malfunctioning sewage disposal device would necessitate major repairs, and the owner of the private sewer consents.

**Sec. 21-3-82. Costs of connection to sewer generally.**

When connection to a public sewer is required, costs shall be set by the Board of Supervisors.

**Sec. 21-3-83. Promulgation of rules and regulations; procedure for correction of defects and violations; violation of orders, etc.**

- (a) The Virginia Department of Health (VDH) shall establish all necessary rules, regulations, procedures and specifications for the administration of Divisions 4 through 8 of this Article III and the protection of the health, safety and welfare of the public.
- (b) If, upon investigation, the health officer or his authorized agent shall find any violation or apparent violation of such divisions or the provisions of the permit issued under such divisions, or that any conventional onsite sewage system, alternative onsite sewage system, alternative discharging sewage system, privy, closet, toilet, drainage system or any part thereof is detrimental to life or health, the health officer shall issue a notice of apparent violation or order directing the owner or occupant to abate, remove, suspend, alter, improve or otherwise correct the condition or violation as specified in the notice or order. A copy of each such notice or order shall be provided to the Fluvanna County Director of Community Development. If the owner does not comply with the health officer issued notice under the provisions of this Section within ten days after the service thereof or within such other period of time as may be specified in the order, the health officer may order the premises vacated.
- (d) Whenever the health officer issues an order under the provisions of subsection (b), he shall send a copy of such order to the owner or occupant of the premises and may placard the premises by posting a copy of such order on the front of the building.
- (e) Whenever the health officer issues an order requiring the vacation of the premises under subsection(c) of this Section, he shall serve a copy of such order on the occupant and the owner of the property or his agent if names and addresses can be ascertained.
- (f) The order of vacation of the premises shall be posted on the front of the building at least ten days before it shall be effective unless the situation is of a character requiring immediate action, in which case the effective time of the order shall be such as in the judgment of the health officer is reasonable and proper.
- (g) Service of any notice, order or other paper under this Section shall be deemed sufficient if sent by registered or certified mail, or delivered by hand by an agent of the health department or by any mode prescribed by law.
- (h) It shall be unlawful for any person to remove any notice or order posted on any building by the health officer except with the written permission of the health officer.
- (i) It shall be unlawful for any person to occupy or permit others to occupy any building which has been posted with an order of the health officer requiring the same to be vacated, until a written statement shall have been secured from the health officer showing that the conditions have been corrected and that the building has been made to comply with this Article or other applicable existing law.

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**Sec. 21-3-84. Misuse or neglect of toilets, etc.**

It shall be unlawful for any owner or any tenant or occupant of any premises properly supplied with a sanitary privy, flush toilet or other approved device for the disposal of human excrement to misuse or neglect the same, so as to cause it to be unsanitary.

History. Prior Section 2—1-3 - Misuse or neglect of toilets, etc. (Min. Bk. 5, pp. 95-96, 144; Min. Bk. 7, p. 277; Comp. 1974, ch. 12).

**Sec. 21-3-85. Certain plans for new subdivisions.**

It shall be unlawful for any person to begin construction of any new dwelling, subdivision, housing development, building or structure designed for use by human beings before furnishing plans and specifications of the sewer system or sewage disposal system to be used, together with plans for the anticipated water system. These plans and specifications must be approved by the health department before the issuance of a building permit. The approval of the health department shall not be required where the proposed water and sewage disposal systems are under the jurisdiction of the County Engineer.

When any method of sewage disposal other than public sewer is planned for the service of any lot or parcel of land, the building official shall not issue a building permit until after receipt of written notice from the health department that such lot or parcel of land has been inspected and is believed to be suitable for the plans and purposes stated as the intended means of sewage disposal. Any restriction or qualification of such health department approval will be stated on the written inspection report sent to the office of the building official.

**Sec. 21-3-86. Approval of private sewage systems.**

Notice must be given to the Board of Supervisors at least 90 days before construction can begin on a sewage system that is to serve or will be capable of serving any nonresidential connections or serving three or more residential connections. The applicant must notify the Board of Supervisors both 1) in writing to the Board of Supervisors c/o the Director and County Engineer, who shall inform the Board of Supervisors and 2) in person at a regular Board of Supervisors meeting. The applicant must state in the notice the number and nature of connections to which service will be given under the certificate applied for, and the Board of Supervisors may require more information as necessary.

After the Director and County Engineer notify the Board of Supervisors of the proposal, it may disapprove the proposal if it finds that such sewage system is not capable of serving the proposed number of connections by reason of inadequate pipes, conduits, pumping stations, force mains, or sewage treatment plants or is otherwise inadequate to render the proposed services. However, if the Board of Supervisors has not disapproved the application by the end of 70 days (from the time the applicant appeared before the Board of Supervisors), the applicant may proceed with construction. However, he must first notify the chairman of the Board of Supervisors by mail of his intention to proceed. The Board of Supervisors may deny an application for a sewage system if such denial appears to be in the best interest of the inhabitants of Fluvanna County.

Service cannot be extended in excess of the number of connections for which approval has been given, and if extension is desired, the person desiring such must proceed in the same manner as in the case of an original application.

Any person who fails/refuses to notify the Board of Supervisors of either 1) construction or installation of a sewage system or 2) a proposed extension beyond the number of connections for which approval was originally given shall be subject to criminal charges arising under 21-1-2 related to such violation of this Chapter. The same applies in the event that a proposal has been disapproved and the person proceeds despite being disapproved.

As set forth in Section 21-1-11, any approval under this Section shall be required in addition to any other permits, approvals or conditions which may be required for the construction and not in lieu thereto.

**Secs. 21-3-87. Application contents.**

The application for a permit required under Article III, Division 4, 5, 6, or 7 shall be made to the health department and the applicant shall furnish at minimum the following:

- (1) Description, location and dimensions of the land or lot on which the septic tank and/or distribution system is to be installed or repaired.
- (2) Approximate location of proposed dwelling on such lot.
- (3) Number of bedrooms in proposed dwelling.
- (4) Whether dwelling will have automatic laundry, dishwasher or garbage disposal.
- (5) Description of type of water supply.
- (6) When required, a plat showing the location of existing buildings, water supply and sewage disposal.
- (7) Percolation tests of specific lots to determined soil characteristics shall be made if indicated and requested by the department. Percolation test procedures shall be in accordance with state health department regulations.
- (8) Plat showing sites to be inspected, including primary and secondary drainfield sites.
- (9) Any other information required to be disclosed under State law or this Code or which would be necessary for the health department to review the application.

**Secs. 21-3-88—21-3-90. Reserved.**

## DIVISION 5. CONVENTIONAL ONSITE SEWAGE

**Sec. 21-3-91. Permit for installation and repair.**

- (a) It shall be unlawful for any person to install, modify or repair, have installed, modified or repaired, allow to be installed, modified or repaired or contract to install or repair a septic tank system individually or for another person without first obtaining from the health officer a septic tank permit. The applicant shall furnish the description, location and dimensions of the land or lot on which the septic tank, distribution box and drain tile are to be installed, proposed and/or existing structures and driveways, underground utilities, adjacent soil absorption systems, bodies of water, drainageways, wells and springs within 200 feet of the proposed building site and the plans and specifications of the whole septic tank system intended to be installed, modified or repaired and the location of a reserve drainfield of adequate size, and the location and soils to be used as the sole drainfield, if needed. Upon approval of such application, the health officer shall issue a permit to the applicant for the installation or repair of such septic tank system in accordance with the plans and specifications furnished. If the plans are not approved, but the size and topography of the lot and type of soil are suitable for a septic tank system, properly planned, the health officer shall allow the plans to be modified and grant the permit only when the plans are proper and acceptable to him or her. The applicant for a County permit hereunder shall pay to Fluvanna County a fee as set forth on that Fee Schedule, being Appendix A hereto.
- (b) Upon receipt of an application as above set forth, and after the applicant shall have paid to the County Treasurer a permit application fee in the amount fixed from time to time by the Board of Supervisors, the health officer shall, before the issuance of the septic tank system permit, determined whether or not the land or lot of the applicant is suitable for the installation and use of a septic tank system. The health officer shall follow the sewage handling and disposal regulations of VDH. In addition, the health officer shall ensure that individual septic systems are located on the same lot or parcel as the building to be served by the septic system, and that the septic system is not located within ten feet of any wetland, resource protection areas,

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reserve drainfields and, if applicable pursuant to this Code, requirements of any applicable proffers or condition.

- (c) The health officer shall thereupon issue a permit to the applicant for the installation of such septic tank system in accordance with the plans and specifications furnished.
- (d) The permit application fee shall not be refundable in any case.
- (e) The health officer shall have the right to suspend or revoke any permit issued by him or her for the installation or repair of a septic tank system whenever the information furnished in or with the application is found to be materially false or incorrect.
- (f) Maintenance is defined as performing adjustments to equipment and controls or in-kind replacement of normal wear and tear parts that does not require a construction or building permit such as adjustment or replacement of light bulbs, fuses, filters, pumps, motors, sewer lines, conveyance lines, distribution boxes, header lines, or other like components. Maintenance includes pumping the tanks or cleaning the building sewer on a periodic basis. Maintenance shall not include replacement of tanks, drain field piping, subsurface drain fields, or work requiring a construction permit and installer. A conventional onsite sewage system installer may perform maintenance work limited to in-kind replacement of light bulbs, fuses, filters, pumps, sewer lines, conveyance lines, distribution boxes, and leader lines.

**Sec. 21-3-92. Reserve drainfield.**

A reserve sewage disposal site with capacity equal to or greater than the primary drainfield must be provided wholly on each lot or parcel for new construction if required under Applicable Law. The 100 percent reserve sewage disposal site requirement is determined not to apply under Applicable Law, then VDH sewage handling and disposal regulations shall apply. Building shall be prohibited on the area of all primary and reserved sewage disposal sites until the structure is served by public sewer or an onsite sewage treatment system which operates under a permit issued by the Virginia Department of Environmental Quality.

**Sec. 21-3-93. Specifications—Generally; inspections.**

All septic tank systems installed or repaired in this County shall consist of a sewer line from the building to the tank, septic tank, distribution box and drain tile purification field. The sewer line shall be of vitrified cast iron sewer pipe, vitrified clay sewer pipe, concrete sewer pipe, asbestos cement sewer pipe or transite pipe. The joints shall be watertight and made in accordance with the Virginia Uniform Statewide Building Code. The entire system shall be built in accordance with the plans and specifications shown on the permit. The sewer line from the building to the septic tank, including all necessary connections, shall be subject to inspection and approval by the County, and approval of the septic tank by the health department.

- (A) In addition to any other rights of entry established under this Chapter, the Director or authorized state or federal officials, bearing the proper credentials and identification, shall have the right to enter all premises where an effluent source or treatment system is located at any reasonable time for the purposes of inspection, observation, measurement, sampling and/or copying records of the wastewater discharge to ensure that discharge to the treatment works is in accordance with the provisions of this Chapter.
- (B) The Director and his agents shall be permitted to enter all private property through which the County holds an easement for the purposes of inspection, observation, measurement, sampling, repair, and maintenance of any of the County's treatment works and for any other proper purposes under the easement. All entry, and any subsequent work on the easement, shall be done in accordance with the terms of the easement. Notwithstanding the foregoing, nothing herein shall limit any rights of the County under any easements or under Applicable Law.

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- (C) While performing any necessary work on private properties referred to in subsections (A) and (B) above, the Director shall observe all safety and occupational rules established by law and shall make a reasonable effort to accommodate the operations and practices of the owner or occupant of the property and applicable to the premises.

History prior Sec. 21-4-5. – Inspections (Ord. 6-20-07).

**Sec. 21-3-94. Same—Excavations; trees.**

All excavations and trenches shall be of sufficient dimensions to permit sewers, tanks and other structures of the sizes specified to be properly placed therein according to plans and specifications as required by this Chapter and to permit removal of any obstructing material within the purification field, or trees located closer than ten feet to any part of the septic tank system. Where it is necessary to remove any tree(s), this must be done prior to installation and final inspection and approval of the septic tank system.

Trees within ten feet of a septic tank system may interfere with its proper functioning and create a public health problem. In such case, whether the trees were spared when the system was installed or were allowed to grow after it was finally inspected and approved, the responsibility for effecting correction shall be with the owner. Correction shall be made according to health department directions, which may include the requirement that any or all trees within ten feet of any part of the system be removed. This does not limit any other rights of the County in enforcing any rights it has under any easement or Applicable Law related to removal or excavation of trees.

**Sec. 21-3-95. Same—Re-excavation; inspection before filling; backfilling.**

Where unsuitable foundation is encountered at the depth of any excavation shown on the drawing or specified by the health officer, further excavation and refilling of the excavated spots with such foundation material as may be directed by the health officer are hereby required.

A representative of the health officer shall inspect septic tank construction after completion and before any part of the system shall be covered. Septic tank systems shall be backfilled immediately after inspection and approval by the health officer. Care shall be taken not to disturb the pipe, grades, joints or alignment by the backfilling or otherwise. If any septic tank system or part thereof is covered before being finally inspected and approved as herein prescribed, it shall be uncovered by the installer at the direction of the health officer.

**Sec. 21-3-96. Same—Pipes and jointing materials.**

The size, type of materials and method of installation of the house sewer shall comply with the requirements of the Virginia Uniform Statewide Building Code and other Applicable Law.

**Sec. 21-3-97. Same—Location.**

- (a) Location and installation of the sewage disposal system and each part thereof shall be such that with reasonable maintenance it will function in a sanitary manner and will not create a nuisance or public safety hazard nor endanger the safety of any domestic water supply. In determining a suitable location for the system, consideration shall be given to the nature of the soil, size and shape of the lot, slope of natural and finished grade, depth of groundwater table, proximity to existing or future water supplies, and possibility for expansion of the system.
- (b) No part of the system shall be located so that it is nearer to any water supply than 50 feet or so the surface drainage from its locations may reach any domestic water supply.

- (c) The health officer or VDH may in an appropriate case modify the requirements of this Section where it finds that such modification will not adversely affect any other requirements of this Article concerning water supply and disposal of sanitary wastes.
- (d) Installations in low swampy areas with a high-water table or in areas which may be subject to flooding are prohibited.

**Sec. 21-3-98. Same—Design generally.**

Design of the septic tank shall be rectangular in shape, and the length shall be not less than twice nor more than three times the width. The liquid depth shall be not less than four feet or greater than eight feet, and the freeboard or airspace shall be not less than one foot.

**Sec. 21-3-99. Same—Capacity.**

Liquid capacity of all septic tanks shall be based upon the number of bedrooms contemplated in the building served and shall conform to Table 1, herein shown, or as specified by the health department.

TABLE 1. CAPACITY OF SEPTIC TANK

Dimensions of Septic Tank					
Potential Capacity of Home (Number of bedrooms)	Capacity of Septic Tank (gallons)	Length	Width	Airspace	Liquid
2 or less	750	7 ft. 0 in.	3 ft. 6 in.	1 ft. 0 in.	4 ft. 0 in.
3	900	8 ft. 0 in.	4 ft. 0 in.	1 ft. 0 in.	4 ft. 0 in.
4	1200	9 ft. 0 in.	4 ft. 6 in.	1 ft. 0 in.	4 ft. 0 in.
5	1500	9 ft. 6 in.	4 ft. 6 in.	1 ft. 0 in.	4 ft. 7 in.
6	1800	10 ft. 0 in.	5 ft. 0 in.	1 ft. 3 in.	4 ft. 8 in.
7	2100	10 ft. 6 in.	5 ft. 0 in.	1 ft. 3 in.	4 ft. 9 in.

**Sec. 21-3-100. Same—Construction of tank.**

Construction of the tank shall be such as to assure its being watertight and prevent the entrance of rainwater or surface drainage.

- (1) The tank shall be constructed of sound and durable material not subject to excessive corrosion or decay.
- (2) Adequate access to each compartment of the tank for inspection and sludge removal shall be provided by manholes and removable covers. Manholes shall be provided at both inlet and outlet ends of septic tanks to make inlet and outlet tees readily accessible. Where the top of the tank is located more than 18 inches below the surface of the ground, manholes shall be built up to a minimum of 18 inches from the surface.
- (3) Inlet and outlet connections shall be submerged or baffled to assure the least possible disturbance in the tank.
  - a. The inlet pipe or baffle shall extend approximately six to eight inches below and eight to ten inches above the surface, and the outlet shall extend approximately two feet below and eight to ten inches above the water surface.
  - b. Satisfactory venting of the tank shall be provided through the inlet and main building stack. The outlet shall be similarly vented to provide proper ventilation of the disposal field or seepage pits back into the septic tank and thence through the main building stack.



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- (4) Septic tanks shall be poured in place concrete, precast concrete, concrete block or other acceptable material.
- a. Concrete septic tanks, poured in place, shall be poured with a standard concrete mixture of 1-2-3 mix. Where the excavation is subject to caving or where the water table is objectionably high, outside forms and pumping will be required in order to assure a watertight tank. The walls, top and bottom of the tank are to be not less than four inches thick and reinforced to withstand all anticipated loads at the time the septic tank permit is issued.
  - b. Precast concrete tanks shall be of a design and size as specified by the health department as stated on the permit and shall be made with a standard 1-2-3 mixture. The walls, top and bottom shall be not less than two and one-half inches in thickness and reinforced to withstand all anticipated loads at the time the septic tank permit is issued. The precast tank may be made in two sections or more with a horizontal half-lap joint cement grouted. The bottom and top portions of the side walls shall be poured monolithically.
  - c. Concrete or solid block tanks, if installed, shall have a minimum wall thickness of six inches laid on solid concrete base, and cores of cocks shall be filled with cement mortar. Vertical reinforcing rods shall be spaced approximately 12 inches on center. The interior of the tank shall be surfaced with one-half inch thick coat of Portland cement mortar. Wherever precast slabs are used as covers, slabs shall have a thickness of at least three inches and shall be adequately reinforced.
- (5) Any design, size, capacity or construction of a septic tank which is not permitted by VDH shall not be used. Where VDH has no applicable regulations or those in this Code provide for higher standards, this Code shall apply.

**Sec. 21-3-101. Same—Subsurface purification field; location.**

- (a) Location of the purification field should be in an unobstructed and unshaded area, and the distances given shall be the minimum which the disposal field can be located from the following:
- (1) Any water supply (except as noted below) ..... 50 feet
  - (2) Streams ..... 25 feet
  - (3) Dwellings ..... 15 feet
  - (4) Excavations for dwellings ..... 10 feet
  - (5) Property lines ..... 10 feet
  - (6) Top edge of banks or cuts ..... 10 feet
- (b) When existing wells are involved or exceptionally coarse soil formations are encountered, the 50-foot distance from any water supply shall be increased in accordance with the recommendation of the health department.
- (c) On otherwise acceptable previously recorded lots, the requirement of subsection (a)(5) above may be reduced to not less than five feet where necessary to permit proper installation of the disposal field.

**Sec. 21-3-102. Same—Distribution box and connections.**

A distribution box of sufficient size to accommodate the necessary field lateral lines shall be installed or constructed at the head of each purification field.

- (1) Each field lateral line shall be connected separately to the distribution box and shall not be subdivided.

- (2) The invert of all outlets shall be level or as specified by the health department, and the inlet invert shall be at least one inch above the outlet.

**Sec. 21-3-103. Same—Minimum seepage area; percolation test.**

- (a) The minimum seepage area (total flat bottom of trenches) of the drainfield shall be determined by the health officer. In making this determination, the health officer may refer to:
- (1) Such pertinent data as that accrued from scientific examinations of the soil, the records and advice of the soil consultant and the accumulated experience and recommendations of the health department.
  - (2) Whenever the health officer deems necessary, he may require the applicant to conduct a percolation test on the site of the proposed drainfield, the results of which may be included as part of the basis for the determination of a minimum seepage area. All percolation tests are to be conducted under the direction and supervision of the health department, whether done to help determine the suitability of a site for a septic tank system or to aid in determining the area required for a drainfield.
- (b) All percolation tests shall be made at the expense of the applicant and shall be made only by such persons as shall have been approved to conduct such tests by the health officer. Approval shall be granted only to such persons as shall present proof of sufficient training and experience in field sanitation work to conduct proper percolation tests.
- (c) All percolation tests shall be performed in accordance with State law, and specifically in accordance with 12 VAC 5-610-490, "Characteristics of soil that determine suitability" and by the method described in Appendix G, "Percolation Test Procedure and Percolation Test Data Forms", thereto which publication is hereby adopted by reference insofar as it relates to percolation tests.
- (d) The results of all percolation tests, when completed, shall be notarized and submitted to the health department for interpretation, accompanied by a diagram showing the location of all percolation test holes.
- (e) Absorption area design must comply with 12 VAC 5 -610-950, "Absorption Area design", and other applicable law.
- (f) A percolation rate of 120 minutes per inch or more is unsuitable for any system. A specially designed system may be permitted, if feasible, subject to the approval of VDH and subject to all applicable requirements of the County and applicable law. Provisions for such systems are specified in Division 6 (residential alternative onsite sewage systems). Special design shall not be construed to mean increased size of septic tank or drainfield.

**Sec. 21-3-104. Same—Construction; specifications, etc.**

- (a) *Construction.* Construction shall be in accordance with recommendations of the County health department, and further shall be in accordance with the Virginia Statewide Building Code, Waterworks Regulations, building requirements of the Code, and all other Applicable Law and Sections of this Code.
- (b) *Specifications.* All piping for the lies between the septic tank and distribution box shall be of suitable size and material for the location thereof. All piping and all trenches in a purification field shall be in accordance with recommendations of the County health department and any minimum standards required under Applicable Law. Filter material shall be hard and durable and shall be acceptable to the health department. Grade board shall be used and secured when and where required by the health department.
- (c) *Covering septic tank system not permitted.* No part of the septic tank system may be covered with a building or with relatively or completely impervious structures such as driveways, patios, asphalt, or other solid surface, or cooking facilities or garages.
- (b) *Draining waste into street gutters and roadside ditches.* It shall be unlawful for any person to drain any wastewater from kitchen sinks, lavatories, bathtubs, shower baths and laundry tubs or any other fluid or liquid waste into street gutters or public highway road ditches.

- (c) *Reservation of area for future use.* If and as required by 21-3-92 of this Chapter, a suitable area at least equal in size to the original total drainfield must be reserved free from any of the installations mentioned in this Section for use in the event that the original drainfield must be abandoned and replaced.

**Sec. 21-3-105. Contractor—Permit for installation, repair or cleaning.**

- (a) Any person contracting to install, repair or clean septic tanks in the County for another person shall first obtain a permit to do such work. To obtain a permit, the person shall apply to the health department of the County. The permit will be issued if the applicant appears to be qualified and equipped to do such work.
- (b) Permits shall be renewed annually, and a permit may be revoked for failure to comply satisfactorily with this Chapter.

**Sec. 21-3-106. Same—Equipment.**

No person shall engage in the business of cleaning septic tanks in the County unless and until the equipment to be used by such person in connection with the operation of such business complies with the following standards and has been inspected and approved in writing by the health department.

- (1) The tank into which the septic tank sludge is pumped or delivered and carried shall be fully enclosed and watertight.
- (2) All inlets and outlets to such tank shall be fully enclosed and provided with water tight valves.
- (3) Suction and discharge hose shall be watertight, and provision shall be made for carrying in a manner that will prevent any leakage therefrom.
- (4) All exposed surfaces shall be painted and maintained in a sanitary condition by frequent washings.
- (5) The name and address of the person owning or operating such equipment shall be painted thereon in letters at least four inches high.
- (6) Such person maintains a manifest containing the following information on each load:
  - a. The name and address of the customer;
  - b. The address of the load's origin;
  - c. The nature and volume of the waste;
  - d. The kind of facility serviced, e.g., grease trap, septic tank, etc.;
  - e. The date of the servicing; and
  - f. The location of the discharge.

A copy of the manifest must be presented to representatives of the County and the County sheriff upon request.

**Sec. 21-3-107. Disposal of wastewater, etc.**

- (a) It shall be unlawful to dispose of truck-hauled wastewater and other material removed from septic tanks or other sources except, with the written permission of the health officer, by depositing it under the surface of the ground in such a manner that it will not be exposed to the atmosphere or endanger the source of domestic water supply, or by depositing it into a sewerage system or sewage treatment plant at such designated locations and under such conditions as may be approved by the Director and the health officer or in such other manner as the health officer shall direct. In any event, the material shall be carefully deposited, and the surface of the ground, manholes, tanks or other receptacles into which the deposit is made shall be maintained in a sanitary condition. Any spillage material on the surface shall be promptly and completely removed.

- (b) Persons engaged in the business of disposing of liquid waste and other material removed from septic tanks, portable toilets and other sources may dispose of such material in accordance to the following provisions:
- (1) No material may be deposited into a sewerage system in conflict with other provisions in this Code.
  - (2) Any persons disposing of sewage, sludge or other material shall be liable for a charge of \$0.05 per gallon.
  - (3) The Director may establish reasonable rules and regulations to allow credit to be established to such persons disposing of such material, in which case any invoice or bill shall be due upon presentation. The rate shall be applied to the total of the material disposed of during the billing period.

**Sec. 21-3-108. Insertion of hoses into manhole, sewer.**

No hose from a truck-hauled waste vehicle may be inserted into any County manhole or sewer, nor may it be inserted into any water of the state. It is unlawful for any person to deposit waste or water into the public sewer system without authorization. In addition to a violation under Article I, Section 2, including criminal charges, such person shall be liable for standard volume charges for the use of the public sewer system. If the amount of waste or water unlawfully deposited is uncertain, a flat fee of \$500.00 shall be assessed per occurrence.

*DIVISION 6. RESIDENTIAL ALTERNATIVE ONSITE SEWAGE SYSTEMS*

**Sec. 21-3-109. Generally; definitions.**

- (a) *In general.* If special circumstances meet the restrictive criteria set forth within the Sections of this division, alternative onsite sewage systems (AOSS) may be allowed and must comply with:
- (1) All applicable VDH Regulations;
  - (2) Provisions set forth in Sections 21-3-17, 21-3-91, 21-3-92, 21-3-94, 21-3-95, 21-3-96, 21-3-98, 21-3-99, 21-3-101, and 21-3-103 of this Article, to the extent they may be made applicable, with appropriate adjustments for design features that differ from those of a conventional onsite sewage system;
  - (3) Provisions set forth in this division; and
  - (4) Any other applicable requirements of the Federal, State and County laws, statutes, regulations and ordinances.
- (b) *Definitions.* For the purposes of this division, the following terms shall have the meanings prescribed:
- (1) *Alternative discharging sewage system:* shall be defined pursuant to Section 32.1-163 of the Code of Virginia.
  - (2) *Alternative onsite sewage system or alternative onsite system:* shall be defined pursuant to Section 32.1-163 of the Code of Virginia.
  - (3) *Conventional onsite sewage system or sanitary septic tank system:* shall be defined pursuant to Section 32.1-163 of the Code of Virginia.
  - (4) *Maintenance:* shall be defined pursuant to Section 32.1-163 of the Code of Virginia.
  - (5) *Operator (also referred to herein as a "qualified operator"):* shall be defined pursuant to Section 32.1-163 of the Code of Virginia.
  - (6) *Point source discharge:* shall be defined as any discernible confined and discrete conveyance including but not limited to a pipe, ditch, channel, or conduit from which effluent or other pollutants are or may be discharged above ground.
  - (7) *Sewage:* shall be defined pursuant to Section 32.1-163 of the Code of Virginia.
  - (8) *Sewerage system:* shall be defined pursuant to Section 32.1-163 of the Code of Virginia.

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(9) *Subsurface drainfield*: shall be defined pursuant to Section 32.1-163 of the Code of Virginia.

(10) *Treatment works*: shall be defined pursuant to Section 32.1-163 of the Code of Virginia.

**Sec. 21-3-110. Location.**

- (a) Alternative onsite sewage systems are permitted only in the zoning districts that permit conventional onsite sewage systems and only if they meet all County zoning and subdivision requirements.
- (b) Alternative onsite sewage systems must comply with all VDH regulations regarding site location of such systems.
- (c) Alternative onsite sewage systems must comply with the requirements of this Division 6 and also for conventional onsite sewage systems, in regard to location, as set forth in Article III, Division 5 (conventional onsite sewage) of this Chapter; and must comply with the requirements for conventional onsite sewage systems in other Applicable Law including without limitation as set forth in the zoning ordinance, being Chapter 22 of this Code.

**Sec. 21-3-111 Preconditions.**

- (a) An alternative onsite sewage system may be permitted as a replacement in situations where an existing conventional onsite sewage system has failed or is malfunctioning to the extent that it is a health hazard and the conventional onsite sewage system cannot be repaired or remedied, and no replacement conventional onsite sewage system is possible on a reserve drain field site or otherwise.
- (b) An alternative onsite sewage system may be permitted if a conventional onsite sewage system is not possible, and the criteria of Section 21-3-110 above are met. If all applicable requirements are met, Section 21-3-92 or Section 21-3-95 of this Chapter will apply to the extent possible.

**Sec. 21-3-112. Conditions.**

The following conditions must be met in addition to the provisions detailed by VDH in Sections 10.1-2117, 15.2-2157, 32.1-163, 32.1-164, 32.1-164.1, 54.1-300, 54.1-2300, 54.1-2301 and 54.1-2302 of the Code of Virginia:

- (1) Only alternative onsite sewage system designs using subsurface dispersal systems are permitted in the County; provided however, alternative discharging sewage system designs may be permitted under the restricted conditions set forth in Division 7 of this Article.
- (2) Verification that there is, at a minimum, twelve inches of separation between point of sewage dispersal into the ground and the seasonal water table must be provided.
- (3) Only alternative onsite sewage systems that have been fully or permanently approved by VDH are permitted in the County. Systems with pending or provisional VDH approvals are not permitted unless specifically approved by the County building official based on an individual case basis.
- (4) Proof of an agreement to enter into a maintenance contract or proof of an executed maintenance contract with a qualified operator, as defined in Section 21-3-109 of this Chapter, shall be delivered to the health department and to the Fluvanna County Director of Community Development, prior to VDH approval of a septic permit for the alternative onsite sewage system, and County issuance of a building permit. The contract shall provide for all maintenance, as defined in Section 21-3-109 of this Chapter, and as required in Section 21-3-17 of this Chapter, and such a contract shall be maintained for the life of the system. Should a new maintenance contract be executed, a copy of such shall be delivered to VDH and Fluvanna County Director of Community Development within 45 days.

- (5) If an alternative onsite sewage system is permissible under all Applicable Laws, VDH shall permit the alternative onsite sewer system, and the landowner shall record an instrument in writing reflecting the permission in the land records of the County Circuit Court as notice to the public, including subsequent purchasers of the land. The permission shall become effective one day after the VDH and the Fluvanna County Director of Community Development receives notification of recordation.
- (6) The operator or his licensed agent (e.g., maintenance contractor) shall provide to the Fluvanna County Director of Community Development an annual report based upon site visits as required by the maintenance contract. This is in addition to, and not a substitution for, any state requirement to file such reports on the statewide web-site reporting system.
- (7) Enforcement of this division shall be under the authority of the Fluvanna County Building Official, through revocation of certificates of occupancy.

**Secs. 21-3-113 – 21-3-120. Reserved.**

*DIVISION 7. RESIDENTIAL ALTERNATIVE DISCHARGING SEWAGE SYSTEMS*

**Sec. 21-3-121. Generally; definitions.**

- (a) *In general.* Alternative discharging sewage systems (ADSS) are prohibited in the County. However, if special circumstances meet the restrictive criteria set forth within the Sections of this division, ADSS may be allowed and must comply with:
  - (1) All applicable VDH regulations;
  - (2) Provisions set forth in Sections 21-3-17, 21-3-91, 21-3-94, 21-3-95, 21-3-96, 21-3-97 and 21-3-99 of this Chapter, to the extent they may be made applicable, with appropriate adjustments for design features that differ from those of a conventional onsite sewage system or alternative onsite sewage system;
  - (3) Provisions set forth in this division; and
  - (4) Any other applicable requirements of the state and County laws.
- (b) *Definitions.* For the purposes of this division, the terms and definitions prescribed in subsection 21-3-109 of this Chapter are incorporated herein by reference.

**Sec. 21-3-122. When permitted.**

An ADSS may be permitted only in the following situation:

*Replacement of failed system:* An ADSS may be permitted as a replacement in situations where an existing conventional onsite sewage system or an existing alternative onsite sewage system has failed or is malfunctioning to the extent that it is a health hazard and the system cannot be repaired or remedied, and no replacement system is possible on a reserve drain field site or otherwise. The use of an ADSS will be considered by the County, only after an application has been approved by VDH and a Virginia Pollutant Discharge Elimination System permit issued for its use, and an alternative discharging sewage system is the last available option for sewage handling, short of revocation of a residence's certificate of occupancy.

**Sec. 21-3-123. Conditions.**

The following conditions must be met in addition to the provisions detailed by the Code of Virginia and VDH in the Virginia Administrative Code (Title 12).

- (1) Only ADSS that have been fully or permanently approved by VDH will be permitted in the County. Systems with pending or provisional VDH approvals are not permitted unless specifically approved by the Director, County Engineer and the County building official based on an individual case basis.

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- (2) All alternative discharging sewage systems approved for use in the County shall have system operational telemetry features that communicate directly to the contracted, obligated third party maintenance and service provider, if available and if land line communications are servicing the residence.
- (3) The County shall review all applications for direct discharging sewage systems prior to health department permitting so as to advise the health officer and VDH of any factors that might influence the department's review and action.
- (4) Proof of an agreement to enter into a maintenance contract or proof of an executed maintenance contract with a qualified operator, as defined in Section 21-3-109 of this Chapter shall be delivered to the health department and to the Fluvanna County Director of Community Development, prior to VDH approval of a septic permit for the ADSS, and County issuance of a building permit. The contract shall provide for all maintenance, as defined in Section 21-3-109 of this Chapter and as required in Section 21-3-17 of this Chapter, and such a contract shall be maintained for the life of the system. Should a new maintenance contract be executed, a copy of such shall be delivered to VDH and Fluvanna County Director of Community Development within forty-five (45) days.
- (5) If an alternative discharging sewage system is permissible under all applicable laws and regulations, the VDH shall permit an ADSS, and the landowner shall record an instrument in writing reflecting the permission in the land records of the County Circuit Court as notice to the public, including subsequent purchasers of the land. The permission shall become effective one day after the VDH and the Fluvanna County Director of Community Development receives notification of recordation.
- (6) The operator or his licensed agent (e.g., maintenance contractor) shall provide to the Fluvanna County Director of Community Development an annual report based upon site visits as required by the maintenance contract. This is in addition to, and not a substitution for, any state requirement to file such reports on the statewide web-site reporting system.
- (7) Enforcement of this division shall be under the authority of the Fluvanna County Building Official, through revocation of certificates of occupancy.

**Secs. 21-3-124 – 21-3-130. Reserved.**

*DIVISION 8. SANITARY PRIVIES*

**Sec. 21-3-131. Permit required for installation.**

It shall be unlawful for any person to install a pit privy in the County except as may be specifically permitted by Federal and State regulations and in accordance with the plans and specifications of the health officer, which shall be furnished by the health officer upon receipt of an application.

**Secs. 21-3-132 – 21-3-140. Reserved.**

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***ARTICLE IV. ASSESSMENTS FOR EXTENSION OF WATER LINES AND SANITARY SEWERS***

**Sec. 21-4-1. Reserved.**



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**ARTICLE V. SERVICE DISTRICTS**

**Sec. 21-5-1. Establishment of a Service District.**

(a) *Establishment; boundaries; changes to the district.*

- (1) The County may from time to time establish by ordinance Service District(s), which boundaries shall be specifically defined, and may be defined by reference to current tax map parcel(s). Any ordinance or petition to create a Service District shall: (i) Set forth the name and describe the boundaries of the proposed district and specify any areas within the district that are to be excluded; (ii) Describe the purposes of the district and the facilities and services proposed within the district; (iii) Describe a proposed plan for providing such facilities and services within the district; and (iv) Describe the benefits which can be expected from the provision of such facilities and services within the district.
- (2) Unless stated otherwise, the tax map and parcel numbers used in this Section shall refer to those property identifiers assigned by the local assessing officer as of the specific date set forth in the description of the district. Any tax map parcel created by legal subdivision or combination by vacation or lot line adjustment or otherwise of the parcels described above, shall remain included or excluded, as appropriate, notwithstanding such subdivision, vacation or adjustment.
- (3) *Addition of parcels.* Upon receiving a complete written application from a landowner seeking to add a parcel of land to a Service District, the parcel may be added to the Service District by the Board of Supervisors following a public hearing which can be scheduled for any of the Board's regular meetings.
- (4) *Removal of parcels.* Upon receiving a complete written application from a landowner seeking to exclude a parcel from the Service District, the parcel may be excluded from the Service District by the Board of Supervisors following a public hearing.

Applications for exclusion from the district may be filed between June 1 and July 1 of every even year, and a hearing, if needed, shall be held on or after September of every even year. Exclusion applications will be evaluated in the order in which they are received, but will only be considered in the year in which they are filed; however, property owners whose parcels are not excluded in a given year may file a new application in future even years. The effective date for exclusion of any parcel shall be December 31 of that calendar year.

The Board of Supervisors has a fiduciary obligation to ensure that each district contains sufficient taxable property to support repayment of the district's debt; accordingly, in order to offset the loss of value to the district, each exclusion application will only be scheduled for public hearing if, in the 24 months immediately preceding the application period (June 1—May 30), taxable parcel(s) of equal or greater assessed value have been added to the district.

The following categories of properties are ineligible for exclusion from the Service District: (i) property improved with any residential structures and receiving either public water service, public sewer service, or both; (ii) property in which the County's capital improvement program contains, within the next five years, an improvement project that will make public water or sewer available to the parcel; (iii) property which entered a district after its initial creation; and (iv) any property zoned for or occupied by any commercial use.

In deciding whether to grant an application for exclusion, the Board of Supervisors may consider the following criteria: (i) the overall financial sustainability of the district; (ii) the time frame in which improvements are projected to be constructed that will make public water or sewer service available to the parcel; and (iii) the impact of parcel removal to the overall operations of the utility system.

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A property owner's financial hardship is not grounds for removal of a parcel from the district; however, a program to defer payment of the taxes is available in certain situations of financial hardship.

Any parcel of land that is excluded from the district shall not be eligible to rejoin the district for a period of five years after the date of its exclusion. If the board grants an application allowing the property to re-enter the district, re-entry shall be contingent upon the property owner making a payment equal to the applicable ad valorem taxes for the parcel(s) for the preceding two fiscal years. Upon rejoining the district, the parcels shall thereafter be subject to the additional connection fees required by this Chapter. However, the board retains the authority to grant a waiver, for good cause, from any of the re-entry requirements.

Nothing in this Section shall obligate the Board of Supervisors to approve requests for exclusion.

- (b) *Establishment as Service District; powers of Board of Supervisors; levy and collection of special taxes.* A district shall only be established as a Service District pursuant to Section 15.2-2400 of the Code of Virginia. Once a Service District is established, the Board of Supervisors may exercise the powers set forth in Section 15.2-2403 of the Code of Virginia, for the purposes set forth therein, including imposing an ad valorem special tax on the assessed values of the tax map parcels in the Service District to pay the costs of the district under the plan. Properties within the Service District that participate in the special assessment for land preservation program shall be taxed at the full assessed value notwithstanding such participation in the land preservation program. Annually, the Board of Supervisors may set the rate for any special tax to be levied on property within the district by conducting a public hearing on the matter. The Treasurer shall collect any special taxes levied within the district in the same manner as he or she collects other County property taxes. All taxes levied and collected pursuant to this Article are pledged to finance the costs of the proposed facilities and services set forth in subsection (c) hereof. Subject to future appropriation, the Board of Supervisors will use the special taxes solely for the purposes described herein, and may also use other designated revenue streams to pay current debt service.
- (c) *Purpose; proposed district facilities and services.* The purpose of each Service District shall be set forth in the ordinance creating such district.
- (d) *District facilities.* The district facilities shall be owned by and under the management of the Fluvanna County Public Work Department and may be connected to other water or sanitary sewer systems as approved by the County.
- (e) *Benefits.* The district facilities and district services are intended to primarily benefit the landowners within the district, and as an ancillary matter, all the citizens of Fluvanna County. They are intended to spur business, commercial and industrial growth and economic development within the district, increase property values for the district landowners, and protect the health and safety of the residents in the district.

State Law Reference Code of Va., Service Districts § 15.2-2400 et seq.

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**ARTICLE VI. CENTRAL SEWER OR SEWAGE WORKS**

**Sec. 21-6-1. Central sewer required; exceptions.**

- (a) Central sewer or central sewage works shall be required in all subdivisions, plans of development and site plans in which two or more sewage-generating units are proposed; provided that such a unit on a lot, parcel or tract of one acre or more which does not qualify for connection to a public sewer or public sewage works hereunder or pursuant to Fluvanna County Code Chapter 19 and Chapter 22, shall be served by an approved and properly installed public or private sewerage disposal system.
- (b) Nothing herein shall be construed to require central sewer or sewage works in site plans, subdivisions or plans of development that have received final approval prior to the effective date of this Chapter; provided that, central sewer or central sewage works were not required on that date.

**Sec. 21-6-2. Information to be shown on application.**

The application for central sewers or for the extension of an existing central sewer or sewer works shall be made in writing to the Director, shall state in detail the number, nature and location of connections proposed to be served (including dwelling units, schools, and other public buildings, and commercial and industrial establishments to the extent known) and shall be accompanied by scale drawings showing location and size of sewers and size, material and extent of the proposed sewers or sewer works together with such other pertinent information as the Director may require, and shall show in sufficient detail the manner in which the applicant proposes to meet the USM.

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**ARTICLE VII. LAND APPLICATION OF BIOSOLIDS<sup>[2]</sup>**

Footnotes:

--- (2) ---

**State Law reference**— Authorizing county regulation of land application of biosolids, see Code of Va. § 62.1-44.16 et seq.

Sec. 21-7-1. - Definitions.

The Board of Supervisors hereby adopts by reference Section 9 VAC 25-32-10, Definitions.

Each and every reference herein to any statute or regulation shall be deemed to refer to the same, or to any successor statute or regulation which addresses substantially the same subject matter, as the same may be amended from time to time.

History prior Sec. 21-3-1 – Definitions (Ord. 03-15-06; Ord. 11-18-15).

Sec. 21-7-2 - General requirements for land application of biosolids.

- (A) It shall be unlawful to dispose of sewage sludge on land located in the County except in accordance with federal and State Law, and this Article VII.
- (B) Biosolids may be land applied only to lands of the County that have met all the applicable federal and state permits for the land application of biosolids, including Virginia State Water Control Board permits required for such land applications.
- (C) Biosolids may be land applied only to lands zoned A-1.
- (D) Biosolids may be land applied only to lands during weather conditions that permit the same to be applied and incorporated without substantial risk of adverse consequences to adjacent and downstream properties.

History prior Sec. 21-3-2 – General requirements for land application of biosolids (Ord. 03-15-06; Ord. 11-18-15).

**State Law reference**— Similar State Law provision, see Code of Va. § 62.1-44:15.

Sec. 21-7-3. - Notice requirements.

- (A) Any applicant to the Virginia State Water Control Board for an operational permit to apply biosolids to any lands of the County shall notify the Fluvanna County Director of Community Development of his intent to obtain such permit no more than three days after application to the Virginia State Water Control Board for such permit and at least 100 days before the time of the proposed land application. Such notification shall be in writing and hand delivered or faxed (with the original mailed on the same day) to the Fluvanna County Director of Community Development.
- (B) The notice required by subsection (A) shall include:
  - (1) A field map of the lands to which biosolids will be applied, such maps to include the applicable County tax map number;
  - (2) A written statement of when the land application will begin, how long the process is estimated to continue, and when the land application of biosolids will terminate. If circumstances cause commencement of the land application of biosolids activity to take place more than five days after the

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date indicated, the Fluvanna County Director of Community Development shall be so notified promptly in writing;

- (3) The date biosolids will be incorporated (if applicable);
  - (4) The proposed plant schedule, or designation as a pasture;
  - (5) The name, telephone number and address of the hauler, if different from the contractor;
  - (6) The telephone number and pager number (if available) of field technicians who will be land applying the biosolids;
  - (7) The source of the biosolids to be land applied, including name, address, and telephone number of the contact person;
  - (8) The name, address, and telephone number of the owner and/or lessee of the land to which the biosolids will be applied; and
  - (9) Any other information required by 9 VAC Sections 25-32-60 and 25-32-70.
- (C) Any person who obtains from the Virginia State Water Control Board an operational permit to apply biosolids to any lands of the County shall notify the Fluvanna County Director of Community Development of the issuance of such permit no more than three days after issuance and at least 14 days before the time of the proposed land application. Such notification shall be in writing and hand delivered or faxed (with the original mailed on the same day) to the Fluvanna County Director of Community Development.
- (D) The notice required by subsection (C) shall include any amendments, variances, or other changes from the information submitted under subsection (A).
- (E) Fourteen days before beginning the land application of biosolids to County land in accordance with a properly issued operational permit and with the requirements of this Article, the permit holder shall deliver notice to all abutting properties, at the addresses listed therefore on the tax records of the County, and shall post signs at all field entrances which front public roads or, if no field entrances front public roads, on the owner's public road frontage nearest to the land applications site. The required notice and signs shall contain the following information only:
- (1) A heading that reads "Biosolids Land Application in Progress";
  - (2) The name of the permit holder;
  - (3) The telephone number of an individual designated by the permit holder to respond to complaints and inquiries;
  - (4) Contact information for the Virginia State Water Control Board, including a telephone number for complaints and inquiries.
- (F) Signs posted under (E) shall comply with the Fluvanna County Zoning Ordinance. Specifically, the signs shall be temporary nonilluminated signs, not less than four square feet and no more than six square feet in area, providing notice of biosolid waste product application onto lands in Fluvanna County.
- (G) Any holder of an operational permit to land apply biosolids to County lands shall notify the Fluvanna County Director of Community Development of any modifications to the operational permit not more than three days after such modification.
- (H) Any holder of an operational permit to land apply biosolids to County lands shall provide to the Fluvanna County Director of Community Development, at his request, the results of any tests conducted pursuant to the operational plan.
- (I) Upon posting the signs at a land application site prior to commencing land application, the permittee shall deliver or cause to delivered written notification to the Fluvanna County Director of Community Development,

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unless advised in writing that notification is not required, of the posting of the signs. The permit holder shall make a good faith effort to replace or repair any sign that has been removed from a land application site or that has been damaged so as to render any of its required information illegible prior to five business days after completion of land application.

- (J) The permit holder shall not remove the signs until at least 30 days after land application has been completed at the site.
- (K) No more than 24 hours prior to commencing land application activities, including delivery of biosolids to a permitted site, the permittee shall notify in writing the Fluvanna County Director of Community Development unless the Fluvanna County Director of Community Development requests in writing not to receive the notice. This notification shall include identification of the biosolids source and shall include only sites where land application activities will commence within twenty-four (24) hours or where biosolids will be staged within 24 hours.

History prior Section 21-3-3. - Notice requirements (Ord. 03-15-06; Ord. 11-18-15).

Sec. 21-7-4 - Board certification for storage of sewage sludge.

Pursuant to Section 62.1-44.19:3 of the Code of Virginia, the Board of Supervisors shall review any application for a permit or variance to authorize the storage of sewage sludge and confirm or deny that the storage site is consistent with all applicable ordinances within thirty (30) days of receiving the request for certification.

If the Board of Supervisors fails to respond to the request for certification within 30 days of receipt of the request, the site shall be deemed consistent.

Where there may be site-specific conditions, including soil type, identified during the permit application process, which may require special conditions to protect the environment or health, safety or welfare of persons residing in the vicinity of a proposed land application site, the board may from time to time provide written requests or recommendations to the Department of Environmental Quality in its certification.

History prior Section 21-3-3.1. - Board certification for storage of sewage sludge (Ord. 11-18-15).

Sec. 21-7-5. - Access.

- (A) The Fluvanna County Director of Community Development shall have access to any County lands designated for the land application of biosolids in an operational permit in order to conduct appropriate inspections and testing to ensure compliance with the operational permit, State Laws and regulations and the requirements of this Article. The Fluvanna County Director of Community Development shall have access to all biosolids, biosolids storage facilities, biosolids application machinery and biosolids transportation vehicles in the County in order to conduct appropriate inspections to ensure compliance with any operational or construction permits, State Laws and regulations and the requirements of this Article.
- (B) The Fluvanna County Director of Community Development shall notify the owner or permit holder of any inspections or testing conducted. If the Fluvanna County Director of Community Development provides notice in advance of such inspection or testing, access shall be provided by the owner or permit holder no more than twenty-four (24) hours after notice is given.

History prior Section 21-3-4. - Access (Ord. 03-15-06).

Sec. 21-7-6. - Enforcement.

- (A) If the Fluvanna County Director of Community Development has reason to believe that biosolids are being or have been land applied to County lands not in compliance with a valid operational permit, State Laws and

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regulations or the requirements of this Article, he shall notify the Department of Environmental Quality and the permit holder. He shall further have the authority to order the abatement of any violation. Such abatement order shall identify the activity constituting the violation, specify the Code provision or regulation violated by the activity, and order the activity cease immediately, as authorized by Sections 62.1-44.19:3 and 62.1-44.19:3.2 of the Code of Virginia.

- (B) If the Fluvanna County Director of Community Development has reason to believe that biosolids are being or have been land applied to County lands not in compliance with a valid operational permit or State Laws and regulations, he shall so notify the Virginia State Water Control Board.
- (C) Failure to comply with provisions Section 21-7-3(A), (C), (E), (G), (H), (I), (J) or (K) of this Code shall be punishable in accordance with Section 21-1-2 of this Chapter. In addition, the Fluvanna County Director of Community Development shall have the authority to take action to abate any violation of this Article as authorized by Sections 62.1-44.16:1 and 62.1-44.19:3.2 of the Code of Virginia.
- (D) If the Fluvanna County Director of Community Development receives a complaint concerning land application of biosolids, he shall notify the State Water Control Board and the permit holder within twenty-four (24) hours of receiving the complaint.
- (E) The Fluvanna County Director of Community Development shall promptly notify the State Water Control Board of all results from the testing and monitoring of the land application of biosolids performed by persons employed by Fluvanna County and any violation of Sections 62.1-44.19:3, 62.1-44.19:3.1 and 62.1-44.19:3.3 of the Code of Virginia.

History prior Section 21-3-5. - Enforcement (Ord. 03-15-06; Ord. 11-18-15).

**State Law references** —See 9 VAC 25-31-475 and 9 VAC 25-32-515.

Fluvanna County, Virginia, Code of Ordinances  
APPENDIX A FEE SCHEDULE

## APPENDIX A WATER AND SEWER FEE SCHEDULE

FLUVANNA COUNTY  
FEE SCHEDULE

Adopted

Effective

County Code	Fee Description	Fee Amount
Sec. 21-2-7. Extensions to existing lines	Initial Review Fee, Base	\$ 600
	Initial Review Fee, Water Lines	\$ 0.33 per linear foot (LF)
	Subsequent Review Fee, Base	\$ 200
	Subsequent Review Fee, Water Lines	\$ 0.11 per linear foot (LF)
Sec. 21-2-13. Hydrant meters	Hydrant meter, leasing, commercial deposit	\$ 400.00
	Hydrant meter, leasing, other deposit	\$ 100.00
	Administration Fee	\$ 10.00 per month
Sec. 21-2-33. Payments for water generally; service deposit by tenant.	Customer set up charge for new water or sewer account	\$ 10.00
	Deposit (owner)	\$ 100
	Deposit *(tenant/lessee)	\$ 100
Sec. 21-2-36. Overdue bills; disconnection for nonpayment generally.	Reconnection Fee	\$ 30
Sec. 21-2-40. Water service and volume charges.	Minimum usage included in Base Fee per meter size	Water Base Service Charges
	5/8x3/4-inch meter, 2,000 gallons	\$ 21.42
	1-inch meter, 6,000 gallons	\$ 64.26
	1-1/2-inch meter, 12,000 gallons	\$ 128.52
	2-inch meter, 20,000 gallons	\$ 214.20
	3-inch meter, 48,000 gallons	\$ 514.08
	4-inch meter, 96,000 gallons	\$ 1,028.16
	Water rate per 1,000 gallons above minimum usage	\$ 11.22
Sec. 21-2-87. Connections to existing water mains (see also Sec. 21-2-8(E))	Connection Fees, Water	
	5/8x3/4-inch meter	\$ 8,500
	1-inch meter	\$ 17,000
	1-1/2-inch meter	\$ 42,500
	2-inch meter	\$ 68,000
	3-inch meter	\$ 136,000
Sec. 21-3-11. Extensions to existing lines.	Initial Review Fee, Base	\$ 600
	Initial Review Fee, Sewer Lines	\$ 0.66 per linear foot (LF)
	Subsequent Review Fee, Base	\$ 200
	Subsequent Review Fee, Sewer Lines	\$ 0.22 per linear foot (LF)



Fluvanna County, Virginia, Code of Ordinances  
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Sec. 21-3-31. Connection by applicant.	Customer set up charge for new water or sewer account	\$ 10.00
	Deposit (owner)	\$ 100
	Deposit (tenant/lessee)	\$ 100
Sec. 21-3-32. Sewer connection fees - Generally.	Connection Fees, Sewer	
	5/8x3/4-inch meter	\$ 8,500
	1-inch meter	\$ 17,000
	1-1/2-inch meter	\$ 42,500
	2-inch meter	\$ 68,000
	3-inch meter	\$ 136,000
	4-inch meter	\$ 272,000
Sec. 21-3-33. Sewer service charges and rates—Generally.	Minimum usage included in Base Fee per meter size	Sewer Base Service Charges
	5/8x3/4-inch meter, 2,000 gallons	\$ 25.81
	1-inch meter, 6,000 gallons	\$ 77.43
	1-1/2-inch meter, 12,000 gallons	\$ 154.86
	2-inch meter, 20,000 gallons	\$ 258.10
	3-inch meter, 48,000 gallons	\$ 619.44
	4-inch meter, 96,000 gallons	\$ 1,238.88
	Sewer rate per 1,000 gallons above minimum usage	\$ 17.65
Sec. 21-3-62. Permit required – Existing and new users (*relates to industrial pretreatment)	Application fee	\$ 50
	Permit Fee	\$ 50
Sec. 21 -3-91 Permit for Installation and repair	Permit Fee	4% of estimated construction costs

FLUVANNA COUNTY ZION CROSSROADS COMMUNITY WATERWORKS  
CROSS-CONNECTION CONTROL AND  
BACKFLOW PREVENTION PROGRAM MANUAL



Public Works Department  
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September 2022

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## SECTION 1: INTRODUCTION

The Fluvanna County Zion Crossroads Community Waterworks (FCCCW) consists of 5 miles of water line, a booster station and elevated storage tank, which is operated and maintained by Fluvanna County (County) and its Department of Public Works (PWD) operations staff. Fluvanna County is committed to the enforcement and management of the Cross-Connection Control and Backflow Prevention Program to ensure adequate water quality is maintained in accordance with state and federal regulations. This plan seeks to define the various aspects of the program and provide guidance for its implementation.

## SECTION 2: OVERVIEW

### 2.1 Purpose of the Program

The County establishes this cross connection control program (CCCP) in accordance with Virginia Department of Health (VDH) Waterworks Regulations, see 12 Virginia Administrative Code (VAC) 5-590-10 et. seq. (Waterworks Regulations). The purpose of this CCCP and backflow prevention program is to comply with Virginia Department of Health regulations (12 VAC 5-590-360, 580, 600, 610 and 630) which specifically governs the protection of public water supplies from contamination. This Program seeks to abate or control actual or potential cross connections and protect the public health while establishing standard measures defining acceptable backflow prevention assemblies, backflow elimination methods, and backflow prevention devices (together, BFPs, and each referred to as a BFP) and their installation and maintenance. This Program provides for establishment and enforcement of a program of cross connection control and backflow prevention in accordance with the Waterworks Regulations 2021, or as amended. This Program is directed at:

- A. *Service line containment:*  
Prevent the intrusion of contamination into the distribution system via cross-connections and backflow. Abate or control actual or potential cross connections and protect the public health by installation of an appropriate backflow prevention assembly or by installation of a backflow elimination method, at the service connection. See 12 VAC 5-590-580(A).
- B. *Voluntary isolation in lieu of containment:*  
Evaluate the alternative of point-of-use isolation protection in lieu of service line containment at each premise where containment is required.
- C. *Public education and assistance:*  
Provide a cross connection awareness public education program and provide public assistance where requested.
- D. *Premise owner/occupant awareness:*  
Advise those affected that service line containment does not provide protection from cross connections in the internal service plumbing of a building.
- E. *PWD Approval of Cross-connections:*  
PWD and VDH must ensure the cross-connections are adequately safeguarded, and no property owner shall install, maintain, or allow a service connection to any premises where cross-connections to a waterworks or a consumer's water system exist, unless the property owner gets PWD and VDH approval as applicable hereunder. See 12 VAC 5-590-580(B).
- F. *PWD Approval of Auxiliary Water System:*  
No property owner shall install, maintain, or allow any connection whereby water from an auxiliary water system may enter a waterworks or consumer's water system, unless PWD and VDH approve the auxiliary water system, the method of connection, and use of such system. See 12 VAC 5-590-580(C).
- G. *Maintain Acceptable Working Pressures:*

A goal of the CCCP is to allow the PWD, in accordance with 12VAC5-590-510(C), to maintain acceptable working pressures in the distribution system to reduce the potential for backflow to occur. See 12 VAC 5-590-580(D).

## **2.2 Authority for Program**

The EPA has the authority and responsibility under the Safe Drinking Water Act 42 U.S.C. §300f et seq. (1974), over all public health aspects of the drinking water supply. In Virginia, primacy has been granted to the VDH to regulate public water supplies and the Fluvanna County Code, Chapter 21, Article II, Division 5, Cross-Connection Control; Backflow Prevention, being Sections 21-2-101 through 21-2-111, provides confirmation of this authority.

### ***Fluvanna County Code Chapter 21, Sec. 21-2-102. - State regulations adopted.***

*The Board of Supervisors hereby adopts by reference the regulations of VDH, 12 VAC 5-590-10 et seq. regarding waterworks including the Waterworks Regulations. Specifically, the Board of Supervisors hereby adopts by reference Section 580, 600, 610 and 630, regarding cross-connection control and backflow prevention in waterworks, of the state Waterworks Regulations, as it may be amended from time to time, or applicable successor provisions. The provisions of this Article II, Division 5, shall apply to the Fork Union Sanitary District as well as to all other County waterworks. (Ord. -22)*

*Commonwealth of Virginia, Department of Health, Waterworks Regulations, Cross Connection Control and Backflow Prevention in Waterworks* requires as a condition for the issuance and continued use of the operation permit for any Waterworks, that the owner of the waterworks establish and enforce a program of cross connection control and backflow prevention. This cross-connection control and backflow prevention program is approved by the VDH as noted by the affixed approval stamp.

## **2.3 Administration**

This program is carried out in accordance with the VDH Waterworks Regulations (12 VAC 5-590-10 et seq.). Fluvanna County Code provides administrative authority and responsibilities for the Fluvanna County cross-connection control and backflow prevention program. The County Administrator, or his designee, is responsible for the implementation of the program and has established this program to be consistent with current regulations. Responsibility for administering this program will be assigned to at least one individual and other staff members as needed, who shall have training and experience in cross-connection control programs.

## **2.4 Responsibilities**

Effective cross connection control and backflow prevention requires the cooperation of the County, the owner(s) of the property served, the Local Building Official, and the certified Backflow Prevention Device Worker. These roles and responsibilities include, but are not limited to, the following:

### **2.4.1 Fluvanna County (County):**

1. PWD has full responsibility for water quality and for the construction, maintenance, and operation of the waterworks beginning at the point of supply and ending at the service connection.

2. PWD shall ensure complete assessments of every consumer's water system and shall determine both the degree of hazard and the appropriateness of existing safeguards to prevent contamination from cross-connections and backflow.
3. PWD shall confirm proper installation of backflow prevention assemblies or backflow elimination methods (i) at the service connection or (ii) downstream of the service connection but before any unprotected takeoffs. VDH approval is also required if so stated in the Waterworks Regulations. PWD shall require annual inspections and operational tests of BFP devices which are installed at or near the service connection.
4. In the event of backflow of pollution or contamination into the waterworks, PWD shall promptly take or cause corrective action to confine and eliminate the pollution or contamination.
5. PWD shall provide a method to discontinue or refuse water service to the consumer to ensure that the waterworks is adequately protected from cross-connections and backflow if any of the following conditions occur:
  - a. the consumer does not install, test and maintain a required backflow prevention assembly or backflow elimination method in accordance with the applicable sections of this chapter;
  - b. the consumer allows a required backflow prevention assembly or backflow elimination method to become inoperable or the consumer removes or bypasses it; or
  - c. the PWD knows an unprotected or inadequately protected cross-connection exists on the premises and determines that there is inadequate backflow prevention at the service connection.
6. In the event of backflow of contaminants into the waterworks, PWD shall promptly take or cause corrective action to confine and eliminate the contamination – normally PWD will notify the property owner of corrective action that must be taken by the property owner. PWD shall report the event to VDH within one (1) business day in the most expeditious manner. PWD shall submit a written report by the 10th day of the month following the month during which backflow occurred addressing the incident, its causes and effects, and safeguards required or other action taken.
7. This CCCP shall not be in conflict with the Uniform Statewide Building Code (USBC) and applicable building code regulations, including 13VAC5-63 or subsequent regulations promulgated by the Board of Housing and Community Development. Property owners must comply with USBC.
8. PWD shall, to the extent of their jurisdiction, provide continuing identification and evaluation of all industrial and commercial users connected to the County owned potable water systems to ensure all required BFP devices have been installed and maintained. This process will be designed to identify all new, modified and existing facilities that require the installation of BFP devices.
9. The Fluvanna County Building Inspection Office (BI) is responsible for review of plans for new and modified facilities and inspection of associated backflow devices in accordance with the Virginia Uniform Statewide Building Code. The BI will route all new plans for service connections and fire service connections, lawn sprinklers or irrigation systems and backflow prevention recommendations beyond the service connection to PWD for review and comment.

10. PWD shall ensure installation of backflow prevention assemblies or backflow elimination methods (i) at the service connection or (ii) downstream of the service connection but before any unprotected takeoffs.
11. The County shall review the cross-connection control and backflow prevention program not less than every five years and update it as necessary to satisfy the requirements of the Waterworks Regulations. The County shall submit updates to the VDH for approval.

#### **2.4.2 Owner/Consumer:**

1. PWD requires that each property owner perform routine and as-needed testing, maintenance, and repairs of all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices required and installed pursuant to 12 VAC 5-590-610. 13 VAC 5-63-530, which incorporates the International Property Maintenance Code into the USBC, requires testing of RPZ assemblies, double check valve assemblies, double check detector backflow assemblies, and pressure vacuum breaker assemblies after initial installation, immediately after repairs or relocation, and annually thereafter. Property Owner shall complete and monitor operational tests, or other evaluation procedures as appropriate and as required by PWD, however such shall be completed at least annually, and after installation, relocation, or repairs, for testable backflow prevention assemblies, devices, and methods that provide containment.
2. PWD shall maintain an inventory and records of testing, repairs, and maintenance of all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices required and installed under 12 VAC 5-590-610(C) or (E) and property owners are required to submit any relevant records related thereto to PWD at least annually. Inspections must be in accordance with 12 VAC 5-590-600(E),
3. PWD shall maintain an inventory and records of testing, repairs, and maintenance of all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices required and installed under 12 VAC 5-590-610(C) and (E) and property owners are required to submit any relevant records related thereto to PWD at least annually.
4. PWD shall maintain records related to the CCCP implementation, and any other records VDH requires in accordance with 12 VAC 5-590-550 and property owners are required to submit any relevant records related thereto to PWD at least annually.
5. Pursuant to 12 VAC 5-590-610 and 12 VAC 5-590-630, any plans for a new BFPs or revised plans for any modification to BFPs must be approved by the PWD and the Building Inspector. The property owner's responsibility starts at the water service connection from the public potable water system and includes all of his water systems. The property owner, at his own expense, will install, operate, test and maintain approved BFPs. Installations shall be conducted by a Commonwealth of Virginia certified backflow prevention device worker.
6. The property owner is required to have a Commonwealth of Virginia certified backflow prevention device worker test all BFPs. In addition, the property owner shall submit all required reports to the PWD for review and approval, and to the BI if applicable or otherwise required.

7. Approved BFPs shall be installed at each service connection to a consumer's water system where, based on Virginia Waterworks Regulations, a health, pollution, or system hazard to the waterworks may exist. BFPs will be installed at both new and existing connections where a hazard is known to exist.

### **SECTION 3: PROCEDURES FOR NEW AND EXISTING FACILITIES**

In addition to review by the PWD and by VDH as applicable, all new installations of BFPs will be inspected by the Fluvanna County Building Inspections Office (BI) along with modified facilities identified by the BI. All operational tests of backflow prevention devices which are identified as being required hereunder or under the Waterworks Regulations shall be made annually by a Commonwealth of Virginia certified backflow prevention device worker. During the inspection, existing BFPs will be inspected to determine if they have been altered or the protection afforded by it has been bypassed, or otherwise made ineffective. Devices shall be tested in accordance with the manufacturer's instructions and the Uniform Statewide Building Code and shall be maintained, repaired, overhauled, or replaced by the property Owner at the property owner's sole cost and expense and at no cost to the County. Once repaired or replaced the device must be tested and certified to verify satisfactory operation. Test results will be cross-referenced against a list of installed devices; failure to provide satisfactory test results may lead to termination of service. Property owners are responsible for their BFPs.

Starting January 1, 2023, persons testing and repairing backflow prevention assemblies and backflow prevention devices shall be certified by a Commonwealth of Virginia tradesman certification program (identified by DPOR as backflow prevention device workers). Until January 1, 2023, persons testing and repairing backflow prevention assemblies and backflow prevention devices shall be qualified to perform such work as demonstrated by possessing a certification or license from a local or state agency having legal authority or shall possess a certificate of completion of applicable vocational training acceptable to PWD. See

All new and revised construction plans and specifications for industrial, commercial and institutional facilities shall be reviewed by the BI and PWD to determine the degree of possible cross connection hazard.

Upon review, backflow prevention requirements will be determined in accordance with this program. Final plans and specifications for cross connection control for all new construction shall be submitted for review prior to approval for construction.

Notwithstanding the foregoing, nothing in this policy is intended to limit or shall be read to limit, waive or restrict any review or requirement of the BI, the Department of Community Development or Zoning, the Zoning Administrator, the USBC, the County or any other applicable law, policy, regulation, rule, code or similar requirement of Fluvanna County, the Commonwealth of Virginia or the United States.

#### **3.1 Procedure for New Construction and Associated Plan Review (Recommended Process)**

1. Commercial/Industrial entity submits applications and plans to the Fluvanna County Community Development Department (PD) as part of the development review process.
2. Plans are distributed by the PD to all review agencies, including Building Inspections Office (BI) and PWD.



3. All agencies, including PWD, review plans for conformity to jurisdictional codes, including Virginia Department of Health regulations and Fluvanna County Cross Connection and Backflow Prevention Ordinance requirements.
4. During the site plan review process, PWD determines whether the proposed facility warrants BFP device based on regulatory requirements and/or hazard.
5. If a BFP is not required, no further action is warranted. If a BFP is required, applicable comments are generated and forwarded to the developer agent. (Note: Site plans must indicate type, size and location of proposed BFP device).
6. Upon final site plan approval, site is developed, and new facility is constructed.
7. During construction process, the property owner/contractor applies for Building Permit from BI to install a BFP device if required.
8. Building permit application is routed to PWD.
9. BI issues Building Permit and BFP device is installed.
10. The County's BFP Certification Form must be received and approved by PWD from certified backflow prevention device worker. BI will not perform inspection under the County's Building Permit until PWD receives and approves BFP Certification Form.
11. Once BFP Certification Form is received by PWD, PWD will notify the BI so that the BI can proceed with the inspection. BI then verifies that BFP device is installed correctly, and a Certificate of Occupancy (CO) is issued.
12. A Hard copy of BFP Certification Form is filed in an individual facility file.
13. The New BFP is added to the cross-connection database.
14. All cross-connection records are to be maintained for at least 10 years.

### **3.2 Procedures for Existing Facilities Needing Backflow Prevention Devices (Recommended Process)**

This procedure is to be used for existing facilities that may require BFP devices (i.e. all facilities that are not considered new construction).

1. BI receives a building permit for a facility upgrade.
2. Building permit is routed to PWD.
3. PWD reviews the permit application and decides whether a BFP device is required.
4. BI issues Building Permit and BFP device is installed.
5. BFP Certification Form must be received and approved by PWD from certified backflow prevention device worker. BI will not perform inspection under the County's building Permit until PWD receives BFP Certification Form.

6. Once the BFP Certification Form is received by PWD, PWD will notify the BI so that the BI can proceed with inspection. BI then verifies that BFP device is installed correctly.
7. A Hard copy of BFP Certification Form is filed in individual facility files.
8. The New BFP is added to the cross-connection database.
9. All cross-connection records are to be maintained for 10 years.

## SECTION 4: FACILITIES REQUIRING BACK FLOW PREVENTION DEVICES AND APPROVED DEVICE TYPES

The State of Virginia Waterworks regulations state that a BFP device shall be installed as required by the 12VAC5-590-610 and all other applicable law. A backflow prevention assembly or backflow elimination method shall be installed where the following condition(s) exist:

1. A substance is handled in such a manner as to create an actual or potential hazard to a waterworks (this shall include premises having sources or systems containing process fluids or waters originating from a waterworks which are no longer under the control of the owner);
2. There exists internal cross-connections that, in the judgment of PWD or VDH, may not be easily correctable or have intricate or complex plumbing arrangements that make it impracticable to determine whether or not cross-connections exist;
3. There are security requirements or other prohibitions or restrictions that prevent the assessment of all potential cross-connections that may impair the quality of the water delivered;
4. There is a repeated history of cross-connections being established or reestablished;
5. There are fire protection systems, lawn sprinkler systems, or irrigation systems; and
6. PWD or VDH can show that a potential cross-connection hazard exists.

Premises having booster pumps or fire pumps connected to the waterworks shall be equipped by the consumer with control devices to prevent a reduction of pump suction line pressure to less than 20 psig.

In addition, a backflow prevention assembly or backflow elimination method shall be installed at consumer water systems serving the following types of facilities, including:

Table 4-1. List of facilities requiring a backflow prevention assembly or backflow elimination method

No.	Facility List
1	Hospitals, mortuaries, clinics, veterinary establishments, nursing homes, medical buildings
2	Laboratories
3	Piers, decks, and waterfront facilities
4	Sewage treatment plants, sewage pumping stations or storm water pumping stations
5	Food and beverage processing plants
6	Chemical plants, dyeing plants and pharmaceutical plants
7	Metal plating industries
8	Petroleum or natural-gas processing or storage plants
9	Radioactive materials processing plants or nuclear reactors
10	Car washes and laundries
11	Buildings with commercial, industrial, or institutional occupants served through a master meter
12	Water loading facilities
13	Slaughter houses and poultry processing plants
14	Farms where the water is used for other than household purposes
15	Commercial greenhouses and nurseries
16	Health clubs with swimming pools, therapeutic baths, hot tubs, or saunas
17	Paper and paper-product plants and printing plants
18	Pesticide or exterminating companies and their vehicles with storage or mixing tanks

No.	Facility List
19	Facilities that blend, store, package, transport, or treat chemicals, and their related vehicles
20	Schools or colleges with laboratory facilities
21	High-rise buildings (four or more stories)
22	Multiuse commercial, office, or warehouse facilities
23	Others specified by PWD or VDH when reasonable cause can be shown for a potential backflow or cross connection hazard which shall include the following: (i) lawn sprinkler systems and irrigation systems with or without backpressure potential; and (ii) fire service systems

All temporary or emergency service connections shall be protected where reasonable cause can be shown for a potential backflow or cross-connection hazard. Backflow prevention assemblies or backflow elimination methods used shall be appropriately certified or approved to match the requirements 12 VAC 5-590-610.

**NOTE:** *All devices shall conform with the applicable American Water Works Association (AWWA), American National Standards Institute (ANSI), and the American Society of Sanitary Engineers (ASSE) standards as set forth by the*

The ASSE International Office maintains a list of Seal Authorizations for approved devices. This can be obtained by contacting ASSE at:

ASSE International Office  
 18927 Hickory Creek Drive, Suite 220Mokena, IL 60448  
 Phone: 708-995-3019 Website: [www.asse-plumbing.org](http://www.asse-plumbing.org)  
 Email: [info@asse-plumbing.org](mailto:info@asse-plumbing.org)

#### 4.1 Approved Device Types

The devices required shall be of the approved type and shall comply with the Uniform Statewide Building Code, pursuant to the Virginia Waterworks Regulations, with specific reference to 12 VAC 5-590-630 and other applicable law. The backflow prevention assembly or backflow elimination method or device used shall depend on the degree of hazard that exists or may exist, either high or low. The safeguard shall ensure maintenance of the distribution system water quality and its usefulness. The following table shall be used as a guide to determine the degree of hazard for any situation.

Table 4.1 Determination of Degree of Hazard (Table 630.1 from the Waterworks Regulations)

Cross-connections that meet or may meet the following conditions shall be rated at the corresponding degree of hazard.

High Hazard	Low Hazard
The contaminant would be toxic, poisonous, noxious, unhealthy, or of unknown quality.	The contaminant would only degrade the quality of the water aesthetically or impair the usefulness of the water.
A health hazard would exist.	A health hazard would not exist.
The contaminant would disrupt the service of piped water for human consumption.	The contaminant would not disrupt service of piped water for human consumption.
Backflow would be by either backpressure or backsiphonage.	Backflow would occur by backsiphonage.
Examples: lawn irrigation systems, fire sprinkler systems with chemical additives or antifreeze,	Examples: food residuals, coffee machines, non-carbonated beverage dispensers, and residential

sewage, used water, nonpotable water, auxiliary water systems, and mixtures of water and other liquids, gases, or other chemicals.	fire sprinkler systems constructed of materials designed for potable water flow.
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## **SECTION 5: OTHER CROSS CONNECTION CONCERNS**

### **5.1 Private Wells**

Private wells serving individual homes or businesses shall not be interconnected to the County's water system. Auxiliary water systems (e.g. Aqua Virginia) and the method of connection and use of such system shall be approved by PWD and properly protected with BFPs. The County requires that any such system enter into a contract with the County which includes cross connection protection.

### **5.2 Exterminating Companies**

All tanks, tank trucks, and spraying apparatus used to convey pesticides in an exterminating process are required to fill with potable water from a consumer water system properly outfitted with BFPs..

### **5.3 Rental Water Meters**

Any equipment such as tank trucks, which are filled using a rental water meter shall be properly equipped with the necessary BFPs to prevent contamination of the public potable water system from backflow or backsiphonage.

### **5.4 Fire Systems**

Any device, equipment, or situation not covered by this cross-connection program where water is connected or used, which may constitute a potential health hazard will be handled at the discretion of the Director of PWD or his designee (director). Fire Protection systems require the installation of BFPs and must be evaluated by the PWD to determine the type of backflow preventions required. For this reason, the PWD shall review fire system plans prior to installation.

**NOTE:** Any device, equipment, or situation not covered by this cross-connection program where water is connected or used, which may constitute a potential health hazard will be handled at the discretion of PWD or as required by applicable law.

## SECTION 6: NOTIFICATION AND INSPECTION

Every PWD required BFP device must be tested and certified annually at the property owners expense. Inspection and certification are to be conducted by a certified backflow prevention worker (other certifications are NOT acceptable). Starting January 1, 2023, persons testing and repairing backflow prevention assemblies and backflow prevention devices shall be certified by a Commonwealth of Virginia tradesman certification program (identified by DPOR as backflow prevention device workers). Until January 1, 2023, persons testing and repairing backflow prevention assemblies and backflow prevention devices shall be qualified to perform such work as demonstrated by possessing a certification or license from a local or state agency having legal authority or shall possess a certificate of completion of applicable vocational training acceptable to PWD. Following is the PWD procedure for administering certifications. (Appendix B)

### 6.1 Notification to Customer

#### 6.1.1 Start of Mailings

Before the 25th of each month or thirty-five (35) days before the previous certification *Anniversary Date* a courtesy letter is mailed to the customer. This letter is considered the **First Notice**. With this letter the County enclose a current copy of the County's Backflow Inspection Certification form. This *First Notice* lists the *Anniversary Date* as the *Due Date* for return receipt of the County's Backflow Inspection Certification form noting a passing test and inspection of the installed backflow prevention device. This form certifies that the device is operating in accordance with the manufacturer's specifications. As an example: a *First Notice* mailed January 25 would have a *Due Date* of March 1.

#### 6.1.2 Notices Not Returned

If the County's Backflow Inspection Certification form is not received by the *Due Date* a courtesy phone call is made to the customer to inquire on the status of the inspection certification. A **Second Notice** is mailed to the customer fifteen (15) days after the *Due Date* if the Backflow Inspection Certification form had still not been received. The *Second Notice Due Date* is ten (10) days after the mailing date. As an example: a *Second Notice* mailed March 16 would have a *Due Date* of March 27.

If the County's Backflow Inspection Certification form is not received by the *Second Notice Due Date* courtesy phone call is made to the customer to inquire on the status of the inspection certification. The **Third Notice** is mailed to the customer fifteen (15) days after the *Second Notice Due Date* if the Backflow Inspection Certification form had still not been received. The *Third Notice Disconnect Date* is set at ten (10) days after the mailing date. As an example; a *Third Notice* not received on March 27 would be mailed out April 11 and have a *Disconnect Date* of April 26.

#### 6.1.3 Device Failure

If the County's Backflow Inspection Certification form is received indicating *Device Failure*, a courtesy call is made to determine the customer's situation. Follow up communication is continued until an acceptable certification is received. Device Failure cases are handled on a case by case basis and may result in disconnection from the system. During ongoing communication with the customer, a "grace" period will be allowed to give the customer time to correct the problem so as not to penalize them. The goal is to allow a reasonable amount of time to correct the problem. Customers that are unresponsive to corrective action through verbal communication will be sent a *Disconnection Notice*. Disconnection Notices will detail the

history of County's effort to bring them into compliance along with a specific water "cut-off." If the customer is still unresponsive water will be shut off at the prescribed date (10 days from receipt of letter) and not turned back on until an acceptable certification has been received.

## **6.2 Inspection of Devices and Reporting Requirements**

Upon the completion of testing of device, the certified backflow prevention worker shall submit to PWD the approved form outlining testing results and signify whether the device has *passed* or *failed*. The form shall be completed and include all information including the name of contact, site address, size of device, serial number, location of device and device type. Only the PWD Backflow/Cross-Connection form shall be utilized for testing (Appendix B).

## **6.3 Violations**

Fluvanna County code dictates that violations of the County's cross connection program are a misdemeanor, see Fluvanna County Code Chapter 1-10 and Chapter 21 including, but not limited to Section 21-1-2.



## SECTION 7: RECORD KEEPING

### 7.1 Database Management

PWD shall maintain all records required by the Waterworks Regulations included specifically, but without limitation, the following:

1. PWD shall maintain an inventory and records of testing, repairs, and maintenance of all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices required and installed under 12 VAC 5-590-610(C). In the case of single-family residences subject to 12VAC5-590-610(C)(5), the PWD may determine whether or not to maintain an inventory or records. VDH recommends the PWD follow best practices identified in the AWWA Manual of Water Supply Practices M14 and the EPA Cross Connection Control Manual. I.
2. PWD shall maintain an inventory and records of testing, repairs, and maintenance of all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices required and installed under 12 VAC 5-590-610(C) and (E).
3. PWD shall maintain records related to the CCCP implementation, and any other records VDH requires in accordance with 12 VAC 5-590-550.

PWD uses a Microsoft Excel spreadsheet as a database to maintain an inventory and records of testing, repairs, and maintenance of all backflow prevention devices, backflow prevention assemblies, backflow elimination methods and customer information. The spreadsheet is updated as needed and provides information on all customers with backflow devices and the status of those devices.

Since backflow devices require annual inspection; the spreadsheet uses the *Anniversary Date* of the customer's backflow device annual inspection to establish due dates and mailing times. All Anniversary Dates are rounded back to the 1st of the inspection month. *Due Dates* are rounded forward to the next business day.

The Microsoft Excel spreadsheet contains the following information as a minimum:

- Business Name
- Address
- Contract Person(s)
- Phone Number(s)
- Backflow Device Type, Size, Model & Serial Number
- Location of Device on Site
- Property Owner's Name and Address (often different from resident business)
- Anniversary Date
- Current Status of Inspection Pass or Fail
- Dates of 1st, 2nd, 3rd and Disconnection Notices
- Date of Disconnection
- Date of device inspection

### 7.2 Record Storage

Upon receipt of the customer's Backflow Inspection Certification form, the form is reviewed for accuracy and the spreadsheet updated. This Microsoft Excel spreadsheet and all hard copy records of passed and failed devices are kept in our central file for ten (10) years or longer if specifically required by the Waterworks Regulations. Spreadsheet and all associated digital information will be maintained by the PWD and never discarded.

## SECTION 8: REPORTING AND INCIDENT RESPONSE

Any time an incident occurs involving water contamination because of possible backflow, or a situation is discovered that has the potential for backflow, it will be handled on a case by case basis. Due to the potential impacts of an intentional contamination event and the emergency response that would follow, this section only deals with those incidents where backflow potential exists or is suspected of existing, where backflow has occurred unbeknownst to the facility owner or operator, or due to unintentional contamination of the water system.

If an incident is discovered that has the potential to represent an intentional contamination event, the County will respond to that event according to the Emergency Operations Plan, adopted February 15, 2017, revised February 3, 2021. Following the identification of the event, with the assistance of local law enforcement, the County will conduct a threat evaluation following EPA protocols to determine if the event is “Possible”, “Credible” and “Confirmed”. Once it is determined that the event is not an intentional malicious act, the reporting and incident response shall proceed as suspected backflow violation.

Since each type of incident will be unique, they will be handled on a case by case basis. At a minimum, these steps should be followed to determine the nature of event, the degree of hazard and corrective actions.

1. Locate and investigate the source of contamination or potential contamination. Be sure to obtain all relevant facts and information about the customer, the nature of the business and potential contaminants.
2. Dispatch field operations personnel to conduct water analysis to determine if contamination has occurred and what type of contamination.
3. If contamination is confirmed, determine the extent of the contamination through system sampling and attempt to isolate that portion of the distribution system to minimize the spread of the contaminant.
4. Once confirmation of contamination is received, notify local agencies and state regulatory offices in a timely manner and prepare for public notification, as needed. These agencies include, but are not limited to Virginia Department of Health (VDH), local health officials, County Administration and the County Public Information Officer. In addition, direct notification of impacted high volume or sensitive customers may be required.
5. Establish corrective action plan to clean the contamination from the distribution system and consult VDH and Virginia Department of Environmental Quality prior to action.
6. Regularly update local and state agencies and affected customers.
7. Restore service to isolated customers once all contamination related problems have been corrected.
8. Notify all affected customers, local and state agencies.

If no contamination has occurred, but the potential exists, the customer is screened to determine the type and degree of hazard and added to the database of customers requiring backflow prevention devices. The customer is notified of the requirement and the situation is corrected following the standard procedures.

## **SECTION 9: CONSUMER EDUCATION**

Public awareness is an important part of protecting the County's water system and educating customers of the potential dangers of cross connections.

### **9.1 Public Education**

The cross-connection control and backflow prevention public education requirements shall include:

1. A discussion of the causes of backflow
2. Hazards and health effects of cross connections and backflow
3. Public education materials and methods of delivery
4. Media outlets used, and content of materials used
5. Guidance/resources to identify actual or potential cross connections
6. Safeguards to control or eliminate the hazards at the point-of-use
7. Sources for additional information

### **9.2 PWD Responsibilities**

Accordingly, PWD will incorporate the following:

#### **9.2.1 Building Inspections Office (BI)**

The Building Inspections Office is the front line when it comes to cross connection control as it is the building inspector's responsibility to enforce all Virginia Uniform Statewide Building codes. There is also an important educational component to their duties during the construction or retrofit process. During this process BI personnel should make every effort to educate the community and builders as to the dangers of cross connections.

#### **9.2.2 Public Works Department (PWD)**

PWD is responsible for protecting the County's public water supply. In effort to keep the public informed a brochure can be included the billing insert.

## **APPENDIX A: FLUVANNA COUNTY CODE**

**APPENDIX A: FLUVANNA COUNTY CODE – Chapter 21, Article II,  
Division 5 – Cross-Connection Control; Backflow Prevention**

**CHAPTER 21 WATER AND SEWER DISPOSAL**

**ARTICLE II. WATER**

**DIVISION 5. CROSS-CONNECTION CONTROL; BACKFLOW PREVENTION**

**Sec. 21-2-101. Definitions.**

The following words, terms and phrases, when used in this division, shall have the meanings ascribed to them in this Division 5, except where the context clearly indicates a different meaning:

*Air gap separation* means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying pure water to a tank, plumbing fixture or other device and the rim of the receptacle.

*Approved* means accepted by the Director as meeting an applicable specification stated or cited in this Article or other applicable law, or as suitable for the proposed use.

*Atmospheric vacuum breaker* means a device which prevents backsiphonage by creating an atmospheric vent when there is either a negative pressure or subatmospheric pressure in a water system.

*Auxiliary water system* means any water system on or available to the premises other than the waterworks. These auxiliary waters may include water from another purveyor's waterworks; or water from a source such as wells, lakes, or streams; or process fluids; or used water. They may be polluted or contaminated or objectionable, or constitute a water source or system over which the water purveyor does not have control.

*Backflow* means the flow of contaminants, pollutants, process fluids, used water, untreated waters, chemicals, gases, nonpotable waters into any part of a waterworks.

*Backflow prevention device* means any approved device, method or type of construction intended to prevent backflow into a waterworks.

*Backsiphonage* means the flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply system from any source other than its intended source caused by the sudden reduction of pressure in the potable water supply system.

*Barometric Loop* means a fabricated piping arrangement rising at least thirty-five (35) feet at its topmost point above the highest fixture it supplies. It is utilized in water supply systems to protect against backsiphonage.

*Consumer* means any person who drinks water from a waterworks

*Consumer's water system* means any water system located on the consumer's premises, supplied by or in any manner connected to a waterworks.

*Contamination* means any introduction into pure water of microorganisms, wastes, wastewater, undesirable chemicals or gases.

*Cross-connection* means any connection or structural arrangement, direct or indirect, to the waterworks whereby backflow can occur.

*Degree of hazard* means an evaluation of the potential risk to health and the adverse effect upon the waterworks.

*Double gate-double check valve assembly* means an approved assembly composed of two (2) single, independently acting check valves including tightly closing shutoff valves located at each end of the assembly and petcocks and test gauges for testing the watertightness of each check valve.

*Health hazard* means any condition, device or practice in a waterworks or its operation that creates, or may create, a danger to the health and well-being of the water consumer.

*Interchangeable connection* means an arrangement or device that will allow alternate but not simultaneous use of two sources of water.

*Owner* means any Person who has legal title to, license to operate, or license to inhabit, a property upon which a backflow preventer is required.

*Pollution* means the presence of any foreign substance (chemical, physical, radiological or biological) in water that tends to degrade its quality so as to constitute an unnecessary risk or impair the usefulness of the water.

*Pollution hazard* means a condition through which an aesthetically objectionable or degrading material may enter the waterworks or a consumer's water system.

*Pressure vacuum breaker*: A device containing one or two independently operated spring-loaded check valves and an independently operated spring-loaded air inlet valve located on the discharge side of the check or checks. The device includes tightly closing shut-off valves on each side of the check valves and properly located test cocks for the testing of the check valve(s).

*Process fluid* means any fluid or solution which may be chemically, biologically or otherwise contaminated or polluted which could constitute a health, pollution or system hazard if introduced into the waterworks. This includes, but is not limited to:

- (1) Polluted or contaminated waters;
- (2) Process waters;
- (3) Used waters originating from the waterworks which may have deteriorated in sanitary quality;

- (4) Cooling waters;
- (5) Contaminated natural waters taken from wells, lakes, streams or irrigation systems;
- (6) Chemicals in solution or suspension; and
- (7) Oils, gases, acids, alkalis, and other liquid and gaseous fluids used in industrial or other processes, or for firefighting purposes.

*Program* means this Chapter 21, Article II, Division 5 together with the County's Cross-Connection Control and Backflow Prevention Program Manual.

*Pure water or Potable Water* means water fit for human consumption that is sanitary and normally free of minerals, organic substances and toxic agents in excess of reasonable amounts and adequate in quantity and quality for the minimum health requirement of the persons served. For State Law reference, see Code of Va., § 32.1-167.

*Reduced pressure principal backflow prevention device.* A device containing a minimum of two independently acting check valves together with an automatically operated pressure differential relief valve located between the two check valves. During normal flow and at the cessation of normal flow, the pressure between these two checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the check valves at less than the supply pressure. The unit shall include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks. These devices shall be of the approved type.

*Residential Dual Check* means an assembly of two spring-loaded, independently operating check valves without tightly closing shut-off valves and test cocks. Generally employed immediately downstream of the water meter to act as a containment device.

*Service connection* means the point of delivery of finished water from a waterworks to a consumer's water system, fire protection system, irrigation system, and to all other points where finished water is delivered through the distribution system to a consumer. Generally, the service connection occurs at the water meter, or at the distribution main if no water meter is installed, or in the case of an owner of both the waterworks and the building supplied, the point of entry into the building. Service connections may be permanent, temporary, or emergency.

*System hazard* means a condition posing an actual, or threat of, damage to the physical properties of the waterworks or a consumer's water system.

*Used water* means any water supplied by a water purveyor from the waterworks to a consumer's water system after it has passed through the service connection.

*Waterworks* means system that serves piped water for human consumption to at least 15 service connections or 25 or more individuals for at least 60 days out of the year. All structures, equipment and



appurtenances used in connection with the collection, storage, purification, treatment and distribution of pure water, except the piping and fixtures inside the building where such water is delivered.

*Water purveyor.* An individual, group of individuals, partnership, firm, association, institution, corporation, municipal corporation, county or authority which supplies water to any person in this county from or by means of any waterworks.

*Water service entrance:* That point in the owner's water system beyond the sanitary control of the Department; generally considered to be the outlet end of the water meter and always before any unprotected branch.

*Waterworks* means a system that serves piped water for human consumption to at least 15 service connections or 25 or more individuals for at least 60 days out of the year. "Waterworks" includes all structures, equipment, and appurtenances used in the storage, collection, purification, treatment, and distribution of potable water except the piping and fixtures inside the building where such water is delivered.

History prior Sec. 21-2-2. - Definitions (Comp. 1974, ch. 12; Ord. 11-18-15).

(Ord. \_\_\_ - \_\_\_-22)

**Sec. 21-2-102. State regulations adopted.**

The Board of Supervisors hereby adopts by reference the regulations of VDH, 12 VAC 5-590-10 et seq. regarding waterworks including the Waterworks Regulations. Specifically, the Board of Supervisors hereby adopts by reference Section 580, 600, 610 and 630, regarding cross-connection control and backflow prevention in waterworks, of the state Waterworks Regulations, as it may be amended from time to time, or applicable successor provisions. The provisions of this Article II, Division 5, shall apply to the Fork Union Sanitary District as well as to all other County waterworks.

History prior Sec. 21-2-1. - State regulations adopted (Comp. 1974, ch. 12; Ord. 11-18-15).

(Ord. \_\_\_ - \_\_\_-22)

**Sec. 21-2-103. Article supplementary to plumbing codes.**

This division is a supplement to the applicable plumbing and other building codes.

History prior Sec. 21-2-7. – Article supplementary to plumbing codes (Comp. 1974, ch. 12).

(Ord. \_\_\_ - \_\_\_-22)

**Sec. 21-2-104. Inspections generally.**

It shall be the duty of the County through its Director and County Engineer to cause inspections to be made of properties served by the waterworks where cross-connection with the waterworks is deemed possible. The frequency of inspections and re-inspections, based on potential health hazards involved, shall be established by the County in the cross-connection control and backflow prevention program and as approved by VDH and the Board of Supervisors.

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History prior Sec. 21-2-3. - Inspections (Comp. 1974, ch. 12; Ord. 11-18-15).

(Ord. \_\_\_ - \_\_\_ -22)

**Sec. 21-2-105. Right of entry; inspection of property served by County waterworks.**

In addition to rights of access under Section 21-2-4, the Director, County Engineer or any authorized representative of the County waterworks (which includes the Fork Union Sanitary District), as applicable, shall have the right to enter at any reasonable time properties served by a connection to the waterworks of the County or the Fork Union Sanitary District, as applicable, for the purpose of (i) inspecting the piping systems for cross-connections, (ii) inspecting structural or sanitary hazards, (iii) inspecting any known violations of this division or corrections related thereto; (iv) determining if violations of this division exist; or (vi) any other proper purpose under this Chapter. Upon request, the owner or occupant of property served shall furnish to the inspection agency pertinent information regarding the piping system or systems on such property. The refusal of such information or refusal of access, when requested, shall be deemed evidence of the presence of an unauthorized cross-connection and an unlawful violation of this Chapter.

History prior Sec. 21-2-4. - Right of entry of district representative; refusal of access or information deemed evidence of cross-connection (Comp. 1974, ch. 12).

(Ord. \_\_\_ - \_\_\_ -22)

**Sec. 21-2-106. Denial or discontinuance of service; protection of waterworks.**

No service connection shall be permitted by the County, including the Fork Union Sanitary District, unless the County's water system is protected as required by this division, and other Applicable Laws. Water service to any premises shall be discontinued by the County if the required backflow preventer is not installed, tested, and maintained, or if it is found that the required backflow preventer has been removed, bypassed, or if an unprotected cross connection exists on the premises. Service shall not be restored until such conditions or defects are corrected. The Director or County Engineer may deny or discontinue the water service to a consumer if the required backflow prevention device is not installed by providing for a physical break in the service line until the owner has corrected the condition to the satisfaction of the Director. If it is found that the device has been removed or bypassed or if a cross-connection exists on the premises, or if the pressure in the waterworks is lowered below ten psi gauge, the County Engineer shall take positive action to ensure that the waterworks is adequately protected at all times. Water service to such premises shall not be restored until the deficiencies have been corrected or eliminated in accordance with State Waterworks Regulations and to the satisfaction of the Director and County Engineer.

History prior Sec. 21-2-5. – Denial or discontinuance of service; protection of waterworks (Comp. 1974, ch. 12).

(Ord. \_\_\_ - \_\_\_ -22)

**Sec. 21-2-107. Protection of pure water; unsafe outlets to be labeled.**

The potable water made available on the properties served by the waterworks shall be protected from possible contamination or pollution by enforcement of this division and the plumbing codes under Applicable Law. Any water outlet which could be used for domestic purposes and is not supplied by the pure water system shall be labeled as "Water Unsafe for Drinking" in a conspicuous manner.

History prior Sec. 21-2-6. - Protection of pure water; unsafe outlets to be labeled (Comp. 1974, ch. 12; Ord. 11-18-15).

(Ord. \_\_\_ - \_\_\_ -22)

## **APPENDIX B: DEVICE CERTIFICATION FORM**



# Fluvanna County Public Works Department

BOS2022-10-05 p.212/440  
197 Main Street  
P.O. Box 540  
Palmyra, VA 22963  
Phone:  
Fax:

## BACKFLOW PREVENTION DEVICE TEST REPORT

Contact: \_\_\_\_\_ Date: \_\_\_\_\_ Failed  Passed

Phone: \_\_\_\_\_ Tester Name: \_\_\_\_\_ Bldg Permit #: \_\_\_\_\_

Name of Premises: \_\_\_\_\_

Service Address: \_\_\_\_\_

Location of Device: \_\_\_\_\_

Device: \_\_\_\_\_

Manufacturer	Model	Size	Serial No.
--------------	-------	------	------------

Line Pressure at Time of Test: \_\_\_\_\_ psi Influent: \_\_\_\_\_ psi Effluent: \_\_\_\_\_ psi

Pressure Drop Across First Check Valve: \_\_\_\_\_ psi Does the device meet the Manufacturer's Specifications?  Yes  No

Type of Device:	<input type="checkbox"/> Single Check Valve	<input type="checkbox"/> Double Check Valve	<input type="checkbox"/> Other Equipment	<input type="checkbox"/> Differential Pressure Relief Valve
-----------------	---	---	--	---

Initial Test:  Leaked  Closed Tight  Opened at \_\_\_\_\_ psi Reduced Pressure

Describe Repairs: \_\_\_\_\_  
\_\_\_\_\_

Materials Used: \_\_\_\_\_  
\_\_\_\_\_

Final Test:  Leaked  Closed Tight  Opened at \_\_\_\_\_ psi Reduced Pressure

Comments: \_\_\_\_\_  
\_\_\_\_\_

Name of Tester (print): \_\_\_\_\_

Tester Company: \_\_\_\_\_

Tester Certification #: \_\_\_\_\_ Telephone #: \_\_\_\_\_

\_\_\_\_\_  
Signature of Tester

\_\_\_\_\_  
Date



# Fluvanna County Public Works Department

197 Main Street  
P.O. Box 540  
Palmyra, VA 22963  
Phone:  
Fax:

	Check Valve No. 1		Check Valve No. 2		Differential Pressure Relief Valve
Initial Test:	Leaked <input type="checkbox"/>		Leaked <input type="checkbox"/>		Opened at _____ psi
	Closed Tight <input type="checkbox"/>		Closed Tight <input type="checkbox"/>		Did not Open <input type="checkbox"/>
Service:	Cleaned <input type="checkbox"/>		Cleaned <input type="checkbox"/>		Cleaned <input type="checkbox"/>
Repair:	Disc <input type="checkbox"/>		Disc <input type="checkbox"/>		Disc, Upper <input type="checkbox"/>
	Spring <input type="checkbox"/>		Spring <input type="checkbox"/>		Disc, Lower <input type="checkbox"/>
	Guide Pin <input type="checkbox"/>		Guide Pin <input type="checkbox"/>		Spring <input type="checkbox"/>
	Retainer <input type="checkbox"/>		Retainer <input type="checkbox"/>		Diaphragm, Large, Upper <input type="checkbox"/>
	Hinge Pin <input type="checkbox"/>		Hinge Pin <input type="checkbox"/>		Diaphragm, Large, Lower <input type="checkbox"/>
	Seat <input type="checkbox"/>		Seat <input type="checkbox"/>		Diaphragm, Small, Upper <input type="checkbox"/>
	Diaphragm <input type="checkbox"/>		Diaphragm <input type="checkbox"/>		Diaphragm, Small, Lower <input type="checkbox"/>
	Other: _____ <input type="checkbox"/>		Other: _____ <input type="checkbox"/>		Spacer, Lower <input type="checkbox"/>
					Other: _____ <input type="checkbox"/>
Final Test:	Closed Tight <input type="checkbox"/>		Closed Tight <input type="checkbox"/>		Opened at _____ psi
					Reduced Pressure <input type="checkbox"/>

## **APPENDIX C: SURVEY FORM**



FLUVANNA COUNTY  
PUBLIC WORKS DEPARTMENT  
197 MAIN STREET  
P. O. BOX 540  
PALMYRA, VA 22963



**COMMERCIAL AND INDUSTRIAL SURVEY FORM**

Facility name: .....

Facility contact name: ..... Telephone # (.....).....-

Facility address: .....

Mailing address: .....  
(If different from above)

PWD account #: ..... Days/Hours of operation .....

1. What is the nature of the business at this service address? .....

2. Do you have a backflow prevention device(s)? ( ) Yes / ( ) No / ( ) Unsure

If Yes, what type(s): .....

Location(s) in the facility: .....

3. Do you have an irrigation or fire sprinkler system? ( ) Yes / ( ) No / ( ) Unsure

4. Does your operation provide Food Service to customers or employees? ( ) Yes / ( ) No / ( ) Unsure

5. Do you have a grease trap or interceptor? ( ) Yes / ( ) No / ( ) Unsure

If Yes, how many: .....

Where are they located in relation to your building:.....

6. Do you have an oil/water separator? ( ) Yes / ( ) No / ( ) Unsure

7. Do your business discharge or have the potential to discharge a waste liquid to the sewer system other than from restroom toilets, sinks, showers, and other potable water fixtures?  
( ) Yes / ( ) No / ( ) Unsure

If Yes, describe: .....

8. What is your Standard Industrial Classification (SIC) Code (if known)? .....

9. Do you currently treat any of your wastewater onsite? ( ) Yes / ( ) No / ( ) Unsure

If Yes, describe: .....

10. Additional comments: .....

I certify that the information provided is true and represents, to the best of my knowledge, full disclosure of the information requested.

Signature ..... Title ..... Date .....

(Authorized Representative)

### APPENDIX D: CUSTOMER INFORMATION SPREADSHEET

Customer information spreadsheet template:

No.	Business Name	Address			Contact Person	Phone Number	Contact Email	Size	Fire Detector Assembly	Type	Model
		Street	City, State	Zip Code							
1											
2											
3											
4											
5											
6											
7											

continued...

Serial No.	Location	Customer Account Number	Customer Name	Customer City, State,	Zip Code	Anniversary Date	Date of 1 <sup>st</sup> Notice	Date of 2 <sup>nd</sup> Notice	Date of 3 <sup>rd</sup> Notice	Date of Disconnect	Pass (P) or Fail (F)



## APPENDIX E: STANDARD LETTERS

« Date of 1<sup>st</sup> Notice »

« Customer Name »  
 « Customer Address »  
 « Customer City, State, Zip »

**RE: Backflow Prevention Device Inspection and Certification  
 ACTION REQUIRED**

Dear Customer:

In an effort to maintain the safety of the Fluvanna County public water system and as required by the Virginia Department of Health Waterworks Regulations, the Fluvanna County Public Works Department (PWD) administers the Cross-Connection Control and Backflow Prevention Program. This program is important to the protection of the public water supply by requiring the installation of backflow prevention devices at certain facilities to prevent potential contaminants from entering the public water system during low pressure or other unusual situations.

Our records indicate that due to the nature of your facility; « *Business Name* », « *Customer Address* », « *Customer City, State, Zip* », the following backflow prevention device has been installed on your plumbing system:

<b>Size(s)</b>	« Size »
<b>Make(s)</b>	« Type »
<b>Model(s)</b>	« Model »
<b>Serial #(s)</b>	« Serial No. »
<b>Location(s)</b>	« Location »

In accordance with this program, these devices must be owner or customer maintained to meet the manufacturer’s specifications with testing and certification to be performed by a Virginia State certified backflow Inspector or an annual basis.

Please have your inspector complete the enclosed backflow certification form for each device, certifying that the device(s) meets the manufacturer’s specifications. Then return the backflow certification form to this office on or before « *Anniversary Date* ».

Please understand we are required by law to maintain these records as a matter of public health and public safety. The testing and certification date will be electronically tracked and reminder letters sent in future years to prompt continued compliance.

Should you have any questions or need additional information please, do not hesitate to contact us at (434) 591-1925 Monday-Friday 8am - 5pm. Thank you for your assistance and cooperation.

Sincerely,  
 Signed

Enclosure

CC: « Business Name »  
 « Customer Address »  
 « Customer City, State, Zip »

**FINAL NOTICE – RESPONSE REQUIRED**

« Date of 3<sup>rd</sup> Notice »

« Customer Name »  
 « Customer Address »  
 « Customer City, State, Zip »

RE: **Final Notice of Required Prevention Device Inspection and Certification**

Dear Customer:

This final notice is in follow up to our original notice date « *Date of 1<sup>st</sup> Notice* », and our second notice letter date « *Date of 2<sup>nd</sup> Notice* ». Our records indicate that the backflow certification form for the backflow assembly listed below, after a second notice was due in our office on « *2<sup>nd</sup> Notice Due Date* ». As of the date of this letter, that form has not been received.

« **Customer Name** »  
 « **Customer Address** »  
 « **Customer City, State, Zip** »

<b>Size(s)</b>	« Size »
<b>Make(s)</b>	« Type »
<b>Model(s)</b>	« Model »
<b>Serial #(s)</b>	« Serial No. »
<b>Location(s)</b>	« Location »

Annually, in accordance with the Virginia Department of Health regulations these devices must be owner or customer maintained to meet the manufacturer’s specifications with testing and certification to be performed by a Virginia State certified backflow prevention device worker. Please understand that to assure the safety of our water system, we must receive the backflow certification form for the device(s) in our office on or before « *Date of Disconnect* ».

**Failure to comply will result in disconnections from the Fluvanna County water system after « *Date of Disconnect* ».**

Should you have any questions or need additional information please, do not hesitate to contact us at (434) 591-1925 Monday-Friday 8am - 5pm. Thank you for your assistance and cooperation.

Sincerely,  
 Signed

Enclosure

CC: « Business Name »  
 « Customer Address »  
 « Customer City, State, Zip »

## **APPENDIX F: VIRGINIA DEPARTMENT OF HEALTH CROSS CONNECTION REGULATIONS**

### **12VAC5-590-580. General requirements for cross-connection control and backflow prevention.**

A. Every owner shall establish and enforce a cross-connection control program (CCCP) in accordance with [12VAC5-590-360](#). The goal of the CCCP is to prevent the intrusion of contamination into the distribution system via cross-connections and backflow. The owner shall document the CCCP activities in a cross-connection control plan and submit the written document to the department for review and approval.

B. No owner shall install, maintain, or allow a service connection to any premises where cross-connections to a waterworks or a consumer's water system exist, unless the owner and department ensure the cross-connections are adequately safeguarded.

C. No owner shall install, maintain, or allow any connection whereby water from an auxiliary water system may enter a waterworks or consumer's water system, unless the owner and department approve the auxiliary water system, the method of connection, and use of such system.

D. The owner, in accordance with [12VAC5-590-510](#) C, shall maintain acceptable working pressures in the distribution system to reduce the potential for backflow to occur.

#### **Statutory Authority**

§§ [32.1-12](#) and [32.1-170](#) of the Code of Virginia.

#### **Historical Notes**

Derived from VR355-18-006.01 § 2.25, eff. August 1, 1991; amended, Virginia Register Volume 9, Issue 17, eff. June 23, 1993; [Volume 37, Issue 20](#), eff. June 23, 2021.

#### **12VAC5-590-590. (Repealed.)**

#### Historical Notes

Derived from VR355-18-006.02 § 2.26, eff. June 23, 1993; repealed, Virginia Register [Volume 37, Issue 20](#), eff. June 23, 2021.

### **12VAC5-590-600. Cross-connection control program responsibilities.**

A. The owner shall establish and implement a CCCP consistent with the extent of the distribution system and the consumers served by the waterworks. The owner shall review the CCCP and written cross-connection control plan not less than every five years and update it as necessary to satisfy the requirements of this chapter. The owner shall submit updates to the department to obtain approval. The department may review the plan upon request. This program shall include at least one designated individual assigned by the owner. Requirements for this position shall include training and experience in cross-connection control programs.

B. The CCCP shall not be in conflict with the USBC and applicable building code regulations, including [13VAC5-63](#) or subsequent regulations promulgated by the Board of Housing and Community Development.

C. The CCCP shall ensure complete assessments of every consumer's water system and shall determine both the degree of hazard and the appropriateness of existing safeguards to prevent contamination from cross-connections and backflow.

D. The CCCP shall ensure testing, maintenance, and repairs of all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices required and installed pursuant to [12VAC5-590-610](#).

E. [13VAC5-63-530](#), which incorporates the International Property Maintenance Code into the USBC, requires testing of RPZ assemblies, double check valve assemblies, double check detector backflow assemblies, and pressure vacuum breaker assemblies after initial installation, immediately after repairs or relocation, and annually thereafter. The CCCP shall establish procedures for completing and monitoring operational tests, or other evaluation procedures as appropriate, at least annually, and after installation, relocation, or repairs, for testable backflow prevention assemblies, devices, and methods that provide containment. The CCCP may include a public education program to:

1. Prompt consumer self-assessments, increase the awareness of cross-connections, and inform the consumer of the public health hazards of backflow.
2. The public education program, if provided as part of the CCCP, shall include, at a minimum, the following:
  - a. Causes of backflow;
  - b. Hazards and health effects of cross-connections and backflow;
  - c. Resources available to identify actual or potential cross-connections;
  - d. Safeguards to use to eliminate or control the hazards at the point of use; and
  - e. Sources for additional information.

F. The CCCP shall provide a method to discontinue or refuse water service to the consumer to ensure that the waterworks is adequately protected from cross-connections and backflow if any of the following conditions occur:

1. The consumer does not install, test and maintain a required backflow prevention assembly or backflow elimination method in accordance with the applicable sections of this chapter;
2. The consumer allows a required backflow prevention assembly or backflow elimination method to become inoperable or the consumer removes or bypasses it; or
3. The owner knows an unprotected or inadequately protected cross-connection exists on the premises and determines that there is inadequate backflow prevention at the service connection.

G. In the event of backflow of contaminants into the waterworks, the owner shall promptly take or cause corrective action to confine and eliminate the contamination. The owner shall report the event to the department within one business day in the most expeditious manner. The owner shall submit a written report by the 10th day of the month following the month during which backflow occurred addressing the incident, its causes and effects, and safeguards required or other action taken.

H. The owner shall maintain an inventory and records of testing, repairs, and maintenance of all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices required and installed under [12VAC5-590-610](#) C. In the case of single-family residences subject to [12VAC5-590-610](#) C 5, the owner may determine whether or not to maintain an inventory or records. The department recommends the owner follow best practices identified in the AWWA Manual of Water Supply Practices M14 and the EPA Cross-Connection Control Manual.

I. The owner shall maintain an inventory and records of testing, repairs, and maintenance of all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices required and installed under [12VAC5-590-610](#) E.

J. The owner shall maintain records related to the CCCP implementation, and any other records the department requires in accordance with [12VAC5-590-550](#).

Statutory Authority

§§ [32.1-12](#) and [32.1-170](#) of the Code of Virginia.

## Historical Notes

Derived from VR355-18-006.03 § 2.27, eff. August 1, 1991; amended, Virginia Register Volume 9, Issue 17, eff.

June 23, 1993; [Volume 37, Issue 20](#), eff. June 23, 2021.

### **12VAC5-590-610. Containment of backflow.**

A. The owner shall ensure installation of backflow prevention assemblies or backflow elimination methods (i) at the service connection or (ii) downstream of the service connection but before any unprotected takeoffs.

B. Where the consumer's water system is not intricate or complex and where actual or potential cross-connection hazards can be eliminated or controlled, instead of containment, the owner may allow consumers to use point-of-use isolation protection by application of appropriate backflow prevention assemblies, backflow prevention devices, or backflow elimination methods complying with the USBC.

C. A backflow prevention assembly or backflow elimination method shall be installed where the following conditions exist:

1. A substance is handled in such a manner as to create an actual or potential hazard to a waterworks (this shall include premises having sources or systems containing process fluids or waters originating from a waterworks which are no longer under the control of the owner);
2. There exists internal cross-connections that, in the judgment of the owner or the department, may not be easily correctable or have intricate or complex plumbing arrangements that make it impracticable to determine whether or not cross-connections exist;
3. There are security requirements or other prohibitions or restrictions that prevent the assessment of all potential cross-connections that may impair the quality of the water delivered;
4. There is a repeated history of cross-connections being established or reestablished;
5. There are fire protection systems, lawn sprinkler systems, or irrigation systems;
6. The owner or department can show that a potential cross-connection hazard exists.

D. The owner shall ensure that consumers equip premises having booster pumps or fire pumps connected to the waterworks with control devices to prevent a reduction of pump suction line pressure to less than 20 psig.

E. A backflow prevention assembly or backflow elimination method shall be installed at consumer water systems serving the following types of facilities, including:

1. Hospitals, mortuaries, clinics, veterinary establishments, nursing homes, and medical buildings;
2. Laboratories;
3. Piers, docks, and waterfront facilities;
4. Sewage treatment plants, sewage pumping stations, or storm water pumping stations;
5. Food and beverage processing plants;
6. Chemical plants, dyeing plants, and pharmaceutical plants;
7. Metal plating industries;
8. Petroleum or natural-gas processing or storage plants;
9. Radioactive materials processing plants or nuclear reactors;

10. Car washes and laundries;
11. Buildings with commercial, industrial, or institutional occupants served through a master meter;
12. Water loading facilities;
13. Slaughter houses and poultry processing plants;
14. Farms where the water is used for other than household purposes;
15. Commercial greenhouses and nurseries;
16. Health clubs with swimming pools, therapeutic baths, hot tubs, or saunas;
17. Paper and paper-product plants and printing plants;
18. Pesticide or exterminating companies and their vehicles with storage or mixing tanks;
19. Facilities that blend, store, package, transport, or treat chemicals, and their related vehicles;
20. Schools or colleges with laboratory facilities;
21. Highrise buildings (four or more stories);
22. Multiuse commercial, office or warehouse facilities; and
23. Others specified by the owner or the department when reasonable cause can be shown for a potential backflow or cross-connection hazard.

F. All temporary or emergency service connections shall be protected where reasonable cause can be shown for a potential backflow or cross-connection hazard. Backflow prevention assemblies or backflow elimination methods used shall be appropriately certified or approved to match the requirements of this section.

#### Statutory Authority

§§ [32.1-12](#) and [32.1-170](#) of the Code of Virginia.

#### Historical Notes

Derived from VR355-18-006.04 § 2.28, eff. August 1, 1991; amended, Virginia Register Volume 9, Issue 17, eff. June 23, 1993; [Volume 37, Issue 20](#), eff. June 23, 2021.

**12VAC5-590-620. (Repealed.)**

#### Historical Notes

Derived from VR355-18-006.05 § 2.29, eff. August 1, 1991; amended, Virginia Register Volume 9, Issue 17, eff. June 23, 1993; repealed, Virginia Register [Volume 37, Issue 20](#), eff. June 23, 2021.

**12VAC5-590-630. Backflow prevention assemblies, devices, and backflow elimination methods for containment.**

A. Any backflow prevention assembly or backflow elimination method or backflow prevention device shall be of the approved type and shall comply with the USBC.

B. General safeguards

1. The backflow prevention assembly or backflow elimination method or backflow elimination device used shall depend on the degree of hazard that exists or may exist. The safeguard shall ensure maintenance of the distribution system water quality and its usefulness.

2. The degree of hazard, either high or low, is based on (i) the nature of the contaminant; (ii) the potential of the health hazard; (iii) the potential method of backflow (either by backpressure or by backsiphonage); and (iv) the potential effect on waterworks structures, equipment, and appurtenances used in the storage, collection, purification, treatment, and distribution of potable water. Table 630.1 shall be used as a guide to determine the degree of hazard for any situation.

Table 630.1

Determination of Degree of Hazard

Cross-connections that meet or may meet the following conditions shall be rated at the corresponding degree of hazard.

High Hazard	Low Hazard
The contaminant would be toxic, poisonous, noxious, unhealthy, or of unknown quality.	The contaminant would only degrade the quality of the water aesthetically or impair the usefulness of the water.
A health hazard would exist.	A health hazard would not exist.
The contaminant would disrupt the service of piped water for human consumption.	The contaminant would not disrupt service of piped water for human consumption.
Backflow would be by either backpressure or backsiphonage.	Backflow would occur by backsiphonage.
Examples: lawn irrigation systems, fire sprinkler systems with chemical additives or antifreeze, sewage, used water, nonpotable water, auxiliary water systems, and mixtures of water and other liquids, gases, or other chemicals.	Examples: food residuals, coffee machines, non-carbonated beverage dispensers, and residential fire sprinkler systems constructed of materials designed for potable water flow.

3. The USBC and the manufacturer's specifications shall be used to determine the appropriateness of the backflow prevention assembly or backflow prevention device application for containment.

C. Owners shall not allow the installation of backflow prevention devices or backflow prevention assemblies with openings, outlets, or vents that are designed to operate or open during backflow prevention:

1. In areas subject to flooding or in pits;
2. In areas with atmospheric conditions that represent a contamination threat to the potable water supply; and
3. In such a manner as to be able to be bypassed.

D. Starting January 1, 2023, persons testing and repairing backflow prevention assemblies and backflow prevention devices shall be certified by a Commonwealth of Virginia tradesman certification program (identified by DPOR as backflow prevention device workers). Until January 1, 2023, persons testing and repairing backflow prevention assemblies and backflow prevention devices shall be qualified to perform such work as demonstrated by possessing

a certification or license from a local or state agency having legal authority or shall possess a certificate of completion of applicable vocational training acceptable to the owner.

Statutory Authority

§§ [32.1-12](#) and [32.1-170](#) of the Code of Virginia.

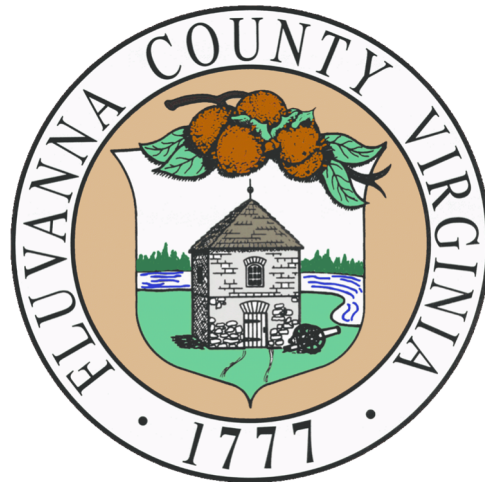
Historical Notes

Derived from VR355-18-006.06 § 2.30, eff. August 1, 1991; amended, Virginia Register Volume 9, Issue 17, eff. June 23, 1993; [Volume 31, Issue 1](#), eff. October 10, 2014; [Volume 37, Issue 20](#), eff. June 23, 2021.



FLUVANNA COUNTY ZION CROSSROADS COMMUNITY WATERWORKS

EMERGENCY MANAGEMENT PLAN  
FOR EXTENDED POWER OUTAGES



Public Works Department  
Fluvanna County  
P.O. Box 540  
Palmyra, VA 22963

September 2022

PREPARED BY:

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PREPARED FOR:

**Fluvanna County**

Public Works Department  
197 Main Street  
Post Office Box 540  
Palmyra, VA 22963



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5.1    VIRGINIA WATER/WASTEWATER ASSISTANCE RESPONSE NETWORK (VA WARN) .....	7
5.2    NEIGHBORING WATERWORKS.....	7
<b>6. BOOSTER PUMPS .....</b>	<b>ERROR! BOOKMARK NOT DEFINED.</b>
6.1    FLUVANNA COUNTY WATER BOOSTER STATION.....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
<b>7. SIGNATURE.....</b>	<b>7</b>
<b>8. GLOSSARY .....</b>	<b>11</b>
<b>APPENDIX A:    BOIL WATER NOTICE TEMPLATE .....</b>	<b>12</b>
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## 1. Introduction

The ability to provide potable water is critical to maintaining public health and preventing disease. Long term power outages are one of the largest threats to this mission. Several types of events, both natural and man-made can result in extended power outages (Ice Storms, Hurricanes, Tornadoes, Flooding, Terrorism, Vandalism, etc.). The response to these items are included in the Emergency Management Plan for the waterworks.

The Emergency Management Plan for Extended Power Outages regulation establishes the expectation that community waterworks will develop and maintain a plan outlining how the waterworks will supply potable water to its customers in the event of an extended power outage. Community waterworks are expected to supply potable water to their customers during an extended power outage, although not necessarily at the usual quantity, pressure and location, or without interruption.

For the purposes of the plan, community waterworks may not (without an agreement in place) rely on other state or federal agencies (such as the Virginia Department of Emergency Management (VDEM), or the Federal Emergency Management Agency (FEMA)) to supply water in the event of an extended power outage.

### 1.1 Purpose

The purpose of this Emergency Management Plan for Extended Power Outages (EMP) is to outline how Fluvanna County Public Works Department will operate the Fluvanna County Zion Crossroads Community Waterworks (FCZCCW) during an extended power outage. This plan is not intended cover all scenarios, but seeks to provide general guidance, contact information, and minimum standards to assist Fluvanna County in responded to extended power outages.

## 2. Roles and Responsibilities

- Coordinate the maintenance and continued operation of utilities
- Assist with assuring the continued supply of potable water
- Assist with providing minimum essential sanitation services
- Coordinate debris removal
- All emergencies must be reported to Waterworks personnel listed in 4.2 of this EMP

## 3. Concept of Operations

### 3.1 Community Demand

1. Average: 75,000 GPD
2. Minimum: 35,500 GPD (1/2x Average Demand)
3. Maximum: 125,000 GPD
4. Estimated Population Served: up to ~ 750 people (assumes 100 gallons per day per person)

*\*Based upon current allocation from Fluvanna Women's Department of Corrections Waterworks (PWSID 2065250)*

## 3.2 Emergency Disinfection Procedures

### 3.2.1 Distribution System

Should the quality of potable water within the FCZCCW be compromised in event of an emergency, the distribution system and storage tanks should be disinfected as soon as possible to ensure that contaminated water is not used by customers in any way.

Water mains shall be flushed prior to system disinfection, at a velocity not below 2.5 ft/sec. Adequate care should be taken with drainage of the flushing water to ensure that disposal of the flushing water does not result in any physical or environmental damage. After the system has been adequately flushed, a sodium hypochlorite solution shall be applied at a constant rate. The sodium hypochlorite solution shall be proportioned such that the chlorine concentration in the system is maintained at a minimum of 50 mg/L available chlorine. The solution shall be applied with a gasoline or electrical-powered chemical feed pump designed for chlorine solution application.

Table 3-1. Chlorine required to produce 50 mg/L concentration in 100 ft. of pipe – by diameter

<b>PIPE SIZE (IN)</b>	<b>100 PERCENT CHLORINE (LB.)</b>	<b>1 PERCENT CHLORINE SOLUTIONS (GAL.)</b>
<b>4</b>	0.027	0.33
<b>6</b>	0.061	0.73
<b>8</b>	0.108	1.30
<b>10</b>	0.170	2.04
<b>12</b>	0.240	2.88
<b>16</b>	0.430	5.12
<b>20</b>	0.675	8.00

During the application of chlorine, valves, tees, hydrants, and all other appurtenances shall be operated as to properly disinfect appurtenances. After applicable retention period, the highly chlorinated water shall be flushed out of the mains until the chlorine concentration reaches a level below 1 mg/L, or until the concentration in the water is no higher than that generally occurring in the system. Prior to disposal of the chlorinated water, the de-chlorination process shall occur in order to not allow heavily chlorinated water to flow into a waterway. See references AWWA C651, C652, and 653 acceptable methods of chlorine neutralization.

After final flushing and disinfection has occurred, bacteriological sampling and any other sampling required by the Waterworks Regulations shall occur throughout the water mains to ensure the absence of bacteria, chemicals, byproducts, and other pathogens or contaminants. Samples shall be collected at least 24 hours apart at intervals to properly evaluate the quality of the water after disinfection. Should the results indicate the presence of bacteria, chemicals, or other pathogens or contaminants, disinfection shall be repeated if required by the Waterworks Regulations until a satisfactory sample is returned.

### 3.2.2 Storage Tanks

Disinfection of tanks or water storage facilities requires high levels of free chlorine within the storage facility to safely inactivate bacteria and other potential pathogens. Two factors that can affect the disinfection process are pH and temperature. Typically, disinfection will not be as effective at a low temperature compared to a high temperature; a lower temperature will require a significantly higher dosage of chlorine.

The procedure for disinfecting the water in the tank involves chlorination of the full storage facility such that the water will have a free chlorine residual concentration above 10 mg/L. This is achieved by filling the storage facility with chlorine in a manner that results in a uniform chlorine concentration throughout the disinfection operation. Equipment needed to achieve this include a liquid-chlorine cylinder, gas-flow chlorinator, chlorine injector, safety equipment, and appropriate solution tube to feed the chlorine solution into the tank water. The feeding apparatus shall be located on the inlet pipe close to the tank, to facilitate even mixing with the influent water.

The procedure for disinfecting the water in the tank involves chlorination of the full storage facility in accordance with AWWA C652-11.

After the disinfection process is complete, satisfactory bacteriological and chlorine residual results are necessary before the facility can be brought back online. Should the bacteriological sampling results indicate the presence of bacteria, disinfection shall be repeated until a satisfactory sample is returned. If chlorine residuals need to be rebalanced after disinfection, bacteriological samples should be collected after chlorine residuals to ensure that disinfection has been effective.

The discharge of the heavily chlorinated water shall be examined and should there be any chance of physical or environmental damage occurring as a result of the discharge, a reducing agent shall be applied to the discharge in order to neutralize the chlorine residual. Federal, state, or local environmental regulations may require special provisions or permits prior to disposal of highly chlorinated water.

### **3.3 Potable Water Procedures**

#### **3.3.1 Obtaining:**

General operating philosophy for obtaining potable water during power outages lasting less than 5 days:

Fluvanna County will continue normal operation utilizing the supply at the Fluvanna Women's Department of Corrections Waterworks (PWSID 2065250) with assistance from the emergency generator at the booster station. The assigned operator will ensure the fuel reserve is adequate for overnight operation. The fuel tank will be topped off at the end of each normal business day while this plan is activated. If the plan is active over holidays or weekends, the on-call operator will assume the responsibilities of the assigned operator.

General operating philosophy for obtaining potable water during power outages lasting greater than 5 days:

Fluvanna County will initialize the emergency mutual aid agreement with Louisa County Water Authority (PWSID 2109990). This agreement dated December 16, 2020 states that in the case of an emergency, Fluvanna County may rely on the Louisa County Zion Crossroads water system as a temporary supply to ensure safe operation of the water system. The booster station will remain active utilizing the backup generator as needed to fill the elevated storage tank. The assigned operator will still be responsible for ensuring the fuel reserve is adequate for overnight operation. The fuel tank will be topped off at the end of each normal business day while this plan is activated, in case of emergencies. If the plan is active over holidays or weekends, the on-call operator will assume the responsibilities of the assigned operator.

### **3.3.2 Distribution:**

The operation of the distribution system remains the same as normal operating conditions. The elevated storage tank will be the primary source of water during an extended power outage. Tank levels will be monitored more carefully to ensure no additional concerns for line breaks exist.

### **3.3.3 Location**

This section contains information on where this plan will be made available and any equipment that will be necessary to continue supplying water to an area.

#### **3.3.3.1 Description or Location of Current EMP Provisions to Supply Water**

The location of the current Fluvanna County ALL-HAZARDS EMERGENCY OPERATIONS PLAN can be found at the Emergency Operations Center Fluvanna County Public Works building and the Fluvanna County Administrations Building, and it includes provisions to supply Fluvanna County residences with clean drinking water in the case of an emergency where normal methods of obtaining clean drinking water are unavailable.

The Zion Crossroads Emergency Management Plan (as it is read and with VDH approval) will be located at the Zion Crossroads Booster Station, and copies will be available at the Fluvanna County Public Emergency Operations Center (in the Administrations Building) and the Fluvanna County Public Works Office.

#### **3.3.3.2 Preventative Measures Implemented**

- On-site back-up generator at the booster station
- On-site tractor with backhoe and front-end loader
- Listed as a priority by Dominion Virginia Power to have service reconnected in the case of an outage
- Heavy Duty 4x4 Utility Truck stocked with supplies to handle most line breaks
- Operate in accordance with the Fluvanna County All-Hazards Emergency Operations Plan and the Fluvanna County Emergency Services Organization.

#### 4. Key Points of Contact

##### 4.1 State Agency

Virginia Department of Health/Office of Drinking Water	
Lexington Field Office .....	540-463-7163
District Engineer	
Taylor Valencia .....	540-463-0421
Lexington Field Office Director	
Mark Perry, PE.....	540-463-0400
24 Hour Emergency Number.....	866-531-3068
Fluvanna County Health Department.....	434-591-1965

##### 4.2 Water Utilities / Waterworks Personnel

Fluvanna County Department of Public Works - Utilities	
Brian Estes	
Direct.....	434-591-1925
Emergency.....	434-260-9037

##### 4.3 Wholesale Water Supplier Contacts

Fluvanna Women's Correctional Center Operated by the Virginia Department of Corrections	
.....	434-984-3700
Louisa County Water Authority .....	540-967-1122

##### 4.4 Local Emergency Management Agency

Fluvanna County	
Office of Emergency Services .....	434-591-1927
Debbie Smith MCP, MCSA	

##### 4.5 Utility Providers

Electricity	
Dominion Virginia Power.....	866-366-4357
Account Number: 9501772108	
Fuel	
County Fuel Pumps (Fluvanna County Middle School)	



## 4.6 Media Contacts

### 4.6.1 Radio

WINA-AM.....	434-220-2300
WQMZ-FM.....	434-220-2300
WTJU-FM.....	434-924-0885
WUVA-FM.....	434-924-0885
WWWV-FM.....	434-220-2300
WNRN.....	434-971-4096
WVTF-NPR.....	434-293-2515

### 4.6.2 Television

WVTR-TV 6.....	804-254-3600
WRIC-TV 6.....	804-330-8000
WWBT-TV 12.....	804-230-1212
WCVE-TV 23.....	804-320-1301
WVIR-TV 29.....	434-220-2900
WRLH-TV 35.....	804-358-3535
WHTJ-TV 41.....	804-560-8120

### 4.6.3 Newspaper

The Central Virginian.....	540-967-0368
Charlottesville Observer.....	434-978-7200
The Fluvanna Review.....	434-591-1000
Richmond Times-Dispatch.....	800-468-3382
The Rural Virginian.....	434-978-7200

**5. Mutual Aid**

**5.1 Virginia Water/Wastewater Assistance Response Network (VA WARN)**

VA AWWA

Geneva Hudgins  
P. O. Box 11992  
Lynchburg, VA 24506-1992  
434-386-3190 (Office)  
Email: [geneva.hudgins@vaawwa.org](mailto:geneva.hudgins@vaawwa.org)

**5.2 Neighboring Waterworks**

Fluvanna Women’s Correctional Center Operated by the Virginia Department of Corrections  
Office ..... 434-984-3700

Louisa County Water Authority  
Office ..... 540-967-1122  
24-Hr ..... 540-967-1122

**6. Signature**

Representative Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**7. Waterwork Notifications**

**7.1 Purpose**

A purpose of this EMP is plan to communicate quickly with customers in the event that water service is interrupted, or quality is impaired by a power outage. The waterworks will make efforts to notify all persons served as required by the Waterworks Regulations.

If damage occurs that could allow microbial contaminants to enter the water supply, boiling water is the preferred method to make sure tap water is safe to drink. Customers will be warned to boil all of the tap water they use for drinking, beverage and food preparation, making ice, or brushing teeth. Customer will be warned if tap water should not be used.

## 7.2 **Boiling Water**

There are three main reasons for asking customers to boil their tap water in the immediate aftermath of a natural disaster:

1. **Power outages** During extended power outages your waterworks may be unable to produce water, leading to a loss of pressure throughout the system. In the hours before a hurricane strike, customers may have depleted stored water by filling bathtubs or bottles, further reducing overall system pressure. When pressure drops it is possible for microbes in the ground and soil to contaminate the water supply by seeping into pipes that are normally filled with water under pressure.
2. **Service line breaks** Service lines can be severed when trees are uprooted, or when heavy rainfall causes washouts around buried service lines. Line breaks can lead to sudden loss of pressure, backsiphonage, or direct introduction of microbial contaminants into the water distribution system.
3. **Flooding** Microbial contaminants can be introduced into the water supply if a wellhead, treatment unit, or storage tank becomes flooded. Wellhead contamination can occur if flood waters reach the well casing, even if the casing itself is not submerged.

Boiling tap water will reduce the possibility of getting sick from waterborne microbial pathogens. This EMP deals with power outages.

## 7.3 **Boiling Water Notices**

### 7.3.1 **When to Send**

Fluvanna County Zion Crossroads Community Waterworks (FCZCCW) will notify customers to boil or not to use their water if the waterworks has sustained damage that could let contaminants enter the water supply such as damage from an extended power outages leading to loss of system pressure, service line breaks, or flooding or as otherwise required by law or the Waterworks Regulations.

The Office of Drinking Water (“ODW”) Field Office will be consulted before alerting customers to boil water whenever practicable. If unable to consult with the ODW Field Office, then the waterworks will send the boil water notice or do not use notice, but will notify its ODW Field Office as soon as possible.

### 7.3.2 **Contents**

Boil water notices must conform to Public Notification Rule guidelines (see Waterworks Regulations). The boil water notice will include at minimum:

- the name of the waterworks,
- the geographical or service area affected,
- a brief statement of the problem,
- the date of its occurrence,
- actions being taken by the waterworks to correct the problem,
- measures to be taken by consumers to protect their health,
- a statement indicating how and when the notice will be lifted, and

- a telephone number directing consumer questions to a waterworks representative.

The notice will include mandatory health effects language if there has been confirmed contamination with fecal coliform or E. coli bacteria or as otherwise required by law. Notices will include a statement asking customers to pass the information along to others in the community. The Customizable Boil Water Notice form in [Appendix A](#) is designed to meet all of these criteria. A one-size-fits-all notice may not meet the needs of an emergency and the waterworks may provide additional information in the notice.

During a power outage it may not be possible to customize or print copies of a boil water notice that meets all of the Public Notification requirements. The waterworks will keep a supply of Generic Boil Water Notice ([Appendix C](#)) and the Virginia Department of Health Boil Water Notices Brochure ([Appendix D](#)) on hand to quickly distribute to customers in the event of an emergency. A customized notice will then be prepared and distributed to customers once power has been restored.

#### **7.4 Do Not Use Tap Water Notices**

Do Not Use Tap Water Notice notices should conform to Public Notification Rule guidelines (see Waterworks Regulations). The notice must include any mandatory health effects language or other information required by law. Complete notices also include a statement asking customers to pass the information along to others in the community. The generic Do Not Use Tap Water Notice is in [Appendix B](#). A one-size-fits-all notice may not meet the needs of an emergency and the waterworks may provide additional information in the notice.

#### **7.5 Methods for Delivery of Notices to Customers**

##### **7.5.1 Methods**

The FCZCCW will use the most direct method or combination of methods likely to reach every person served by your waterworks for communicating notices. If practicable the waterworks may hand-deliver a notice to each household. Notices will be hand delivered to each household as soon as it is safe to do so.

If it is not safe to hand deliver a written notice and telephone service is still available in the community, the notice information can be delivered by a telephone call to each household. FCZCCW will distribute a written notice as soon as it is safe to do so.

If the waterworks is too large to quickly and effectively reach with a written notice it may be necessary to deliver notices using local radio or television stations. Reverse 911 calling may also be available in your city or county. Local radio and television stations that serve the area may be used if written and telephone notices are unavailable or impractical, the radio or television message will include all of the points covered in a printed boil water notice or do not use notice.

##### **7.5.2 Spanish Notices**

Most of the notices in this EMP are available in Spanish at the ODW website at [www.vdh.virginia.gov/ODW/EmergencyPlanningTools.htm](http://www.vdh.virginia.gov/ODW/EmergencyPlanningTools.htm).

#### **7.6 Drinking Water Corrected Notices**

When the ODW Field Office advises FCZCCW to lift or rescind the boil water or do not drink notice and after receiving concurrence from ODW, the waterworks will use the Drinking Water Problem Corrected form found in [Appendix E](#) to notify your customers that tests have shown that the water is safe to drink, and that the situation has been resolved. This notice will include a description of any follow-up actions that customers should follow, such as flushing plumbing fixtures prior to using the tap water without boiling, etc.

## **7.7 Appendices**

[Appendix A](#) - Customizable Boil Water Notice – This form is available in two formats: as an electronic format for completion on a computer using Microsoft Word, and as the lined form for completion by hand provided here. The electronic version includes prompts for completing the required information. Electronic copies can be downloaded at the ODW website and saved to your computer. After customizing the notice, make copies to distribute to each household by hand delivery. This form is designed to meet all of the requirements of the Public Notification Rule. This form is also available in a Spanish language version.

[Appendix B](#) - Generic Do Not Use Notice – Used to quickly provide a warning to customers when it is not possible to make copies of a customized, detailed notice because of power outages. A supply of these forms will always be kept on hand. These forms are also available in a Spanish language version.

[Appendix C](#) - Generic Boil Water Notice– Used to quickly provide a warning to customers when it is not possible to make copies of a customized, detailed notice because of power outages. Print a supply of these forms will always be kept on hand. These forms are also available in a Spanish language version.

[Appendix D](#) - Virginia Department of Health Boil Water Notices Brochure – Provides supplemental information on the proper procedures for boiling tap water, written in a question-and-answer format. The document is designed for two-sided printing, to be folded as a brochure. A supply of these brochures will always be kept on hand. The brochure can be delivered to customers each year with annual Water Quality Reports (also known as Consumer Confidence Reports). Copies can be given to new customers or new billing units when water service begins. Copies of the brochure should also be distributed to customers along with a boil water notice during an emergency. This form is also available in a Spanish language version.

[Appendix E](#) - Drinking Water Problem Corrected Notice – This form - for customization on the computer or by hand - is used to inform customers that the situation has been resolved, and that it is no longer necessary to boil tap water. The form is also available in a Spanish language version. If there are special instructions that customers should follow, such as flushing lines before resuming normal water use, they should be described in the space provided on the form.

## 8. Glossary

**Boil Water Notice** — notice to all customers or consumers of affected waterworks not to drink water without first boiling water for at least 1 full minute. A notice could be issued due to positive sampling of bacteria or as a precautionary measure during the response phase of a natural disaster or a terrorist act.

**Disinfection** — a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

**Emergency Management Plan (EMP)** — for the purposes of this document, a plan of actions that outlines the steps that a waterworks takes to operate under an extended power outage condition.

**Emergency Response Plan (ERP)** — includes plans, procedures, and identification of equipment that can be implemented or utilized in the event of a terrorist or other intentional attack on the Community Water System. The ERP also must include actions, procedures, and identification of equipment which can obviate or significantly lessen the impact of terrorist attacks or other intentional actions on the public health and the safety and supply of drinking water provided to communities and individuals.

**Extended Power Outage** — an extended power outage is a loss of power that causes an interruption in a waterworks ability to provide water to its customers.

**Hypochlorite** — a solution of water and some form of chlorine, usually sodium hypochlorite.

**Potable Water or Pure Water** — water fit for human consumption that is (i) sanitary and normally free of minerals, organic substances, and toxic agents in excess of reasonable amounts and (ii) adequate in quantity and quality for the minimum health requirements of the persons served (see Article 2 (32.1-167 et seq.) of Chapter 6 of Title 32.1 of the Code of Virginia).

## APPENDIX A: Boil Water Notice Template

### Notice to Customers of \_\_\_\_\_ Waterworks

Este informe contiene información muy importante sobre su agua potable.  
Tradúzcalo o hable con alguien que lo entienda bien.

# BOIL YOUR TAP WATER

**Failure to follow this advisory could result in stomach or intestinal illness.**

The \_\_\_\_\_ Water System is advising residents to use boiled tap water or bottled water for drinking and cooking purposes as a safety precaution. This precaution is necessary because \_\_\_\_\_

## DO NOT DRINK TAP WATER WITHOUT BOILING IT FIRST

Boiled or bottled water should be used for drinking, beverage and food preparation, and making ice **until further notice**. Boiling kills bacteria and other organisms in the water. Boiling is the preferred method to assure that the tap water is safe to drink. Bring all tap water to a rolling boil, **let it boil for one (1) minute**, and let it cool before using, or use bottled water.

If you cannot boil your tap water...

- An alternative method of purification for residents that do not have gas or electricity available is to use liquid household bleach to disinfect water. The bleach product should be recently purchased, free of additives and scents, and should contain a hypochlorite solution of at least 5.25%. Public health officials recommend adding 8 drops of bleach (about ¼ teaspoon) to each gallon of water. The water should be stirred and allowed to stand for at least 30 minutes before use.
- Water purification tablets may also be used by following the manufacturer's instructions.
- Potable water is available at the following locations: \_\_\_\_\_

We will inform you when you no longer need to boil your water. To address this problem we are \_\_\_\_\_ . We anticipate resolving the problem within \_\_\_\_\_ .

For more information call:

Waterworks contact: \_\_\_\_\_  
Name Address Phone

*Please share this information with all the other people who drink 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.*

Date: \_\_\_\_\_

**APPENDIX B: Do Not Use Notice Template**

# **DO NOT USE TAP WATER**

**Failure to follow this advisory could result in illness.**

## **DO NOT USE YOUR TAP WATER - USE ONLY BOTTLED WATER.**

During the recent storm, unknown chemical substances may have contaminated our drinking water. Until we can investigate further and have the water tested, avoid all contact with the tap water. Only bottled water should be used for all drinking, beverage and food preparation (including baby formula and juice), making ice, brushing teeth, washing dishes or clothes, washing hands, and bathing until further notice.

## **DO NOT TRY TO TREAT THE WATER YOURSELF**

Boiling, freezing, filtering, adding chlorine or other disinfectants, or letting the water stand will not make the water safe.

*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly*



## APPENDIX C: Do Not Use Notice Template

# BOIL YOUR TAP WATER

Failure to follow this advisory could result in stomach or intestinal illness.

## DO NOT DRINK TAP WATER WITHOUT BOILING IT FIRST

Boiled or bottled water should be used for drinking, beverage and food preparation, and making ice **until further notice**. Boiling kills bacteria and other organisms in the water. Boiling is the preferred method to assure that the tap water is safe to drink. Bring all tap water to a rolling boil, **let it boil for one minute**, and let it cool before using, or use bottled water.

If you cannot boil your tap water....

- An alternative method of purification for residents that do not have gas or electricity available is to use liquid household bleach to disinfect water. The bleach product should be recently purchased, free of additives and scents, and should contain a hypochlorite solution of at least 5.25%. Public health officials recommend adding 8 drops of bleach (about ¼ teaspoon) to each gallon of water. The water should be stirred and allowed to stand for at least 30 minutes before use.
- Water purification tablets may also be used by following the manufacturer's instructions.

*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly*

APPENDIX D: Do Not Use Notice Template

# BOIL WATER NOTICES



Answers to frequently asked questions



**If you cannot boil your tap water because of a power outage....**

In an emergency, boiling is the preferred method for making sure tap water is safe to drink. The following are acceptable alternatives if you cannot boil your tap water because of a power outage or loss of gas service:

- Use bottled water.
- Use liquid household bleach to disinfect tap water. The bleach product should be recently purchased, free of additives and scents, and should contain a hypochlorite solution of at least 5.25%. If the water is clear, add 8 drops of bleach (about ¼ teaspoon) to each gallon of water. Add twice the amount of bleach (16 drops, or ½ teaspoon) to each gallon if the water is cloudy. After adding bleach, the water should be stirred and allowed to stand for at least 30 minutes before use.
- Water purification tablets may also be used to disinfect tap water by following the manufacturer's instructions.

Prepared by VDH Office of Drinking Water  
June 2008

For additional information write to:  
VDH Office of Drinking Water  
Director of Technical Services  
109 Governor Street, 6<sup>th</sup> Floor  
Richmond, Virginia 23219



**Can I haul water from my neighbor's well or spring for drinking purposes?**

No. You should only use water from an approved, tested source. Without routinely testing the water there is no way to know if the water is safe to drink.

**Should I boil the tap water I give to my animals or pets?**

You can boil the tap water you give to the animals in your care. Your veterinarian can tell you if this precaution is necessary.

**What should I do if I become sick?**

See your family physician or healthcare provider. Your doctor may call the Virginia Department of Health Office of Drinking Water at (804) 864 7500 for information about the boil water notice. Your doctor should notify the local health department if he or she suspects your illness was caused by microorganisms in the water.

Some people may be more vulnerable to contaminants. People with weakened immune systems, such as people with cancer undergoing chemotherapy, organ transplant patients, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be at greater risk from infections. These people should seek advice about drinking water from their health care providers. Guidelines on ways to reduce the risk of infection from microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

**How will I know when it is safe to drink my tap water?**

You will be notified when tests show that the tap water is safe to drink. You may be asked to run water to flush the pipes in your home before using your tap water or be given other special instructions. Until you are notified, continue to boil all tap water for one minute before use.

### Why was I advised to boil my tap water?

You may be asked to boil your tap water during an emergency

- if tests show that harmful microorganisms could be present in the water,
- if the water pressure drops due to equipment failure or power outages,
- because of water main breaks or repairs,
- if the water source has been flooded, or
- during other situations that warrant special action to protect consumers' health.

### How does boiling make my tap water safe?

Boiling the water kills microorganisms such as bacteria, viruses, or protozoans that can cause disease. Boiling makes the tap water microbiologically safe.

### How long should I boil the water?

Bring tap water to a full rolling boil, let it boil for one minute, and let it cool before using.

#### Important Safety Tips



When boiling water on the stovetop, use manageable-sized containers and do not overfill them. Place the container on a rear burner if there are small children in the house. Let the water cool before transferring to another container.

### Can I boil water in the microwave?

Tap water can be boiled in the microwave in a microwave-safe container, provided that the water reaches a full rolling boil for one minute. Place a microwave-safe utensil in the container to keep the water from superheating (heating above the boiling point without forming steam or bubbles).



### Do I have to boil the tap water used to make beverages?

Yes. Boil all of the tap water you use for making coffee, tea, mixed drinks, Kool-Aid or any beverage made with water. In addition, all tap water used for making ice for consumption must be boiled.

### Should I boil the tap water used to make baby formula?

Yes. Only use boiled tap water or bottled water for mixing formula for your baby.

### Do I need to boil water before using it to wash vegetables that will be eaten raw?

Yes. Boil all of the tap water you use for washing raw vegetables.

### Should I boil the tap water used in cooking?

All tap water used in cooking must first be boiled for one minute, unless the cooking process involves boiling for one minute or more.

### Do I have to boil my dish-washing water?

No. Adding a tablespoon of household bleach such as Clorox to a sink full of tap water should be sufficient to treat the water used for washing dishes. Bleach should also be added to the water used for rinsing dishes. Allow dishes and utensils to air dry before reuse.

You may wash dishes in an electric dishwasher, but be sure to use it with its heating elements turned on. After washing in an electric dishwasher, dishes should be rinsed in water with a tablespoon of bleach added, and allowed to air dry before reuse.

### Should I boil tap water for brushing my teeth?

Yes. Any tap water that might be swallowed should be boiled before use.

### Is it necessary to boil water to be used for hand washing? Is any special soap necessary?

No. It is not necessary to boil the tap water used for washing hands, and no special soaps are necessary.

### What about my bath water?

There is no need to boil water for bathing or showering. Adults, teens, and older children, can shower or bathe, though they should avoid getting water in the mouth or swallowing the water. Infants and toddlers should be sponge bathed. No special soaps are necessary.

Care should be taken to prevent water from getting into deep open or post-surgical wounds. Consult your physician or health care provider for wound care instructions.

### Do I need to use boiled water for washing clothes or flushing the toilet?

No.



### Do I still have to boil tap water if I have a water treatment device?

Yes. Devices designed to improve the taste, odor, or chemical quality of the water, such as activated carbon filters, will not remove harmful microorganisms from the tap water. Boil the tap water to make sure it is safe.

### Can I use bottled water instead of boiling tap water?

Yes. Bottled water can be used for all of the situations where boiled tap water is recommended in this brochure. Be sure that the bottled water is from a reliable source.

## APPENDIX E: Do Not Use Notice Template

### DRINKING WATER PROBLEM CORRECTED

Customers of \_\_\_\_\_ were notified on \_\_\_\_\_ of a problem with our drinking water, and were advised to \_\_\_\_\_. We are pleased to report that the problem has been corrected and that it is no longer necessary to \_\_\_\_\_. We apologize for any inconvenience and thank you for your patience.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

As always, you may contact \_\_\_\_\_ at \_\_\_\_\_ (phone) or \_\_\_\_\_ (address) with any comments or questions.

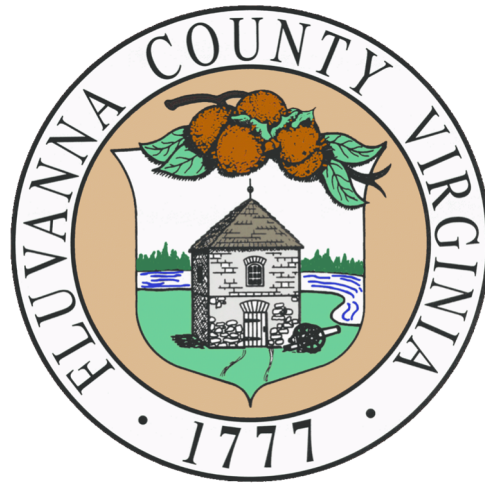
*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by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

This notice is being sent to you by \_\_\_\_\_

Date \_\_\_\_\_

FLUVANNA COUNTY ZION CROSSROADS COMMUNITY WATERWORKS

UTILITY STANDARDS MANUAL



Public Works Department  
Fluvanna County  
P.O. Box 540  
Palmyra, VA 22963

September 2022

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# Fluvanna County Utility Standards Manual

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# Utility Standards Manual

## 1 General Conditions

### 1.01 Purpose and Authorization

The Fluvanna County Utility Standards Manual (USM) details the policies, procedures and standards required for the design and construction of water mains, sanitary sewers and their appurtenances which are to be owned and/or operated by the County.

As a policy and standards document, this Utility Standards Manual (USM) is supplementary to the Commonwealth of Virginia State Water Control Board Sewage Treatment and Collection Regulations (SCAT Regulations), the Uniform Statewide Building Code, and the Virginia Department of Health Waterworks Regulations (Waterworks Regulations) and is not intended to supersede these regulations. Where conflicts exist, the more stringent requirements shall apply. Nothing herein shall be deemed to waive or modify other requirements of existing regulations and law. Conflicts are encouraged to be brought to the attention of the Director of the Department of Public Works, County Engineer or the County Administrator.

These Standards are not intended to address all situations encountered in the design and construction of water and sewer facilities. It is understood that variances, as well as exceptions, may be warranted depending upon the nature of the specific application. Variances are addressed in Section 1.08.

These Standards, policies and regulations have been adopted by the Fluvanna County Board of Supervisors. Amendments to the Standards, when approved by the Board, shall take effect immediately. Plans submitted and accepted for review shall be reviewed to comply with the standards existing at the time of submittal.

### 1.02 Definitions and Abbreviations

A) Definitions - The following definitions are used throughout the text:

Board -	The Board of Supervisors of Fluvanna County, Virginia.
County Administrator -	The County Administrator of Fluvanna County, Virginia. The County Administrator may delegate his authority hereunder to the Director of Public Works.
Design Engineer -	The professional engineer or licensed surveyor representing the Developer, and responsible for the project plans and specifications.
Developer -	The owner, or designated representative of the owner, of a project or subdivision for which water and/or sewer systems are to be owned and/or operated by the County.

County Engineer -	The County Engineer, if one is so serving, or his designee; however, if the County does not have an acting County Engineer, then the County Engineer shall mean the Director of Public Works, or his designee. The County Engineer (including the Director of Public Works) may hire or use an outside contract engineer as needed with respect to reviews of any engineering matters affecting this Chapter or applications, submittals or plans of any kind submitted under this Chapter.. The Department of Public Utilities is a department of the Department of Public Works.
Plan Amendments -	Changes to Project Plans initiated by the Developer which are made after the Plans have been approved by the County.
Plan Revisions -	Changes and/or corrections made to Project Plans during the review process to render them approvable by the County.
Project Plans -	The site plan, subdivision plan or public improvement plan containing the design and specifications for water and sewer systems as well as any other public improvements or construction plans associated with the project.

B) Abbreviations - In order to remain concise and enhance readability, the following abbreviations are used throughout these standards:

AASHTO -	American Association of State Highway Transportation Officials
ANSI -	American National Standards Institute
ASTM -	American Society for Testing and Materials
AWWA -	American Water Works Association
BOCA -	Building Officials Code Administration
dft -	dry film thickness
fps -	feet per second
gpm -	gallons per minute
ISO -	Insurance Services Office
I.D. -	Internal Diameter
Kip -	1,000 pounds
KSI -	Kips per square inch
MGD -	million gallon per day
psi -	pounds per square inch
USM -	The Fluvanna County Utility Standards Manual
V -	Velocity
VDEQ -	Virginia Department of Environmental Quality

VDH -	Virginia Department of Health
VDOT -	Virginia Department of Transportation
VUSBC -	Virginia Uniform Statewide Building Code
% -	Percent

### **1.03 Project Plans Review Process**

Complete applications for review of Project Plans by the County shall be submitted by the Developer to the County Department of Community Development.

Review and approval of Project Plans by the County is required for all projects which propose to construct or connect to Public and/or Community Water and/or Sewer systems in Fluvanna County. Project Plans are reviewed for conformance with the requirements in the USM

Applications which require review by VDH and/or VDEQ shall be submitted by the Developer directly to those agencies for concurrent review. The applicant shall provide evidence of submission to the applicable agency or agencies at the time of initial plans submission to the County. In situations where review by the VDH and/or VDEQ is required, modifications to project plans required by the County shall be incorporated in final submissions to those agencies (and vice versa). In this manner, Project Plans reviewed by the County and by the VDH and/or VDEQ will be the same document.

Evidence of approval by the VDH and/or VDEQ as applicable shall be provided by the applicant prior to final approval by the County of any Project Plans.

An Engineer's Completion Statement and As-Built Drawings, prepared in accordance with Section 1.07 of the USM, shall be submitted to the County before final construction inspection of water and/or sewer utilities will be approved, beneficial use certificate(s) issued and/or associated bonds released.

### **1.04 Project Plans Submittal Requirements**

- A) A complete submission package shall be submitted to the County, as directed by the County Engineer, prior to the County's review of the Project Plans. The following items **MUST** be in the submission package in order for it to be deemed complete:
- 1) Completed Fluvanna County Application for Utility Extension Form (Form No. ENGR-0001).
  - 2) One completed Fluvanna County Plans and Profiles Submission Package Checklist (Form No. ENGR-0002).
  - 3) A fee check in the amount computed using the appropriate Water and Sewer Construction Plan Review Fee Computation Sheet (Form No. ENGR-0003).
  - 4) One (1) complete set of Project Plans, including all water and/or sewer utility plans and profiles prepared in accordance with the requirements in Section 1.05 of the USM.
  - 5) A digital file, prepared in a format of PDF and GIS shapefile, of the geometric layout of all water and sewer lines proposed on the Project Plans.

- 6) One completed Fluvanna County Water Meter Sizing Form (Form No. ENGR-0006) if applicable.
- B) Incomplete submittal packages shall be returned to the applicant or his agent without review.
- C) All material submitted to the County become the property of the County. The County shall have unrestricted use of such materials.
- D) An easement plat or plats prepared in accordance with Section 1.09 of the USM shall accompany the second submission of the Project Plans.
- E) An Inspection Fee computation prepared on Form No. ENGR-0004, shall accompany the second submission of the Project Plans.
- F) A Bond Estimate prepared on Form No. ENGR-0005, shall accompany the second submission of the Project Plans.
- G) Each resubmission of Project Plans shall be accompanied by a detailed, itemized comment response letter indicating how each comment from the County's previous review was addressed.

### **1.05 Project Plans Preparation Requirements**

All water and sewer facility designs shall be performed in accordance with the requirements in the USM. The following information is required on all Project Plans submitted to the County:

- A) Plans shall be prepared on 36" x 24" print paper.
- B) The Plans for water and sewer facilities, including plans, profiles, details, computations and related materials shall be on sheets which are grouped together within the overall set of Project Plans.
- C) A single plan view sheet shall be provided, as part of the Project Plans, at appropriate scale to clearly show all proposed water and sewer lines and facilities, as well as their connection point(s) to existing facilities. For subdivisions, this sheet shall clearly indicate which lots are to be provided water and sewer service with the Project Plans, as well as any construction phasing proposed. This sheet shall be placed at the beginning of the water and sewer portion of the Project Plans.
- D) All existing water and sanitary sewer facilities and easements within and immediately adjacent to proposed limits of construction shall be clearly shown on the plans. Profiles of existing water and sewer lines shall also be included if cover is to be increased or decreased over the lines, or if new connections are proposed to them.
- E) Details of all proposed connections to existing facilities shall be provided. These shall be clearly labeled on the plan view with appropriate test-pit locations shown and labeled.

- F) Plan and profile sheets in standard VDOT Plan & Profile format, with plan and profile views on the same sheet, shall be provided for all proposed water and sewer lines. These shall be presented separately from other plans and/or profiles associated with the project. Scale shall be Horizontal: 1"=50' and Vertical: 1"=5'. Plan views shall clearly show all required water and sewer lines and appurtenances highlighted or bold. Other items related to construction, including but not limited to roads, right of way and property lines, easements, lot numbers, building locations, driveways, curb and gutter, sidewalk, storm sewer lines and structures and grading shall be clearly shown but screened back so as to accentuate the water and sewer utilities. Stationing shall be along the centerline of the pipe and shall be complete and consistent in all views. The plan view(s) shall be placed in the upper portion of the sheet with accompanying profile(s) presented below.
- G) All pipe crossings shall be shown and labeled in both plan and profile views. Minimum cover and minimum "outside wall to outside wall" vertical separation distances shall be noted on profiles.
- H) For water lines and sewer force mains, complete call-outs, stationing, size and type of all pipes and appurtenances (valves, hydrants, bends, tees, service connections, etc.), along with all other information necessary for construction of the lines shall be clearly shown on the profiles. Stationing, pipe size and materials, and types of appurtenances shall be clearly labeled on the plan view. All information shall be consistent between plan and profiles.
- I) The location(s) of all proposed siamese connections to buildings receiving service for fire suppression shall be clearly shown on the plans.
- J) For gravity sewer lines, stationing, inverts, lengths, slopes, pipe size and material, manhole top elevations, manhole labels and all other related information necessary for construction of the sanitary sewer lines shall be clearly shown on the sanitary sewer profiles. Manhole top elevations shall be shown as spot-shots in the plan view. All information shall be consistent among plans, profiles and design tables.
- K) Complete call-outs of all manholes and lateral connections on sewer mains shall be clearly labeled on plan and profile views, and shall be consistent among plans, profiles and design tables. Flow direction arrows shall be shown at each sanitary manhole on the plan view.
- L) A table which provides Northing and Easting coordinates, in NAD 83 coordinate system, for each sanitary manhole shall be included in the plans.
- M) A complete gravity sewer design table consistent with Detail G-6 in the USM and a separate sanitary lateral table shall be included in the plans.
- N) All lot numbers, property lines, easements and rights of way shall be clearly shown on water and sewer utilities plan and profile sheets.
- O) For each lot or building on the plans, the lowest finished floor elevation to be served by sewer, and the difference between this elevation and the invert of the main at the connection point, shall be indicated in the sanitary lateral table. These elevations shall be calculated in accordance with, and demonstrate compliance with, Section 7.08 of the USM.



- P) All stream crossings, road crossings, bores and jacks and crossings of other utilities by proposed water and/or sewer lines shall be clearly shown and labeled in both the plan and profile views for those lines.
- Q) Detail Sheet(s), showing all applicable Standard Details, and including the County's Standard Water and Sewer Construction Notes shall be included in the Project Plans.
- R) Plan and profile views shall be consistent from sheet to sheet across "match lines".
- S) All plans shall be produced in NAD 83 State Plane Coordinate System.
- T) The seal and signature of the Professional Engineer registered in the Commonwealth of Virginia who prepared the plans shall be on each sheet.
- U) A Vicinity Map at an appropriate size and scale to clearly show the location of the project within the County.
- V) North Arrow (each plan view).
- W) The scale shall be correctly depicted on all plans and profiles as well as other applicable sheets. A Graphic Scale shall be provided for all plan views.
- X) The lot numbers, building numbers and/or other unique identifying information for each proposed connection to the water and sewer utilities presented on the Project plans shall be clearly delineated on the cover sheet along with the main title. The total number of lots, buildings, structures and other facilities proposed to be served shall be clearly noted on the plans.

### **1.06 Project Construction Requirements**

All construction of water and sewer facilities shall be performed in accordance with the approved Project Plans, this manual, Applicable Law as defined by Chapter 21 of the Fluvanna County Code, and all other applicable portions of the Fluvanna County Code. Prior to the start of construction of a particular project, the following items must be addressed:

- A) Project Plans must be approved by the County prior to the start of construction.
- B) All required Inspection Fees shall be paid.
- C) All required Bonds shall be posted.
- D) Shop drawings and materials certifications for all water and sewer related construction shall be submitted to the County for review and comment prior to the required Pre-Construction conference. All submittals for a given project shall be made simultaneously.
- E) A Pre-Construction conference must be held. This shall be scheduled with the County's Construction Inspector. Attendees shall include, but not be limited to, the developer, the construction contractor and the consulting engineer.

## 1.07 Engineer's Completion Statement & As-Built Drawings

After completion of construction of the facilities, but prior to requesting a Beneficial Use Inspection, the Developer or Owner responsible for construction shall submit an Engineer's Completion Statement and As-Built drawings.

The Engineer's Completion Statement shall be prepared, signed and sealed by a professional engineer registered to practice in the Commonwealth of Virginia. The statement shall conform to the requirements contained in the Commonwealth of Virginia State Water Control Board Sewage Treatment and Collection Regulations and the Virginia Department of Health Waterworks Regulations.

As-built drawings shall accurately depict the actual locations and elevations of all water and sewer facilities constructed as part of the approved plans. They shall be based on a field survey and on the red-line drawings maintained by the Owner or his contractor during the construction process. The as-built drawings shall clearly indicate any/all areas where construction substantially deviated from the approved plans. The as-built drawings, and all subsequent revisions to the drawings, shall be properly sealed and signed by a Professional Engineer registered in the Commonwealth of Virginia. One complete copy of the Owner/contractor's red-line construction drawings and two paper sets of as-built drawings shall be submitted to the County's Department of Community Development, along with a CD-ROM containing AutoCad 2002 (or compatible) files of all as-built plan and profile information. Individual AutoCad Plot files with borders are not required so long as a complete set of plans is included on the CD-ROM as pdf file(s). The as-built drawings shall, at a minimum, include the following:

### A) As-Built Information for Water Mains and Sewage Force Mains

- 1) Plans and profiles corrected to accurately depict the location of all water lines and fittings.
- 2) Exact measurements showing the positive locations of all valve boxes, blind or blank-flanged fittings and plugged terminals of mains.
- 3) The measurements taken for these positive locations shall be taken from at least two reasonably adjacent and available fixed and permanent objects or reference points, such as fire hydrants, centers of sanitary or storm sewer manhole casting covers, corners or extended lines of buildings, power or telephone poles etc.

### B) As-Built Information for Gravity Sewers

- 1) Plans and profiles corrected to accurately depict the locations of all manholes, with inverts and top elevations and numerical notations of the exact elevations of same.
- 2) Indications of lengths and grades of lines between manholes and numerical notations of the exact lengths and grades.
- 3) Locations of all cradles, encasements or special construction.

- 4) The measurements taken for these positive locations shall be taken from at least two reasonably adjacent and available fixed and permanent objects or reference points, such as fire hydrants, centers of sanitary or storm sewer manhole casting covers, corners or extended lines of buildings, power or telephone poles etc.

C) As-Built Information for Water Pump Stations, Sewage Lift Stations and Building Structures

- 1) As-built drawings and specifications shall accurately indicate all approved deviations from, or changes in, location, and/or types of equipment installed, or materials used from the approved plans and/or specifications.
- 2) Complete listings of the name of the manufacturer of all operating equipment installed, together with model or style numbers, ratings, pump curve capacities and other pertinent information shall be provided as part of the as-built plans for the project.
- 3) At least three complete sets of shop drawings, operations and maintenance manuals of all operating equipment, all Certificates of Inspections, Approvals, Warranties and Guaranties of Equipment, Materials and Installations thereof, required by the plans and specifications approved by the County, shall be provided as a part of the as-built plans for the project.

### **1.08 Variances from USM Requirements**

- A) Materials & Equipment Variance - The design and construction of all facilities shall be in strict accordance with this manual and the approved plans and specifications. Variances are defined as approval of specific engineering design practices when deemed to be exceptional and reasonable by the County Engineer or County Administrator. Requests for variances are to be included in the cover letter, or letter of transmittal, accompanying the application. Variances shall be fully described and justified by the Design Engineer.
- B) Where noted herein and on the approved plans and specifications, the use of equivalent equipment and materials will be permitted subject to the following criteria:
- C) A formal request to furnish or use substitute material and equipment that is equal to specified material and equipment must be made in writing to the County Engineer or County Administrator. All pertinent information, plans, shop drawings, documents, drawings, certifications and other data which may be necessary for the Engineer or County Administrator to evaluate the suitability of the substitute material and equipment shall be attached. The property owner shall be responsible for all expenses associated with the determination of suitability or unsuitability of substitute materials and equipment.
- D) By submitting such a request, it is warranted and represented that the proposed substitute will perform properly, be of similar and of equal design, construction and quality to that specified, and be suited to the same use and be capable of performing the same function as the specified material or equipment. A replacement bond in the face value of 150 percent of the cost of the substitute material and equipment will be provided if required by the County. The County Administrator will determine the necessity for and the amounts of all replacement bonds.

- E) A written certification of satisfaction of the above requirements shall be submitted by the person making the application, and shall additionally include the certification of the substitute material and equipment supplier.
- F) No substitute materials or equipment shall be ordered or installed without the written acceptance of the County Engineer or County Administrator.
- G) In all cases, the decision of the County Administrator shall be final. Each request for variance will be considered individually on its own merits.

## **1.09 Easements and Plats**

Water and sewer utilities which will become the property of the County, and which do not lie wholly within a public right-of-way, shall require easements dedicated to the County, and as follows:

- A) Minimum easement widths shall be 20 feet for water mains and sewage force mains and 25 feet for gravity sanitary sewers, except as noted herein.
  - 1) Increased or decreased easement widths may be required, when so determined by the County Engineer or County Administrator.
  - 2) Decreased easement widths along rights of way of internal subdivision streets will be permitted with the approval of the County Engineer or County Administrator and in accordance with the appropriate Utility Location & Easement Layout Detail.
- B) In cases deemed necessary by the Engineer or County Administrator, and in order to assure routine and emergency maintenance, access (ingress/egress) easements shall be provided.
- C) Final Subdivision/Site Plan Utility Plats are required to have the following labels and notes prior to approval by the County for their recordation:
  - 1) Each Utility Easement and or Fee Lot shall be labeled "HEREBY CONVEYED TO FLUVANNA COUNTY"
  - 2) The width of Each Utility Easement shall be noted (i.e. "15' Utility Easement", "20' Utility Easement" etc.) and, in cases of irregularly shaped Utility Easements shall be noted as "Variable Width Utility Easement".
  - 3) The area of each Utility Easement and/or Fee Lot shall be calculated and noted in square feet. This notation may be done in the form of a Table on the Plat so long as each easement is clearly labeled on the Plat and can be easily associated with its corresponding entry in the Table.
  - 4) OWNER(S) CONSENT STATEMENT AND DEED OF EASEMENT AND CONVEYANCE TO FLUVANNA COUNTY (the "County"): In consideration of the County's approval, the conveyances made hereby and the consideration received therefore by the Owner(s), the receipt and sufficiency of which are hereby acknowledged, the Owner(s) hereby

grants, conveys and transfers to the County the easements and areas specifically identified on this Plat of Subdivision/Site Plan/Utility Plat as "HEREBY CONVEYED TO FLUVANNA COUNTY" over and upon the property for the purpose of installing, constructing, operating, maintaining, inspecting, repairing, replacing, adding to or altering, changing the size of, and removing one or more present or future water and sewage utility lines, plus necessary valves, hydrants and appurtenances for the collection, distribution and transmission of water and sewage through the property subject to the terms and conditions noted thereon. Further, the conveyance hereby of all water and sewage utility lines, valves, hydrants or appurtenant facilities which are constructed and installed or are hereafter constructed and installed within those areas in accordance with the County's Utility Standards Manual as it exists or may be hereafter amended, is with the free consent and in accordance with the desires of the undersigned Owner(s), and/or Proprietor(s)/Trustee(s), if any. Finally, the aforesaid Owner(s), and/or Proprietor(s)/Trustee(s), if any, further assert that he/she/it/they has/have the right to grant the rights and privileges thereto.

- 5) A County Approval Block.
- 6) The following Easement Terms and Conditions (1-7, and 8 where applicable) shall be included on the Plat:

**Easement Terms and Conditions:**

- 1) All streets, service drives, trails and driveways and all other appurtenant facilities installed by the Landowner(s) in the Easement(s), with the prior written approval of the County, shall be and remain the property of the Landowner(s) its/their(s) successors and assigns, who shall at their sole expense maintain the property and such facilities.
- 2) The County and its agents shall have full and free use of the Easement(s) for purposes of the construction, grading, operation, maintenance and/or replacement of water and sewage lines, any and all appurtenant facilities, and related activities; and shall have all rights and privileges reasonably necessary to the enjoyment and exercise of the Easement(s), including the right of access to and from the Easement(s) and the right to use adjoining land of the Landowner(s) to the extent necessary to facilitate the uses named; provided, however, that this right to use adjoining land shall be exercised only during periods of actual surveying, installation, construction, reconstruction, replacement, alteration, maintenance, inspection, operation and/or repair of the water and sewage lines and their appurtenant facilities, and then only to the minimum extent necessary for such work; and further, this right to use adjoining land shall not be construed to allow the County to erect any building or structure of a permanent nature on such adjoining land.
- 3) The County shall have the right to trim, cut and remove trees, shrubbery, fences, structures, or other obstructions in or near the Easement(s) being conveyed, deemed by the County to interfere with the proper and efficient construction, grading, operation, maintenance and/or replacement of water and sewage lines, any and all appurtenant facilities, and related activities; provided, however, that the County at its own expense shall restore the premises, such restoration to include the backfilling of

- trenches and the reseeding of lawns or pasture areas, but not the replacement of pavement, curb & gutter, sidewalks, structures, trees, shrubbery, fences or other obstructions within the Easement(s).
- 4) The Landowner(s) may reserve(s) the right to make any use of the Easement(s) being granted which may not be inconsistent with the rights being conveyed, or interfere with the use of the Easement(s) by the County for the purposes named, provided, however, that the Landowner(s) shall not erect any building or other structure, including a fence, on the Easements, without obtaining the prior written approval of the County.
  - 5) The County shall not be liable for any damages to shrubbery or other obstructions within the Easement(s), for all trees outside the Easements trimmed or felled during the initial construction stage of the County's facilities, or for any damages to the residue of the property during the construction period.
  - 6) The County shall have the right to install, construct, operate, maintain, inspect, add to or alter, repair and replace electric and telephone lines and any appurtenant facilities for the transmission or distribution of electric power and communication service within the Easement(s) which serve(s) only the County's facilities. The County may assign these rights in whole or in part to one or more Virginia public service corporations.
  - 7) Any easement granted by this plat which overlaps, or whose boundaries coincide with, an easement granted to the County, shall be subordinate to the County's easement and any exercise of rights by the subordinate easement holder shall be subject to the written approval of the County.

*In cases where the County, in its sole discretion, determines that either Temporary Easements(s) and/or Construction Easement(s) are required as part of the project, the following condition shall be added to the aforesaid list:*

- 8) Temporary/Construction Easement(s) shall automatically terminate after the utility lines have been installed, all pipelines have been satisfactorily tested and the disturbed areas have been adequately stabilized and restored.
- D) Requisite legal instruments (Deeds/Utility Easements/Subordination Agreements etc.) shall be formatted in accordance with County guidelines and recorded concurrently with the Final Subdivision and/or Site Plan Utility Easement Plats. The County requires Title Insurance for all real property conveyed to it in Fee Simple. The coverage provided and terms of such insurance shall be as deemed necessary by the County. Legal instruments are subject to review, approval and acceptance by the County and approval as to form by the County Attorney. The County must sign all such instruments prior to their recordation. The plat or plats associated with a particular set of project plans must convey all easements required for the completion of the construction proposed by the plans and for the acceptance of the associated water and/or sewer facilities by the County.

## 1.10 Applicable References

The following standards and regulations are applicable to water and sewer utility projects. The applicant shall address appropriate requirements of the same:

- A) American Water Works Association (AWWA), latest edition.
- B) American National Standards Institute (ANSI), latest editions.
- C) American Society for Testing and Materials (ASTM), latest editions
- D) Commonwealth of Virginia Sewage Control and Treatment Regulations, latest edition.
- E) Commonwealth of Virginia Waterworks Regulations, latest edition.

## 1.11 Preliminary Plan/Plat Preparation Requirements

All preliminary designs for water and sewer facilities associated with Preliminary Plans/Plats shall be performed in accordance with the applicable design requirements in the USM. The following information is required on all Preliminary Plans/Plats submitted to the County:

- A) All preliminary water and sewer facilities plans, profiles and details shall be on sheets which are grouped together in the Preliminary Plan/Plat set.
- B) A single plan view sheet shall be provided, as part of the Preliminary Plan/Plat, at appropriate scale to clearly show all proposed water and sewer lines and facilities, all connection point(s) to existing facilities, all proposed off-site facilities and all required Master Plan facilities proposed as part of the project. This shall be placed at the beginning of the water and sewer plans and profiles section of the Project Plans.
- C) Preliminary plan sheets of all proposed water lines shall be presented separately from other plans and/or profiles associated with the project. Scale shall be 1"=50'. The plan view shall show and label water lines and appurtenances "highlighted" with other items (e.g. roads, curb and gutter, sanitary & storm sewer lines, grading, etc.) shown but "screened".
- D) Preliminary water line plans shall include labeling of proposed line sizes and materials as well as call-outs of major appurtenances (hydrants, bends and tees) on proposed water lines.
- E) Preliminary Plan & Profile sheets (with P&P together on the same sheet in standard "VDOT format"), of all proposed sewer lines, shall be presented separately from other plans and/or profiles associated with the plan/plat. Scale shall be Horizontal: 1"=50' and Vertical: 1"=5'. The plan view shall show and label sewer lines and appurtenances "highlighted" with other items (e.g. roads, curb and gutter, water lines, storm sewer lines, grading, etc.) shown but "screened". The profile may be conceptual in nature but must depict the existing grade and preliminary finished grade above the pipe. Stationing shall be complete and consistent in all views.

- F) Depiction of all existing water and sanitary sewer facilities and easements within and immediately adjacent to proposed limits of construction.
- G) Consistency from sheet to sheet across "match lines".
- H) Preliminary Plan produced in NAD 83 State Plane Coordinate System.
- I) Seal and signature of Professional Engineer who prepared the plans shall be on each sheet.
- J) Vicinity Map.
- K) North Arrow (each plan view).
- L) Plans prepared on 36" x 24" Sheets.
- M) Scale (correctly depicted on all plans and profiles as well as other applicable sheets).
- N) The standard Fluvanna County Plan/Plat Approval Block shall be displayed on the cover sheet of the Preliminary Plan/Plat set.

### **1.12 Federal, State, and Local Approvals**

- A) Permit conditions for construction and maintenance shall be shown on the plans where any USACE Nationwide or Individual Permit, DEQ Virginia Water Protection Permit, Virginia Department of Health or Virginia Department of Environmental Quality Construction Permit, Plan of Development, Virginia Power Right-of-Way Crossing Permit, Railroad Crossing Permit, etc. is required.
- B) The Department shall approve all plans for erosion and sediment control before construction of water and sewer facilities may commence. The Department may require a preconstruction meeting at the project site prior to beginning such construction.
- C) Where VDOT Right of Way (ROW) is used, the contractor shall obtain a VDOT permit before construction is started. The contractor shall video tape the ROW and adjacent properties to assess the condition and provide a guideline for restoration of the property after completion.
- D) All wetlands shall be indicated on the plans. The contractor shall obtain permits, prior to going through, under or in any way impacting the wetlands, from all authorities having jurisdiction.

### **1.13 Contractor Qualifications**

- A) All utility work must be performed by a Class A licensed contractor deemed acceptable to the Department of Public Works. The Department of Public Works may allow service laterals to be installed by a licensed plumber. All utility construction shall be subject to inspection, testing, and approval by the Department of Public Works.



- B) The contractor shall personally supervise the work and when not personally present shall be represented by a superintendent who shall have full authority to act as the contractor's representative and all orders and instructions given to the superintendent shall have the same force and meaning as if given to the contractor in person. The superintendent or contractor shall be on duty at all times while construction work is being done.
- C) The Contractor shall take all responsibility for the work, and take all precautions to prevent injuries to persons and property in or about the work.
- D) Until final acceptance of the work by the County, it shall be under the charge of the Contractor, and he shall take every care and necessary precaution against injury or damage to the work or any part thereof by the action of the elements or any other cause whatsoever, whether arising from the execution or the non-execution of the work.
- E) The Contractor shall rebuild, repair, restore and make good, at his expense, all injuries or damage to work occasioned by any of the above causes before it will be accepted.

#### **1.14 Discrepancies**

Any discrepancies found between the plans and the County's specifications and site conditions or any inconsistencies or ambiguities in the plans or specifications shall be immediately reported to the County Engineer and County Administrator, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk.

#### **1.15 Correction of Work**

- A) The Contractor shall promptly remove from the premises all work rejected by the Engineer or County Inspector for failure to comply with the County's specifications, whether incorporated in the construction or not, and the Contractor shall promptly replace and re-execute the work in accordance with the County's specifications and shall bear the expense of making good all work of other Contractors that may potentially be destroyed or damaged by such removal or replacement.
- B) All removal and replacement work shall be done at the Contractor's expense. If the Contractor does not take action to remove such rejected work within ten (10) days after receipt of Written Notice, the County may remove such work and store the materials at the expense of the Contractor.
- C) The contractor shall promptly remove from the premises all work rejected by the engineer or County for failure to comply with the County's specifications, whether incorporated in the construction or not, and the contractor shall promptly replace and re-execute the work in accordance with the County's specifications and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement. If the contractor does not take action to remove such rejected work within 10 days after receipt of

written notice, the County may remove such work and store the materials at the expense of the developer.

## **1.16 Job Safety**

The County shall not be responsible for the Contractor's safety precautions or to means, methods, techniques, sequences or procedures required for the Contractor to perform his work; such precautions include but are not limited to shoring, scaffolding, underpinning, temporary retainment of excavation and any erection methods and temporary bracing.

## **1.17 Existing Structures**

### **A) Existing Structures**

- 1) The location of existing sewers, water and gas pipes, conduits, other utilities, and structures across or along the line of the proposed work may not be shown on the plans, and if shown, the location, depth and dimensions of such structures may only be approximately correct. The contractor shall have a working pipe locator on the job at all times and utilize hand excavation to locate existing underground facilities as appropriate.
- 2) The contractor shall dig test holes for the purpose of locating existing underground structures as required to protect existing underground structures. Such excavation shall not be undertaken without 48 hours prior notice to the County or owner of the existing facility.

### **B) Care of Existing Structures**

- 1) The contractor shall be liable for all damage done to any structure or property arising through his negligence or carelessness. He shall take care of and maintain all underground, overhead or surface utilities encountered in the performance of the work.
- 2) Prior to commencing work contractor shall contact the Utility Information Center ("Miss Utility"), telephone 1-800-552-7001 for marking of existing underground utilities.
- 3) The contractor shall observe all precautions with respect to fire and avoid the indiscriminate mutilation or cutting down of trees. Any damage to property not in the work area or easements will be the contractor's responsibility to repair and restore.

## **2 Water Supply Systems**

### **2.01 General**

The requirements of these standards must be satisfied for all water systems and water system extensions which are to be incorporated into the County inventory. Such systems include

construction within areas of existing or proposed easements on private property dedicated to the County or within a public right-of-way. Specific variances to these standards must be approved and authorized in writing by the County Administrator upon request of the applicant.

All standards referenced in this section shall refer to the latest edition of the referenced standard at the time of final approval. The authority for amendment to water standards shall vest with the County Engineer, County administrator, or the Board. Any references to acceptance and/or approval shall mean acceptance and/or approval by the County.

## **2.02 Capacity and Fire Flows**

All water systems and water system extensions shall be designed so as to adequately supply the projected peak day flow within the subdivision or project under consideration while maintaining a pressure of not less than 35 psi at all points of delivery in the system (existing and proposed). Additionally, all water systems and water system extensions shall be designed to provide the fire flows specified by the Fluvanna County Code or as determined by the County, plus the maximum day demand required by the County, with a residual pressure of not less than 20 psi at any point in the distribution system (existing and proposed).

Fire flow calculations must be included with all project plans submitted for review and approval. The flow calculations will be prepared using Hazen-Williams Equation methodology with WaterCad Version 6.5 software, or other model approved by the County Engineer.

For pipes 12 inches in diameter and larger, Hazen-Williams pipe roughness factor,  $C=120$ , shall be used for the water system model. For pipes smaller than 12 inches in diameter,  $C=100$  shall be used. Given the conservative values used for the pipe roughness factors, it is not necessary to consider friction losses from valves, tees and other fittings when preparing the water system model. Velocity of flow shall not exceed 10 fps in any pipe under any design flow condition.

A water model report shall be submitted to the County for review. Approval by the County of the model must be obtained prior to final plans approval.

The following flow conditions shall be modeled using 24 hour extended period simulation:

- A) Maximum Day demands.
- B) Maximum Day demands with 2-hour, 1,500 gpm fire flow event applied during Peak Flow period.

The following diurnal demand patterns shall be utilized when running extended period simulations:

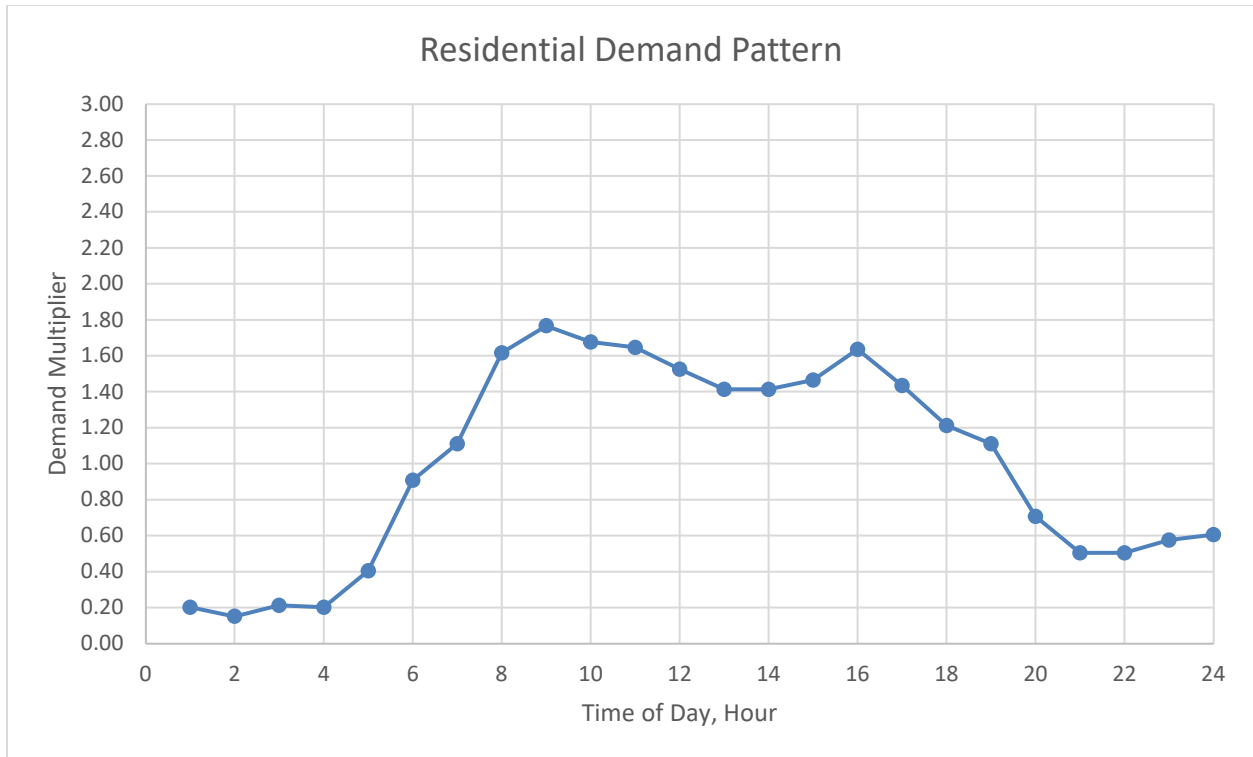


Figure 1. Typical Residential Demand Pattern (AWWA M32)

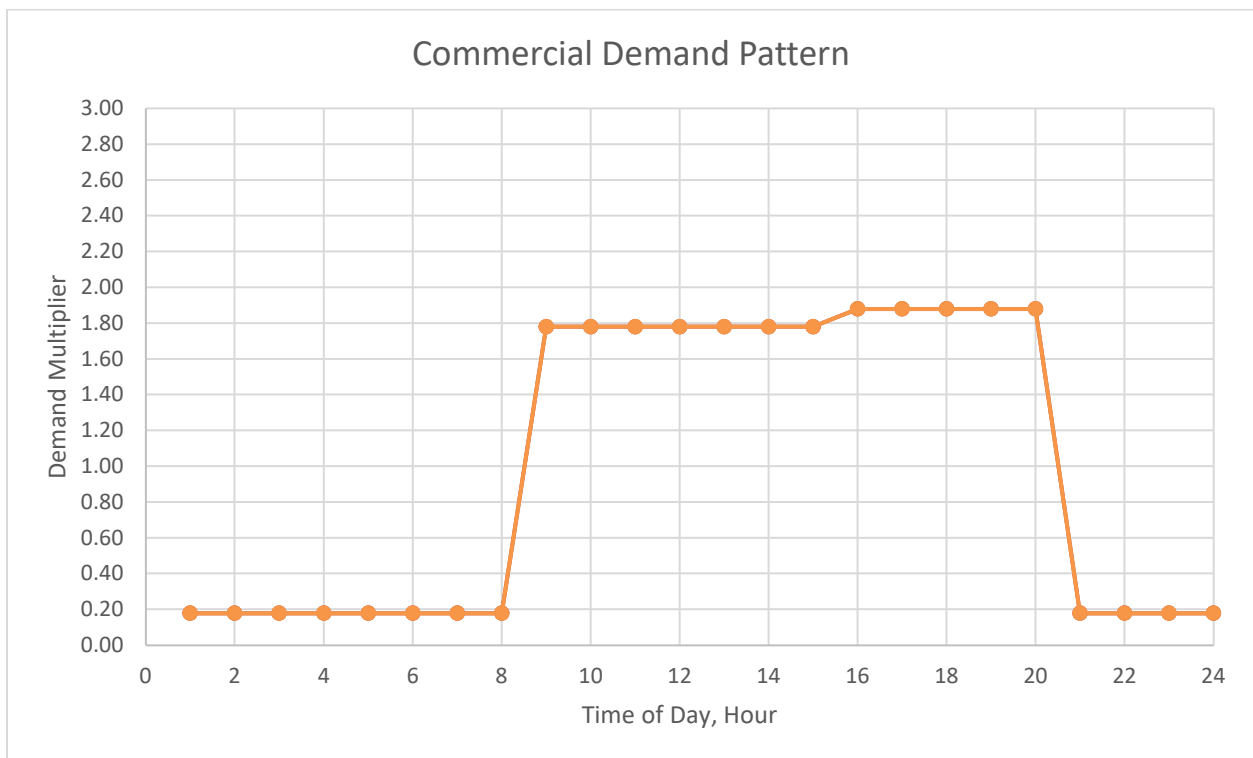


Figure 2. Typical Commercial Demand Pattern (AWWA M32)

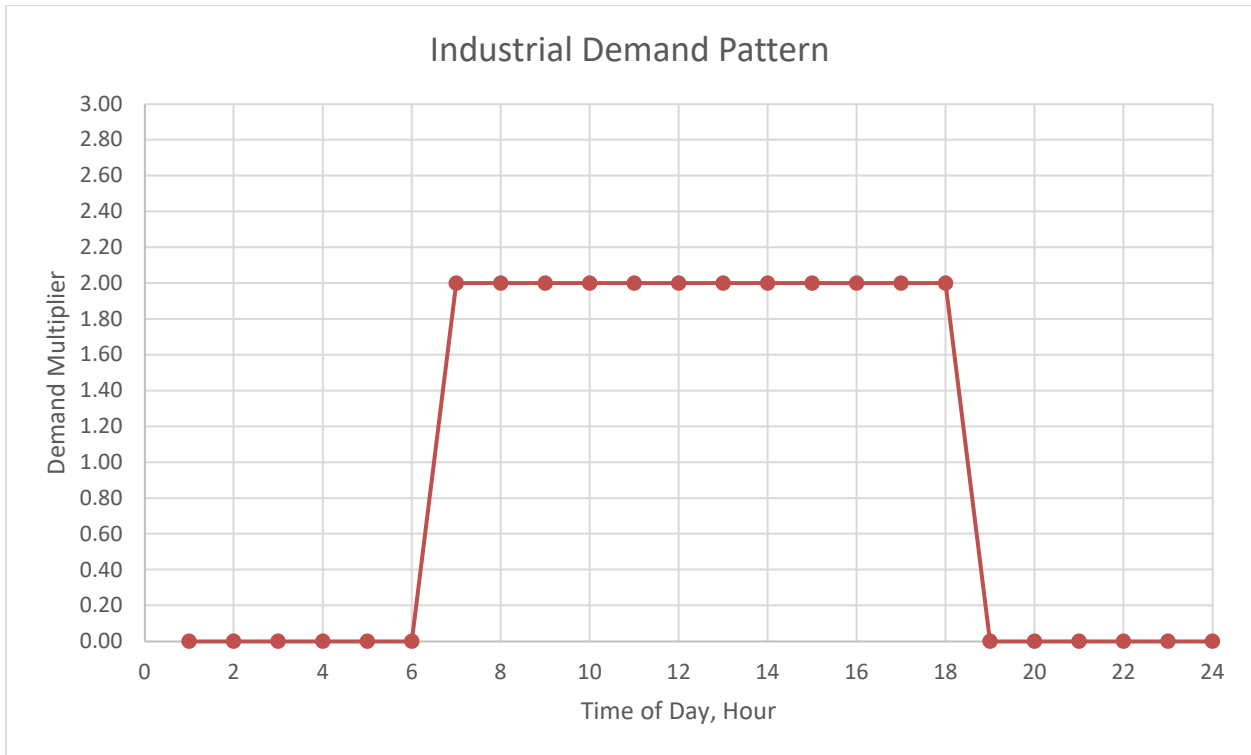


Figure 3. Typical Industrial Demand Pattern (AWWA M32)

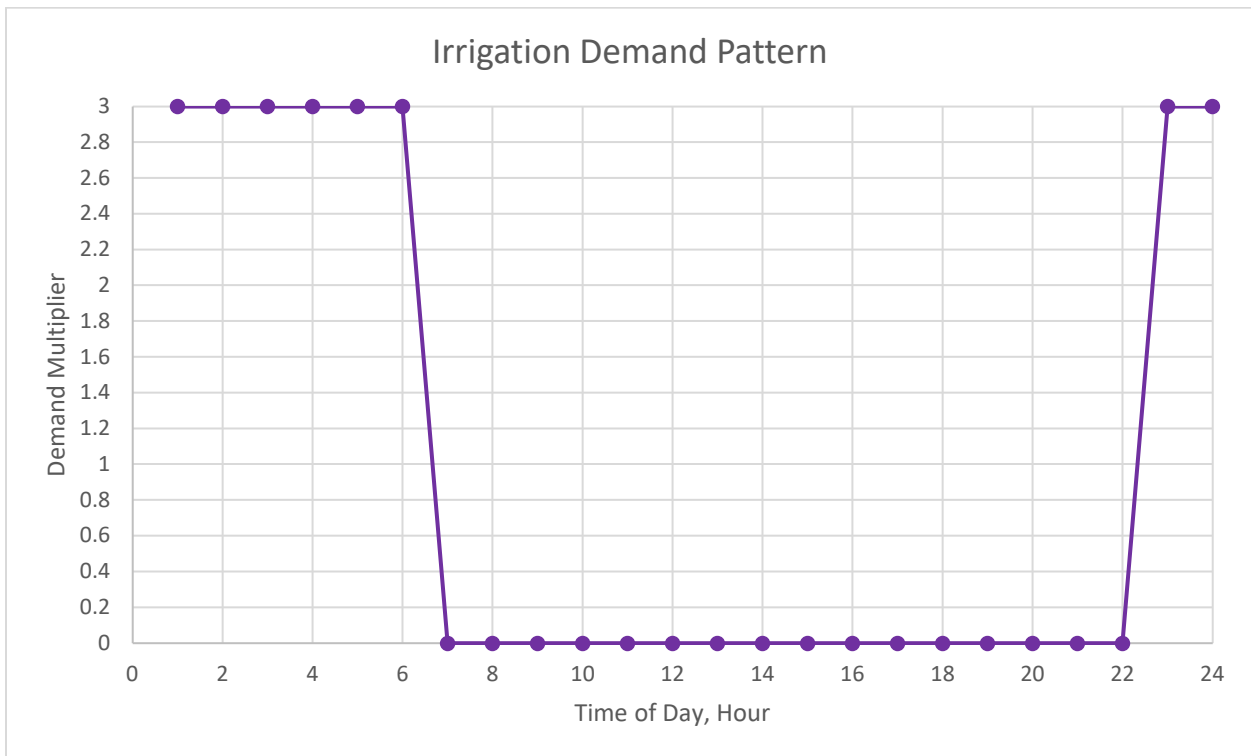


Figure 4. Typical Irrigation Demand Pattern (AWWA M32)

The water model report shall state assumptions made about the existing system, provide calculations and model results to show available flows at proposed hydrants, as well as node pressures throughout the system. If a project will be developed in sections or phases, the fire flow calculations will indicate the available fire flows for each proposed section or phase of the project as well as for the entire project. For small sites that propose no major water line extensions, an evaluation of the existing available fire flows may be substituted for the fire flow calculation.

Water lines shall be interconnected (looped) wherever feasible to enhance the reliability and operation of the water system.

The available water storage system shall have adequate capacity to sustain required fire flows for a minimum duration as specified in the Fluvanna County Code or as determined by the County, while simultaneously providing for maximum day demand.

### **2.03 Public Water Service Connections**

The water meter box and accessories therein necessary for meter installation, and as shown in the Standard Details Section in this manual, shall be furnished and installed by the developer or owner. Meters sized 5/8" by 3/4" and Full 3/4" will be installed by the County upon construction approval and payment of appropriate fees. Larger meter sizes shall be installed by the developer upon construction approval and payment of appropriate fees.

In residential areas the water meter will be installed immediately adjacent to the outer edge of the Utility Easement or ROW, as applicable.

All proposed water meter(s) and service line size(s) and locations shall be shown on the Project Plans. Sizing of service lines and water meters shall be based on the fixture loading imposed by the proposed Building/Use, and in accordance with the procedures of AWWA Manual M22, *Sizing Water Service Lines and Meters*. The County shall have final approval authority of all service line and meter sizes.

The County shall have the option to provide and install any and all size water meters, or in lieu thereof, establish a list of approved water meter types and manufacturers to be incorporated in the development or building. In any event, the developer or owner shall pay for the meters.

### **2.04 Private Water Services**

Private water service connections from the outlet of the meter box to the building are regulated by the County Building Official, the VUSBC and/or BOCA and will be maintained by the property owner.

### **2.05 Large Meter Installations**

Water meters 2 inches and larger shall be installed with a bypass to allow for isolation of the meter for repairs. For all water meter installations, the County shall retain the option of specifying the use of appropriately sized vaults in lieu of meter crocks. Separate Plans & Details for the installation of meters 2 inches and larger shall be submitted for approval.

## **2.06 Water-Only Accounts**

When the water used at a site is not to be discharged into a County-owned sanitary sewer, a water-only account may be established. Water-only accounts will not be charged fees for sewer use. Typical examples of the types of uses with water-only accounts are irrigation systems and public/commercial swimming pools. Each water-only account will be served by independent connection to the public water main with separate domestic service line and meter. No "subtraction" meters will be allowed. The location and size of the domestic service lines and meters serving water-only accounts shall be shown on the project plans. Water-only accounts will comply with the adopted cross connection and backflow policies set forth in Chapter 21, Article II, Division 5 and the County's current Cross-Connection Control and Back Flow Prevention Program Manual.

The size of the water meter for an irrigation system will be based on the peak flow rate needed to operate the system. The design engineer will provide the County with the necessary information to determine the meter size. The developer must acquire all of the necessary approvals and permits from Fluvanna County prior to the installation of an irrigation system. The location of the irrigation meter shall be shown on the project plans.

A water-only account may be established for a swimming pool only when the pool drain and the filter backwash discharge line do not discharge into the sanitary sewer. The location of the pool drain, filter backwash discharge line and pool meter shall be shown on the project plans.

## **2.07 Valve Boxes**

Where valve boxes are placed in the pavement, the covers shall be flush with the pavement surface. Valve boxes placed outside pavement shall be set and adjusted such that covers shall be exposed and 1" to 2" above finished grade. A concrete collar as specified on Standard Detail GN-03 shall be provided around any valve box placed outside pavement.

If additional grading is done and elevations are changed in the vicinity of the valve(s) by the developer or owner after the water system has been approved and accepted by the County, but while such areas are still the obligation of the developer or owner, the valve boxes therein shall be readjusted to proper location relative to the new grades.

## **2.08 Cross Connections**

Water service and backflow prevention devices shall be provided in compliance with the adopted cross connection and backflow portions of the Fluvanna County Code. See Chapter 21, Article II, Division 5 of the Fluvanna County Code, Sections 21-2-101 through and including 21-2-111.

### **A) Subdivision Streets**

In subdivision streets that have curb and gutter, water mains should generally be located 5 feet in front of the face of curb (3 feet from the gutter pan) except in streets less than 30 feet in width from face of curb to face of curb where the water main may be located behind the curb at least 3 feet if there is also sewer located in the street. In subdivision streets without curb and gutter or along existing subdivision streets, water mains should be located 3 feet to 5 feet off of the edge

of pavement or behind the ditch line if there is sufficient right-of-way to allow this. Future widening of the roadway shall be considered during the design of the water main.

#### B) Arterial and Collector Streets

In arterial and collector streets with curb and gutter, water mains should generally be located 5 feet behind the curb. In arterial and collector streets without curb and gutter, water mains should generally be located 5 feet behind the edge of pavement. Water mains adjacent to arterial and collector streets are allowed to be located under turn lanes. If, on an arterial or collector street, it is not possible or feasible to locate the water main behind the curb, the water main shall generally be located 5 feet in front of the face of curb (3 feet from the gutter pan). In no case shall the water main be located closer than 2 feet to the front of the gutter pan or less than 3 feet behind the curb. Future widening of the roadway shall be considered during the design of the water main. Ductile iron pipe shall be utilized for water mains constructed adjacent to arterial and collector streets unless otherwise directed by the Department.

#### C) Four Lane or Greater Roadways

The location of water mains along major roadways (roads 4 lanes or greater in width) shall be determined on a case-by-case basis. Generally, water mains shall be located on both sides of major roadways so that service connections need not cross the major road with appropriate interconnection points between the parallel water mains.

#### D) Future Roadway Improvements

Future widening of roadways shall be considered during the design of any water main. Where water mains are to be installed in proposed or existing roads expected to be widened in the future, they shall be located in easements unless the future road cross section is known and location of water main is designed to avoid future relocation. Water mains shall be designed so that they will not need to be lowered when the road is widened, or driveways are installed.

### **3 Water Supply Systems Design Parameters**

#### **3.01 General**

Wherever applicable, water lines will be designed to facilitate the implementation of the County Master Water and Sewer Plan. Water lines shall be designed and located to provide for a looped system, and loops shall be completed wherever feasible at the discretion of the County Administrator or County Engineer. In general, water lines shall be located in utility easements dedicated to the County and shall run parallel to and along the routes of roads and/or travel ways. Alternate locations for water lines will be permitted only with the approval of the County Administrator.

Water lines shall not be located within Stormwater Management (SWM) and/or BMP facilities or their associated easements.



### **3.02 Line Sizes**

The minimum size of water line shall be as follows:

- A) In residential districts, any water line that forms, has the potential to form, or is planned to form a portion of a loop, shall be minimum 8 inches.
- B) In commercial and industrial areas, any water line that forms, has the potential to form, or is planned to form a portion of a loop, shall be minimum 12 inches.
- C) Unless otherwise approved by the County Engineer, dead-end runs shall terminate with a fire hydrant, and shall be sized to provide adequate fire flow. In no case shall they be less than 6 inches.
- D) Fire hydrant connections shall not be installed on lines less than 6 inches in diameter.
- E) Four-inch water lines may only be used with specific approval of the County. In all cases, the minimum water line size shall be four inches.

### **3.03 Depth of Cover**

All water lines shall be designed for 42 inches of cover. Water services shall be designed for 36 inches of cover. Except where completely impractical, water lines shall cross over storm and sanitary sewer lines. Where water lines cross over other pipes, cover on the water line may be reduced to 32 inches and the vertical pipe separation (edge to edge) at the crossing point may be reduced to 6 inches if necessary.

### **3.04 Intersections and Valve Locations**

A valve shall be installed at least every 1,000 feet on distribution mains.

Valves shall also be installed at intersections of water lines. The valving of the water system will be designed so as to allow segments of the system to be isolated for repairs and maintenance while leaving the rest of the system in service.

Generally, two valves will be used at each tee; however, three valves may be required depending on the system design.

Cross-fittings are not permitted at 4-pipe intersections; two adjacent tees shall be used in their place. These shall be installed and buttressed as shown on Standard Detail BH-06.

### **3.05 Separation of Water Facilities and Sanitary Sewers**

In general, separation of water lines, water appurtenances, wells and sanitary sewers shall be in accordance with the latest editions of the Commonwealth of Virginia Sewerage and Waterworks Regulations. A minimum of 10 feet edge to edge horizontal separation shall be maintained between water lines and building foundations, retaining walls or other permanent structures. A

minimum of 10 feet edge to edge horizontal separation shall be maintained between water meter boxes or vaults and sanitary sewer manholes.

### **3.06 Blow-Offs, Flushing Hydrants, and Air Releases**

The engineer should use the following guidelines with regard to location of flushing hydrants, air release valves, blow offs, etc. during the design of water main extensions:

- A) Access to flush points by the Department of Public Works personnel shall be provided. Flush points serve no purpose if access to the flush points cannot be obtained.
- B) Emphasize (through appropriate notes) to contractor to maintain adequate erosion control and flushing procedures. Erosion control and environmental impact consideration must be considered whenever a flush point is chosen; therefore, certain controls may be needed at the time the water main is installed.
- C) Engineer needs to advise contractor to coordinate his work through the inspector. The inspector will coordinate with the Department of Public Works Operations section regarding when to flush (time of day and season, etc.).
- D) Attempt to locate the flush points as near to the roadways as possible or at a stream (keep in mind adverse effects to downstream ponds, etc.).
- E) Contractor is to perform flushing prior to acceptance of the new water main.
- F) Minimize the number of blow offs, and strategically place them so proper flushing can be performed.
- G) Minimize the number of air release valves, taking into consideration the depth that the water main is to be placed.
- H) The chlorine in heavily chlorinated water flushed from mains shall be neutralized before discharge. Contractors must provide equipment for neutralizing heavily chlorinated water flushed from mains during construction prior to discharging the water.
- I) Automatic air release valves shall be located at pronounced high points in the system to provide for the release of trapped air and/or relieve vacuums. Air release valves will be installed in accordance with Detail WD-03 and shall be located as shown on the plans.
- J) Dead-end lines shall terminate with a fire hydrant. Dead-end lines less than 8" in diameter shall terminate in a flushing valve as shown in Detail WD-02. A temporary Blow-off assembly shall be used in lieu of a hydrant or flushing valve when the termination point is temporary. Temporary Blow-offs shall be as shown in Detail WD-01.
- K) Fire hydrants shall be installed as a means of flushing at low points in the system. If authorized, a flushing valve, as shown in Detail WD-02, may be installed in lieu of a fire hydrant.
- L) Automatic air release valves shall be located at pronounced high points in the system to provide for the release of trapped air and/or relieve vacuums. Air release valves will be installed in accordance with Detail WD-03 and shall be located as shown on the plans.

### 3.07 Hydraulic Design

- A) Water distribution systems shall be designed to provide adequate flow and pressure for both domestic supply and fire flow based on sound hydraulic analysis. Design shall be based on a maximum flow velocity at peak flows (excluding fire flow) of 5 feet per second and a Hazen- Williams “C” Value of 120. Values of existing demand and supply pressures shall be coordinated with the Department of Public Works. If required, the engineer shall contact the Department of Public Works to schedule a fire flow test. The Department of Public Works must be present during any test but will not provide equipment or manpower for a test. The County is not responsible for the results of any test or for any design made on the basis of any test. The County does not imply or warrant that conditions occurring during a test are necessarily representative of the system’s ability to provide water under all or even normal conditions.
- B) The engineer shall submit with all water plans, information and calculations on water demands for the project. If requested, the engineer shall provide a detailed analysis for evaluation by the Department of Public Works to ensure that the requirements of this section have been followed and that the proposed water system design meets these specifications and satisfies maximum day demands plus fire flow requirements or peak hour demands, whichever flow condition is more difficult to meet. The engineer shall provide this information with all water plans submitted for review when requested. Whether the detailed analysis is requested or not, the engineer is responsible for ensuring that the design as proposed meets the requirements of these Standards. If the design does not meet any part of these Standards; the engineer is responsible for notifying the Department of Public Works of all deficiencies.
- C) The water distribution system and any extensions thereto shall be designed to supply the demands of all customers while maintaining the following minimum pressures at all points in the system:
- a) 20 psi for the greater of maximum day or peak hour domestic demand plus fire flow.
- D) The following criteria shall be used in estimating average daily demands:

**Table 3-1 Average Daily Demands by Land Use**

<u>Land Use</u>	<u>Gallons per Day per Acre</u>	<u>Equivalent Persons per Acre</u>
Residential - 1 to 2 dwellings/acre	500	5
Residential - 1 to 4 dwellings/acre	1,200	12
Residential - 4 to 8 dwellings/acre	2,500	25
Residential - Low	500	5
Residential - Medium	1,000	10
Residential - High	2,500	25
Agricultural	1,000	10

Commercial - Retail	2,000	20
Commercial - Office	1,500	15
Industrial - Light Water Use	1,000	10
Industrial - Medium Water Use	2,000	20
Industrial - Heavy Water Use	3,000	30

- a) Where site specific determinations can be made, flows shall be determined by using the following design information in Table 3-2:

**Table 3-2 Design Flows**

<b><u>Discharge Facility</u></b>	<b><u>Design Units</u></b>	<b><u>Flow gpd</u></b>
Single Family Residential	3.5 people/unit	350
Three Bedroom Apartment	3.5 people/unit	350
Two Bedroom Apartment	3 people/unit	300
One Bedroom Apartment	2 people/unit	200
Three Bedroom Condo	4.0 people/unit	400
Two Bedroom Condo	3 people/unit	300
Elementary School	per person	10
High School	per person	16
Motel and Hotels	per room	130
Trailer Courts	per trailer	300
Restaurants	per seat	50
Service Stations	per vehicle serviced	10
Factories	per person per 8-hour shift	25
Shopping Centers	per 1,000 sq. ft.	250
Hospitals	per bed	300
Nursing Homes	per bed	200
Homes for the Aged	per bed	100
Medical Center	per 1,000 sq. ft.	500
Laundromats	per washing machine	500
Theaters	per seat	5
Bowling Alleys	per lane	75
Office Buildings	per 1,000 sq. ft.	200

- E) Flows for other uses may be determined by using demands approved by the County.
- F) To determine maximum daily demands and peak hourly demands the following multipliers shall be used:
  - a) Maximum Daily Demand (residential) = 2.0 times Average Daily Demand
  - b) Maximum Daily Demand (non-residential) = 2.0 times Average Daily Demand
  - c) Peak Hourly Demand = 4.0 times Average Daily Demand

### **3.08 Termination of Water Mains**

Water lines which terminate, and are planned for future extension, shall meet the following requirements:

- A) Water lines shall not terminate under pavement, sidewalk, curb and gutter, or other structures that may interfere with future extension.
- B) Water lines shall terminate within easements and shall extend to a property line wherever feasible. The developer or landowner shall provide all easements needed for future extensions, as determined by the Engineer or County Administrator.
- C) A means of flushing shall be provided as indicated in Section 3.06.
- D) A restrained isolation valve shall be installed on the terminating line to allow complete testing and uninterrupted service upon future extension.

### **3.09 Fire Hydrant Locations**

In general, fire hydrants shall be located as follows:

- A) At street intersections, the ends of dead-ends, low points and at intermediate locations where necessary. The maximum distance between fire hydrants shall be 800 feet. All distance measurements are to be taken along the centerline of accessible streets, travel ways or other unobstructed path used by the fire department.
- B) In areas with curb and gutter, the center of the fire hydrant shall typically be not less than 18 inches nor more than 84 inches behind the face of the curb, but in all cases shall be located within a utility easement dedicated to the County, unless location within a road right of way is expressly permitted by the County Administrator.. All parts of a fire hydrant shall clear sidewalks, trails, and vehicular travel ways by a minimum 9 inches.

- C) On roads without curb and gutter, the center of the fire hydrant shall typically be not less than 18 inches or more than 36 inches behind the ditch, but in all cases shall be located within a utility easement dedicated to the County, unless location within a road right of way is expressly permitted by the County Administrator. Where no ditch is present, the fire hydrant shall be not less than 18 inches or more than 36 inches behind the shoulder, but in all cases shall be located within a utility easement dedicated to the County.
- D) In parking areas where the proposed site improvements do not provide adequate protection of fire hydrants from vehicular traffic, bollards or other protective measures shall be provided.
- E) No plantings, structures or other obstructions shall be installed within 4 feet of any fire hydrant.
- F) The location of all new and existing hydrants that are to serve the property shall be shown on the project plans.

### **3.10 Surface Water Crossing**

Surface water crossings, both over and under water, present special problems and should be discussed with the County before final plans are prepared. The Design Engineer should arrange a site visit with the County to view the crossing and discuss any related issues. In no case shall water lines be located within Stormwater Management (SWM) and/or BMP facilities or their associated easements. The Developer or Design Engineer shall be responsible for obtaining all required State and Federal permits to install a surface water crossing (e.g. Virginia Marine Resources Commission Permit, Nationwide Permit, etc.).

- A) Above Water Crossings – On above water crossings the pipe shall be:
  - 1) Adequately supported (plans will include details of the piers and supports).
  - 2) Protected from damage from freezing.
  - 3) Accessible for repair or replacement.
  - 4) Above the 100-year flood level.
  - 5) Constructed of mechanically restrained joint pipe.
  - 6) A valve will be installed on each side of the crossing.
- B) Under Water Crossings – On under water crossings the pipe shall be:
  - 1) Of special construction, having flexible watertight joints.
  - 2) Provided with valves at both ends of the water crossing so that the section can be isolated for tests or repair; the valves shall be easily accessible.

- 3) Provided with an available blow-off at one end of the crossing between the isolation valves; the blow-off shall be easily accessible.

### **3.11 Fire Lines**

All water lines serving a fire suppression system in a building shall be shown on the project plans. All fire lines shall be owned and maintained by the property owner. A valve shall be located on the fire line at the point it connects to the public water system. The minimum size fire line shall be a 3-inch I.D. All fire lines shall be metered as shown in Detail MET-9.

## **4 Water Supply Systems Construction**

### **4.01 General Procedures**

Pipe, fittings, valves, hydrants and accessories shall be loaded and unloaded by lifting with hoists to avoid shock or damage. Under no circumstances shall such be dropped. Pipe shall not be skidded or rolled against pipe already on the ground. Pipe shall be handled so that the coating and lining shall not be damaged. Damaged items shall be either repaired or replaced at the discretion of the County.

The water main shall be laid and maintained to the required lines and grades with fittings, valves, hydrants and accessories set at the required locations as indicated on the approved plans for the project. All valve and hydrant stems shall be set plumb. Wherever obstructions not shown on the plans are encountered during progress of the work and which interferes to such an extent that an alteration in the plans is required, the County or its authorized representative shall be advised and approval given before such alterations are put into effect.

All pipe shall be installed according to the manufacturer's recommendations as approved by the County. No pipe shall be laid in water, or when, in the opinion of the County, trench conditions are unsuitable.

### **4.02 Excavation and Bedding and Backfill**

Excavation of whatever substance may be encountered shall be performed to the dimensions and depths specified or shown on the Applicant's approved drawings. Ledge rock, boulders and large stones shall be removed to provide a clearance at least 6 inches below and on each side of all pipe, valves and fittings for pipes 24 inches in diameter or less, and 9 inches for pipe larger than 24 inches in diameter. The specified minimum clearances are minimum clear distances which will be permitted between any part, projection or joint of such rock, boulder or stone.

In the event that unstable material is encountered at or below the excavation depth, the County shall be notified. Such materials shall be removed and replaced with suitable materials which shall be furnished as an ordinary and integral part of excavation and backfill. If excavation of any nature has been made deeper than necessary, then a layer of suitable backfill shall be placed to secure a firm foundation for the pipe.

The trench shall be dug so that the pipe can be laid to the alignment and depth required and it shall be excavated not more than 200 feet in advance of the complete pipe laying operation. The width of the trench shall be ample to permit the pipe to be laid and jointed properly and the backfill to be placed and thoroughly compacted in accordance with the plans and specifications. Trenches shall be of such extra widths when required as will permit the convenient placing of timber supports, sheeting and bracing and the handling of special fittings. Bell holes shall be provided at each joint to permit proper joint construction and inspection. In no case shall the pipe bells be used to support the body of the pipe.

Grading shall be controlled in the vicinity of excavations so that the surface of the ground will be properly sloped to prevent water from running into trenches or other excavated areas. Any water which accumulates in the excavation shall be removed promptly. Trenches shall be kept dry while pipe is being laid.

Normally, pipe embedment and backfill shall be done in accordance with the drawings contained in the Details Section of this manual. Additional bedding and backfill requirements may be required in situations where the County feels it is necessary.

#### **4.03 Installation of Pipe**

Stockpiled pipe materials shall be handled by mechanical equipment and placed to avoid interference with traffic and the trenching operation.

Adequate supports shall be provided for all pipes. In all cases and at all locations, the sub-grade shall be made by back-filling with crushed stone as indicated on Details G-01 and G-02 in the USM and shall be thoroughly compacted. Continuous and uniform stone bedding shall be provided in the trench for all pipe so that the pipe barrel bears on and is supported by the stone bedding at every point between bell holes. The finished sub-grade shall be prepared accurately by means of hand tools. Trenching below the specified grade shall be back-filled with approved materials and thoroughly compacted.

Before the pipe is lowered into the trench, each section of pipe shall be thoroughly inspected for defects and shall be swabbed or brushed out to ensure that no dirt or foreign material gets into the finished main. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in line.

When installing pipe in the trench, proper implements, tools and facilities satisfactory to the County and as recommended by the material manufacturer shall be provided and used by the contractor for the safe and convenient prosecution of the work. All pipe, valves, fittings and hydrants and accessories shall be carefully lowered into the trench piece by piece by means of derricks, ropes, slings, or other suitable tools or equipment in such a manner as to prevent damage to water main materials and satisfactorily rated to handle the pipe and fittings shall be kept fully closed by a test plug to prevent earth, water, or other substances from entering the pipe.

Pipe shall be laid true to line and grade and shall be joined together such that the completed pipe will have a smooth invert. After placing a length of pipe in the trench, the spigot end shall be centered in the open bell of the pipeline and the pipe pushed home with a bar. THE USE OF



## LIFTING AND HYDRAULIC EQUIPMENT TO MAKE PIPE JOINTS IS SPECIFICALLY PROHIBITED.

All joints shall be watertight and any leaks or defects discovered, shall be immediately repaired to the satisfaction of the County. Any pipe which has been disturbed after being laid, shall be taken up, the joints cleaned and flushed or removed by means of an approved follower or scraper after joints are made. Installation of fittings and pipe joints shall be in strict accordance with the manufacturer's recommendations.

The cutting of pipe for inserting valves, fittings or closure pieces, shall be done in a neat and workmanlike manner without damage to the pipe or lining and so as to leave a smooth end at right angles to the axis of the pipe. Only qualified and experienced workmen shall be used on this work. The flame cutting of pipe by means of an oxyacetylene torch shall not be allowed.

Whenever it is necessary to deflect pipe from a straight line either in the vertical or horizontal plane to avoid obstructions or plumb stems, or where long-radius curves are permitted, the amount of deflection allowed shall not exceed that required for satisfactory joining of the pipes, as specified by AWWA Specification and the manufacturer's recommendations. If the specified or required alignment requires deflections exceeding those recommended, the developer or contractor shall provide bends as approved by the County.

Road crossings shall be installed in accordance with the requirements of the Virginia Department of Highways and Transportation, which governs the method and materials of such construction. The owner shall obtain the necessary permit prior to actual installation.

Roadways and driveways, grass plots, sod, shrubbery, ornamental trees, signs, fences, or other improvements on public or private property which have been damaged or removed in excavating, shall be restored to conditions equal to or better than existed prior to construction. Materials for roadways, alleys, or driveways shall be compacted to at least 95 % of the maximum density as determined by the AASHTO Method T-180. The cost of this compaction and furnishing new materials shall be at the expense of the owner or developer.

The site restoration of the entire construction area shall be finished in a neat and uniform condition, acceptable to the County.

### **4.04 Line Location Markers**

For purposes of future line location, all new construction will include 3M-Brand ScotchMark water full-range disc type line marker devices. The markers are to be placed on top of the pipe, along the pipe route, at each change in direction, tee, cross, corporation stop, and all other fittings. In any case, the maximum spacing between markers shall be 40 feet. Marker tape shall be buried 18 inches above the pipe for the entire length of the pipe. (Note: This requirement also applies to sewer force mains).

### **4.05 Installation of Fittings and Accessories**

All tees, bends, plugs, caps and fire hydrants shall be substantially braced, blocked, and/or anchored to prevent any movement by providing adequate reaction backing. This backing shall

be 3,000 psi concrete. Backing shall be placed between solid undisturbed earth and the fitting to be anchored and shall be so placed that pipe and fitting joints will be accessible for repair.

Required thrust blocks shall be as shown in the Details Section of this manual. The type of fitting, maximum pressures and type of soil in the thrust area shall be subject to the review and approval of the County.

Where thrust blocking is not feasible due to the soil conditions, a harnessing detail for each type of intended application shall be submitted for approval by the County. A special dead-man block with a harness arrangement is generally required in this situation.

#### **4.06 Installation of Valves**

Hydrants and valves shall have the interiors cleaned of all foreign matter before installation. Stuffing boxes shall be tightened and the hydrants or valve shall be inspected in opened and closed positions to see that all parts are in working condition.

All valves shall be provided with valve boxes, as shown in the Detail G-03 and the necessary wrenches with extension handles shall be provided where necessary due to the depth of the valve. Valves and the valve boxes shall be set plumb with the valve boxes centered directly over the valve operators. After being correctly positioned, earth fill shall be carefully tamped around the valve box to a distance of at least 4 feet on all sides of the box or to the undisturbed trench face if less than 4 feet. Before installing any valve, care shall be taken to see that all foreign material is removed from the interior of the barrel and the valve operated to see that all parts are in working condition.

Valves and valve boxes shall be located outside the area of existing or proposed paved roads, streets and sidewalks. They shall be set and adjusted so that the covers are exposed and 1" to 2" above finished grade. Where valves and valve boxes are or will be located within paved areas, they shall be set and adjusted so that the cover is exposed and flush with the finished surface. If ground elevations in the vicinity of valve boxes are revised by the Developer or Owner after the related water system has been approved and accepted by the County, but while such areas are still the obligation of the Developer or Owner, the valve boxes shall be adjusted relative to the elevation of the finish surface at the Developer/Owner's expense.

No water main shall terminate under a concrete gutter and no valve shall be located under a concrete gutter.

#### **4.07 Installation of Hydrants**

The hydrant shall be set upon a slab of stone or concrete not less than four inches thick and fifteen inches square. The back of the hydrant opposite the pipe connection shall be firmly blocked against the vertical face of the trench with a cast-in-place 3,000 psi concrete thrust block to prevent the hydrant from blowing off the line, as shown in the Detail WD-02. Not less than seven cubic feet of crushed stone shall be placed around the base of the hydrant to insure proper drainage.

The pipe connecting the hydrant to the water main shall be a nominal size of 6 inches and equipped with a valve and valve box. Hydrants shall be set with the invert of the pumper

connection 18 inches above finished grade, with the pumper connection facing the street. The connecting pipe will have the same depth of cover as the distributing mains. The backfill around hydrants shall be thoroughly compacted to the grade line.

#### **4.08 Above Water Crossing**

Water mains constructed on piers or hung from bridges will be permitted only when it can be demonstrated that no other practical alternative exists. The engineer shall submit a design for the piers, pier foundation and pipe that will demonstrate the structural integrity of the proposed system. Where a water main crosses above surface water, the pipe shall be adequately supported, completely insulated to protect it against damage from freezing, accessible for repair or replacement and above the level of a 100-year flood and any floating debris it may carry.

Water mains installed on bridges shall be designed for such an application and an allowance for expansion and contraction shall also be provided within the design. This typically means that an expansion coupling shall be provided. Isolation valves on either side of the crossing will be required.

#### **4.09 Under Water Crossing**

Water mains entering or crossing streams shall be restrained joint ductile iron pipe. The tops of these mains shall be a sufficient depth below the natural bottom of the streambed to protect the pipe. In general, a minimum of 4 feet of suitable cover is required. The pipe and joints shall be designed, constructed, and protected against anticipated hydraulic and physical, longitudinal, vertical, horizontal loads, erosion and impact. Reasons for requesting less cover shall be given in writing to the County prior to plan submittal. The trench above the pipe in streams must be stabilized through the use of rip-rap, concrete, gabion mats, or other approved methods.

Subaqueous water main installations will be permitted only when it can be demonstrated that no other practical alternative exists. Special attention shall be directed to foundation conditions and thrust restraint for the pipe.

The water main pipe shall be of special construction, having flexible watertight joints. The pipe material used shall be subject to the County's approval. In some instances, the Owner or Developer may be required to install the pipe in a concrete encasement, as shown in Detail G-04.

Valves shall be provided at both ends of the water crossing so that the section can be isolated for tests or repair. The valves shall be easily accessible and not subject to flooding.

Sample taps shall be available at each end of the crossing and at a reasonable distance from each side of the crossing. Permanent taps shall be made for testing and locating leaks.

#### **4.10 Crossings of Railroads, Major Roadways and Other Major Structures**

Crossings under roads shall be installed in accordance with Detail G-05 in this manual and the requirements of the Virginia Department of Transportation (VDOT). Road crossings shall be completed prior to the installation of adjacent sections of pipe.

Steel pipe casings shall be installed by either boring or jacking the casing beneath the roadbed of primary roads. To insure successful completion of bored road crossings, the Contractor should make use of test holes, pilot drill holes, etc.

Casing pipe required for bored installation of mains shall be uncoated steel with 36,000 psi yield strength. Such pipe sections shall be continuously welded at joints as the casing is advanced. Where open-cut crossings are permitted, casing pipe shall be reinforced concrete. Casing pipe is required for all water services crossing roads or sidewalks and shall be 2-inch Schedule 40 PVC.

Water mains within bores or tunnels shall be ductile iron pipe (minimum thickness Class 52) with restrained joints. All casing pipes shall have an exterior corrosion protective coating.

Water main crossings of railroads, major roadways, and other major structures shall be contained in a casing pipe. Design of railroad crossings shall comply with the requirements of American Railway Engineering Association Specifications, Part 5 - Pipelines (latest revision). The engineer or developer shall be responsible for obtaining required railway permits and/or agreements for the County, paying any fees, and posting any required construction bonds for the railway crossing prior to beginning construction on any part of the project. A copy of the permit and/or agreement shall be provided to the Department of Public Works prior to the approval of construction plans for the project by DPW. Isolation valves are generally required to be installed on either side of the crossing.

#### **4.11 Wet Taps**

All wet taps require the approval of the County. Sleeve and valve assemblies shall be tested in accordance with Section 4.12 for 10 minutes before the actual tap is made.

Wet taps shall employ a ductile iron mechanical joint sleeve, or other fitting specifically designed for this purpose as approved by the County Administrator.

#### **4.12 Testing**

Tests shall be made on all sections of pipe throughout the entire project and shall be conducted only in the presence of the County or its authorized representative. Tests shall be made between adjacent valves.

Care shall be taken to ensure that the entire test run of pipe is securely braced and blocked against thrust when pressure is applied. All thrust blocks must be completely set and approved. All pipe must be firmly supported and weighted down by partial backfill soil on top.

All water for testing purposes shall be potable water and procured and paid for by the Owner or Developer or his Contractor. Prior to testing, the pipe shall be filled slowly and carefully with water from the nearest practical source, or by other approved methods. Under normal atmospheric pressure the pipe shall be allowed to soak for a minimum period of 24 hours. All entrapped air shall be expelled. The Owner, Developer or Contractor shall provide all the apparatus or other accessories necessary to conduct the tests.

The completed piping shall be subjected to a hydrostatic pressure test equal to 150 % of the rated working pressure of the pipe or not less than 150 psi. This pressure shall be maintained for a minimum two hours, or until the County Inspector is satisfied with the results. All pipe, joints, valves and fittings in the test section shall be examined. Leakage shall not exceed the amount given by:

$$L = \frac{S \times D \times P^{1/2}}{148,000}$$

Where: L = allowable leakage, in gallons per hour;  
 S = length of pipe tested, in feet;  
 D = nominal pipe diameter, in inches;  
 P = test pressure, in psi.

If the flow of water or loss of air pressure is in excess of the allowable limits, or if leaks of appreciable size are encountered, the Contractor shall repair or rebuild, at his expense, those portions of the piping which are faulty. These tests will be repeated until the work is deemed acceptable in accordance with the allowable limits.

Services shall be tested to the yoke angle valve at working pressure by visual inspection in the open trench and shall show no signs of leakage.

Defective material disclosed as a consequence of the tests shall be removed and replaced by sound material at the Owner's or Developer's expense. Any joint showing visible leakage shall be made airtight. The test shall be repeated until its results are satisfactory to the County or its authorized representative.

No water shall be drawn from the County's facilities for testing or other purposes until suitable arrangements have been made with the County Inspector.

<b>Allowable Leakage Table</b>			
<b>Water Line Test Based on 150 PSI</b>		<b>Water Line Test Based on 150 PSI</b>	
<b>Size</b>	<b>Max Allowable Leakage</b>	<b>Size</b>	<b>Max Allowable Leakage</b>
3/4"	0.0124 (Gal/2 hrs)/100 L.F.	16"	0.2648 (Gal/2 hrs)/100 L.F.
1"	0.0166 (Gal/2 hrs)/100 L.F.	20"	0.3310 (Gal/2 hrs)/100 L.F.
1-1/2"	0.0248 (Gal/2 hrs)/100 L.F.	24"	0.3972 (Gal/2 hrs)/100 L.F.
2"	0.0331 (Gal/2 hrs)/100 L.F.	30"	0.4965 (Gal/2 hrs)/100 L.F.
3"	0.0497 (Gal/2 hrs)/100 L.F.	36"	0.5958 (Gal/2 hrs)/100 L.F.

4"	0.0662 (Gal/2 hrs)/100 L.F.	42"	0.6951 (Gal/2 hrs)/100 L.F.
6"	0.0993 (Gal/2 hrs)/100 L.F.	48"	0.7944 (Gal/2 hrs)/100 L.F.
8"	0.1324 (Gal/2 hrs)/100 L.F.	54"	0.8937 (Gal/2 hrs)/100 L.F.
12"	0.1986 (Gal/2 hrs)/100 L.F.		

#### 4.13 Disinfection of Water Mains

During the course of the work, all reasonable precautions shall be taken to protect the pipe interiors, fittings and valves against contamination. When pipe-laying is not in progress, all openings in the pipeline shall be closed by watertight plugs.

The water main shall be closed and flushed prior to disinfection with a sufficient flow to produce a flushing velocity of at least 2 ½ feet per second. Finished water shall be flushed through the system until no traces of foreign matter are visible. This water shall be discharged or wasted only at points specifically designated by the County. All valves and hydrants shall be operated during the flushing prior to disinfection.

The new pipeline shall be disinfected by chlorination in accordance with AWWA Specification C651-14 or latest revision. The disinfection agent of the chlorine solution shall be sodium hypochlorite solution, Grade D, conforming to Federal Specification O-S-602b, or dry hypochlorite equal to "HTH" as manufactured by Olin Chemical Co.

The chlorine solution at any point in the line, shall have a minimum concentration of 50 parts per million (ppm) or 50 milligrams per liter (mg/l) and shall be applied to the system at a constant, measured rate by pumping in accordance with the continuous feed method, AWWA Specification C651-14 or latest revision. Finished water from an approved source shall be made to flow at a constant, measured rate into the new pipeline. The two rates shall be properly proportioned so that the chlorine concentration in the pipeline is maintained at a minimum of 50 ppm available chlorine. To ensure that this concentration is maintained, the chlorine residual shall be measured at regular intervals in accordance with procedures described in the current edition of Standard Methods and AWWA Specification M12.

When considered applicable, disinfection will also be permitted by the following methods:

- A) Tablet Method - Disinfection may be accomplished with the use of five-gram HTH tablets as applied to the interior of the pipe. The tablets shall be placed in each section and in all appurtenances. Enough tablets shall be used to ensure that a chlorine concentration of 25 ppm is provided in the water. Tablets shall be attached by an approved adhesive to the top of the pipe sections and crushed or rubbed in all appurtenances. The velocity of the potable water in the main shall be less than 1 fps. The water shall remain in contact with the pipe for 24 hours, and all valves and appurtenances shall be operated while chlorinated water is in the system.
- B) Slug Method - Disinfection may also be accomplished by the "slug" method. A chlorine gas-water mixture shall be applied to the system by means of an approved chlorinating device. The method of application of the chlorine applied shall be sufficient to provide a

concentration of 300 parts per million of free chlorine. The chlorinated water shall be retained in the pipe long enough to destroy all non-spore forming bacteria, or a minimum retention period of at least three hours. During the sterilization period, all valves and other appurtenances shall be operated while the system is filled with chlorinating agent.

Chlorine application shall not cease until the entire main is completely filled with solution. The chlorinated water shall be retained in the system for at least 24 hours, during which time all valves and hydrants shall be operated in order to disinfect the appurtenances. At the end of the 24-hour period, the pipeline water shall contain not less than 25 parts per million (ppm) chlorine throughout the entire pipeline. After the specified retention period, the chlorinated water shall be flushed from the main until the residual chlorine concentration is no higher than that prevailing in the existing system or less than .20 parts per million.

After final flushing and before the water main is placed in service, not less than two samples of water at points not to exceed 2,000 feet apart shall be collected at least 24 hours apart in sterile bottles treated with sodium thiosulfate. All sampling shall be witnessed by a representative of the County. The samples shall be forwarded to a laboratory certified by the Virginia Department of Health for bacterial examination. If this examination indicates the presence of coliform organisms, the entire disinfection process shall be repeated or continued until the examination indicates the absence of such pollution.

Pipe, taps and fittings used at connections to the existing system shall be thoroughly disinfected before installation. Excavation for such connections shall be kept free from water until the connection is completed, and extreme care shall be exercised to prevent contamination of the pipe and connection fittings. The inside of the existing pipe within 3 feet of the point of connection shall be disinfected by spraying with a solution containing not less than 200 ppm of chlorine immediately before connection is made. If at any time the water in the existing piping becomes contaminated, this piping shall be disinfected as specified for new piping, back to the nearest gate valve or valves, or beyond those points as necessary to include all contaminated piping.

The complete disinfection process and methods followed, especially if materially different from those specified, shall be in accordance with the directives of the Virginia Department of Health, and all methods employed shall meet with this approval. Definite instructions as to the collection and shipment of the samples shall be requested from the Department of Health and shall be followed explicitly. Final approval of the bacterial examination shall be received from the Department of Health prior to placing the new pipeline into operation.

## **5 Water Supply System Materials and Standards - Pipe and Fittings**

### **5.01 Pipe Materials**

The following pipe materials are approved for use in water systems to be owned by the County. All water lines 4" and greater in diameter constructed for use in water systems to be owned by the County shall be Ductile Iron Pipe (DIP) or Polyvinyl Chloride Pipe (PVC)..

- A) Ductile Iron Standard Mechanical Joint Pipe - Ductile iron standard mechanical joint pipe shall conform to ANSI/AWWA C151/A21.51 or latest revision and shall be double-lined with cement mortar, seal coated and have a protective exterior coating. Thickness class shall be

minimum Class 52. A greater thickness class may be required when conditions so dictate. Polyethylene encasement, in accordance with ANSI A21.5 (AWWA C105) may be required under certain soil conditions.

- B) Ductile Iron "Push-On" Joint Pipe - "Push-on" or "slip" joint ductile iron pipe shall conform to ANSI/AWWA C151/A21.51 or latest revision, as manufactured by U.S. Pipe, Tyton Joint Pipe or approved equal. It shall conform to the requirements for mechanical joint pipe in regard to strength, class, protective coating, and lining.
- C) Ductile Iron Flanged Pipe - Ductile iron flanged pipe shall conform to ANSI ANSI/AWWA C151/A21.51 or latest revision. Thickness class shall be a minimum Class 53. Threads shall conform to ANSI B1.20.1. The pipe shall conform to the requirements for mechanical joint pipe in regard to protective coating and lining.
- D) Ductile Iron Polyurethane-Lined Pipe - Polyethylene line ductile iron pipe shall be as manufactured by U.S. Pipe, "Polythane Lined", or approved equal.
- E) Ductile Iron Restrained Joint Pipe - Where restrained joint pipe is to be used, it shall conform to ANSI/AWWA C151/A21.51, and shall be as manufactured by U.S. Pipe, TR Flex Restrained Joint Pipe, or approved equal.
- F) Polyvinyl Chloride (PVC) Pipe – All PVC water pipe shall be molecularly oriented polyvinyl chloride (PVCO) pressure pipe and shall conform to AWWA Standard C909, and be minimum Pressure Class 200. Wall thickness and Outside Diameter shall be as indicated in Table 1 of AWWA Standard C909. NOTE: The use of PVC pipe for water lines 4" and greater in diameter constructed for use in water systems to be owned by the County is prohibited without the specific written approval of the County Administrator or the Director of Engineering.
- G) Galvanized Steel Pipe - Galvanized steel pipe shall be Schedule 80, National Pipe Thread (NPT).
- H) HDPE Pipe - Will be considered for installation for transmission lines only with no branches or taps allowed. Its general installation will be reviewed on a case-by-case basis when normal open trench construction and/or jack and bore casing pipe with internal carrier pipe is not practical. The design engineer shall specify the particular pipe and the rating shall meet or exceed 150 psi operating pressure. These installations will generally be by directional drilling.
- I) Polyethylene Tubing - Polyethylene tubing shall be CTS, O.D, Class 200, SDR-9, and shall be "indent" marked with class, size and NSF-PW rating.
- J) Copper Tubing - 1 inch and smaller for underground services shall be seamless, annealed copper tubing Type K, in conformance with ASTM B88. Fittings shall be case bronze with flared joints. Copper Tubing 1-1/4 through 2" for underground services shall be seamless hard copper tubing Type K, in conformance with ASTM B88. Fittings shall be wrought copper with soldered joints. Solder shall be 95-5 lead free solder meeting the requirements of NSF 61.



- K) Special Pipe Coatings - Where required, ductile iron pipe shall be coated inside with 24 mils dft of Kop Coat 300M by Carboline Company, or approved equal, in accordance with manufacturers recommendations. Coating shall be applied and tested by the pipe manufacturer in accordance with manufacturers recommendations. Certification of coating shall be submitted to the Engineer.
- L) Bored Steel Casing - Steel casing pipe shall be welded or seamless or smooth wall, consisting of Grade "B" steel as specified in ASTM A-139. Minimum yield strength shall be 35,000 psi, and pipe thickness shall be as specified on the construction plans. All pipe shall be furnished with beveled ends prepared for field welding of circumferential joints. Welds shall be a full penetration welds subject to visual inspection. All burrs at pipe ends shall be removed. Encasement pipe must be approved by the appropriate controlling agency (V.D.O.T., R.R., etc.) and the Engineer prior to ordering. Spiral weld casing pipe will not be allowed.

## 5.02 Pipe Fittings

The following fittings are approved for use in systems to be owned by the County.

- A) Ductile Iron Pipe Fittings - Ductile iron fittings shall be cement-mortar lined with seal coating, mechanical joint ductile iron with a minimum pressure rating of 250 psi. Standard fittings shall conform to ANSI/AWWA C110/A21.10 or latest revision. Compact fittings shall conform to ANSI/AWWA C153/A21.53 or latest revision. Fittings shall be as manufactured by Griffin Pipe Products, U.S. Pipe or approved equal.
- B) Field Installed Joint Restraints - Field installed mechanical joint restraints shall have a minimum working pressure of 250 psi, a minimum safety factor of 2:1, and shall be 'Megalug', as manufactured by EBAA Iron, Inc., or approved equal.
- C) Field Installed Restrained Flange Adapters - Field installed restrained flange adapters shall be ductile iron, have flange bolt circles that are compatible with ANSI/AWWA C115/A21.15 or latest revision. The flange adapters shall have a minimum pressure rating of 250 psi, and shall be 'Megaflange', as manufactured by EBAA Iron, Inc., or approved equal.
- D) Pipe Skids and Casing End Seals - Pipe skids shall be configured to suit the specific installation, and shall be Model S-12G as manufactured by Pipeline Seal and Insulator (PSI), Inc., or approved equal. Casing end seals shall be standard pull-on type, Model S as manufactured by PSI, Inc., or approved equal.

## 5.03 Pipe Supports

- A) Pipes shall be supported by steel pipe hangers, clamps, brackets, rods and inserts as required to support the imposed pipe loads. Hangers in general shall be new, manufactured of carbon steel and hot dipped galvanized after fabrication or 304 stainless steel.
- B) Pipes 2 ½ inches and larger shall be supported with adjustable floor stand type pipe supports as detailed on the drawings. Pipe supports shall be Standon Model S89 flange support, Standon Model S96 cradle support as manufactured by Material Resources, Inc. or approved equal.

C) Pipes 2" and smaller shall be supported from the floor, walls or ceiling depending on the type of building construction. Pipe supports for these size pipes shall be as manufactured by Unistrut Building Systems, B-Line or approved equal. Supports shall consist of floor stands, wall brackets or clevis type hangers. Strut and appurtenances shall be stainless steel. Clips for copper tubing shall be copper coated. Minimum threaded rod size shall be 3/8 inch.

D) Ductile Iron and steel pipe supports shall be spaced in accordance with the following schedule:

Pipe sizes (inches)	1/2 -3/4	1- 1 1/4	1 1/2 - 2	3 - 4
Max spacing (feet)	4	6	8	10

E) Copper tubing pipe supports shall be spaced in accordance with the following schedule:

Nominal tubing size (inches)	1/2 -3/4	1- 1 1/4	1 1/2 - 2
Max spacing (feet)	4	5	6

F) PVC pipe supports shall be spaced in accordance with the following schedule:

Nominal pipe size (inches)	1/2 -3/4	1- 1 1/4	1 1/2 - 2	3 - 4
Max spacing (feet)	2.5	3	4	6

G) Maximum spacing between pipe supports shall be 10 feet for all pipes 6" and above. This is a maximum spacing and does not take into account valves, fittings, flow meters, risers, drops and other devices. Locations where these are installed will require additional supports.

H) In addition to the above, pipe supports shall be located as per the following:

1. Maximum spacing as indicated above.
2. Maximum of 12 inches from all horizontal and vertical changes in direction.
3. On the suction and discharge of pump piping to eliminate pipe stresses on the pump flanges.
4. On the connections to all equipment to eliminate pipe stresses on the equipment connections and allow equipment removal.
5. On the inlet and outlet piping to the water meter to allow the removal of the water meter.

6. At the location of valves, fittings or other devices that cause additional weight to the piping.
7. Additional pipe supports as indicated on the drawings.

#### **5.04 Gate Valves**

Valves 3 inches to 12 inches shall be resilient wedge gate valves, ductile iron bodied, non-rising stem with 2-inch operating nut, counter-clockwise opening, mechanical joint or flanged ends, designed for bubble tight closure at 200 psi working pressure.

Gate valves shall conform to AWWA C509, and shall be manufactured by American Flow Control, Kennedy, Mueller, or approved equal.

Gate valve extensions shall have a 2-inch square wrench nut on top end and socket to fit 2-inch square nut on bottom. Valve extensions shall be Mueller A-26441, or approved equal.

#### **5.05 Butterfly Valves**

Valves greater than 12 inches shall be butterfly valves, iron bodied with rubber-seated, self-adjusted disc seal.

Buried valves shall be provided with operators with non-corrosive type of construction for input shaft, seals, bushings and bolting. Operators shall be totally enclosed and permanently lubricated for direct burial of the valves and frequent submergence in water up to 20 feet of head. The operator shall open the valve on a counterclockwise rotation of the operator wrench. Valve ends shall be mechanical joint or flanged.

Butterfly valves shall meet or exceed AWWA C-504, and shall be as manufactured by Mueller, American Darling, or approved equal.

#### **5.06 Hydraulic Control Valves**

Hydraulic operated control valves shall consist of pressure reducing valves, pressure sustaining valves, altitude valves, pump control valves, surge relief valves, surge anticipator valves, flow control valves or other similar type hydraulically controlled valves.

#### **5.07 Valve Boxes**

Valve boxes, base extensions, head and cover shall be cast iron and heavily coated with asphalt-based paint. The cover or head shall be round and shall have the word "WATER" cast upon it. Valve boxes shall meet or exceed ANSI/AWWA C110/A21.10-82 or latest revision, and shall be as manufactured by East Jordan Iron Works, Tyler, Bingham & Taylor or approved equal.

## **5.08 Reduced Pressure Zone (RPZ) Backflow Preventer**

Backflow prevention devices shall be installed on all new development structures as required per VDH Waterworks Regulations, Fluvanna County Code, and DPW's Cross Connection Control and Backflow Prevention Program and Policies. Type, size, and locations shall be shown on the construction plans for facilities where these devices are required. These devices (domestic, irrigation, and fire) must be tested and a Backflow Prevention Device Certification form submitted to DPW prior to DPW sign-off on the certificate of occupancy. See Section 10 for a copy of the Backflow Prevention Device Certification form.

## **5.09 Curb Boxes**

Curb boxes, extensions, foot pieces, and lids shall be cast iron, heavily coated with asphalt-based paint, as manufactured by Mueller or approved equal.

## **5.10 Fire Hydrants**

Hydrants shall be of the compression type with main valve openings not less than 5 ¼ inches in diameter, double O-ring seals and safety flange, and shall conform to AWWA C502 requirements. Hydrants shall have a cast iron body with full bronze trim. Hydrants shall have a minimum 6-inch connection base for setting with a minimum of 42-inch cover on connection pipe. Hydrants shall be equipped with hose connections as follows:

- A) Two each 2½ inch, N.S.T. hose connections.
- B) One each 4½ inch, N.S.T. pumper connection.

Hydrants shall be operated by a National Standard 1½ inch pentagon shaped operating nut, opening counterclockwise. The direction of opening shall be clearly marked by an arrow cast on the outside of the hydrant.

Hydrants shall be traffic model either Mueller Centurion, Kennedy K81-A, or approved substitute.

## **5.11 Automatic Air Release Valves**

Air release valves shall be the universal type, orifice with the same diameter as the inlet, with a working pressure from 0 to 300 psi, stainless steel float, and resilient seat. Valves shall be type "U" with minimum 1-inch diameter screwed NPT connection as manufactured by Crispin Multiplex Manufacturing Co., or approved equal.

## **5.12 Pressure Gauges**

Pressure gauges shall be of all stainless steel construction, 3.5 to 4 inch case size, accuracy of 1% over the entire dial arch and a ¼" NPT bottom connection, Pressure range shall be as indicated on the drawings. Pressure gages shall be Ashcroft stainless steel case 1009 pressure gauges or approved equal. All pressure gages shall be installed with a ¼" stainless steel ball valve and stainless steel nipples. Gages shall be graduated so the system operating pressures

are in the middle third of the scale. All pressure gages shall be mounted with fittings or on fitting bosses. NO TAPPING OF PIPE OR SADDLES WILL BE ALLOWED.

### **5.13 Tracer Wire and Access Boxes**

Non-ferrous water mains shall have tracer wire attached to the pipe and a detectable tracer tape buried in the trench 18 inches above the main but no less than 24 inches below grade.

Copper tracer wire shall be THHN, 12-gage, insulated with a blue colored insulated tracer wire access boxes are to be utilized and spaced no more than 1000 feet apart. Tracer wire access boxes shall be installed adjacent to all fire hydrants. A concrete mow collar shall be installed at finished grade around all tracer wire access boxes.

The tracer wire access boxes shall be made of cast iron with a permanently attached 3" x 12" ABS tube with a flared end to secure it in the ground with tamper-resistant cast iron locking lid and stainless steel terminal connectors on the bottom side to which tracer wires are attached. Lid shall be opened using a standard AWWA pentagon key. Enough slack shall be coiled inside the box to allow the removal of the lid. Lid shall be marked sewer.

### **5.14 Service Saddles**

Service saddles shall be of non-corrosive material (e.g. bronze, stainless steel, or epoxy-coated ductile iron). They shall have a rubber gasket or "O"-ring type seal. Service saddles with a single strap shall have minimum strap width of 1½ inches. Double-strap saddles shall have minimum ¾ inch flat-faced straps. Straps and fasteners shall be constructed of stainless steel. Service saddles shall be as manufactured by Ford, Mueller or approved equal and shall meet the applicable sections of ANSI/AWWA C-800.

### **5.15 Corporation Stops and Curb Stops**

Corporation Stops shall be of the ball type with CTS pack joint outlet. Inlet threads shall be AWWA taper thread for all corporation stops used on direct taps. Ball-type corporation stops shall be of brass construction, shall meet AWWA C-800-84, and shall be as manufactured by Ford, Mueller, or approved equal.

### **5.16 Water Meters**

The size and type of all water meters shall be determined by the County Administrator based on fixture count and the proposed use(s).

All water meters shall be equipped with a Radio Frequency Meter Interface Unit (MIU) appropriate to the type of meter specified and as manufactured by Neptune Technology Group, Inc. and compatible with the County's radio read system.

Positive displacement meters shall meet AWWA – C700, latest revision "Standard Specifications for Cold Water Meters", and shall be a Model T-10, as manufactured by Neptune Technology Group, Inc.

Turbine type meters shall meet AWWA – C701, latest revision, and shall be a Model HP Turbine, as manufactured by Neptune Technology Group, Inc.

Compound type meters shall meet AWWA C702, latest revision, and shall be a Model Tru/Flo Compound, as manufactured by Neptune Technology Group, Inc.

All meters greater than Full 3/4" in size shall be provided by the property owner or his contractor.

## **5.17 Construction Within Public Rights of Way**

On projects in which water lines are to be designed and constructed within public right(s) of way, the following additional materials specifications shall apply:

- A. Pipe Materials – Class 52 Ductile Iron Pipe which meets the applicable portions of the specifications in Section 5.01 of this manual shall be used for all waterlines constructed within public right(s) of way.
- B. Service Lines – Service lines smaller than 3" in diameter shall be polyethylene tubing in accordance with the specifications in Section 5.01.H of this manual. Service lines 3" or larger in diameter shall be Class 52 Ductile Iron Pipe which meets the applicable portions of the specifications in Section 5.01 of this manual.
- C. Tapping Saddles – Where tapping saddles are permitted to be used they shall be of stainless steel construction and shall be Model FTSS or FAST as manufactured by Ford Meter Box Company, or approved equal.

## **6 Sanitary Sewer Systems**

### **6.01 General**

The requirements of these standards must be satisfied for all systems to be incorporated into the County inventory. Such systems include construction within areas of existing or proposed easements on private property dedicated to the County or within a public right-of-way where specifically permitted by the Engineer or County Administrator. Specific variances to these standards must be approved and authorized, in writing, by the County Administrator upon request of the applicant.

All standards referenced in this section shall refer to the latest edition of the referenced standard at the time of final approval. The authority for amendment to sewer standards shall vest with the County Engineer. The authority for discretionary provisions for sewer designs shall rest with the County Engineer. Any references to acceptance and/or approval shall mean acceptance and/or approval by the County.

## **6.02 Private Sewer Service**

Building sewer connections, or portions of building sewer connections outside the VDOT right-of-way or County easement shall be privately owned, operated and maintained.

## **6.03 Relationship to Waterworks Structures**

Public wells, other public water supply sources, structures, and sewers shall meet the requirements of the Virginia Waterworks Regulations with respect to minimum distances from water supply wells or potable water supply sources and structures. No sewer line shall pass within 50 feet of a potable water supply source or structure unless special construction and/or pipe materials are used to obtain adequate protection. The Design Engineer shall identify and adequately address the protection of all potable water supply structures within 100 feet of the proposed project. A minimum 10 feet edge to edge horizontal separation shall be maintained between sanitary manholes and water services, meter boxes or meter vaults.

## **6.04 Vertical and Horizontal Separation from Other Utilities**

Normally where storm sewers or other utilities pass over or under sanitary sewers, a minimum of 18 inches of separation should be maintained. The County may allow the separation to be less than 18 inches but no less than 12 inches on a case-by-case basis. Ductile iron pipe (Class 52 minimum) must be utilized for the sanitary sewer where the separation is less than 18 inches.

Where the sanitary sewer is installed parallel to a storm sewer, there shall normally be a minimum of 5 feet of horizontal separation measured edge to edge between them. Under unusual conditions, this requirement may be reduced by the County. If a sanitary sewer is located more than 5 feet below the bottom of a parallel storm sewer, the Department of Public Works may require that the distance between the pipes be increased.

## **6.05 Location of Sewers in Relation to Streams, Estuaries, Lakes and Reservoirs**

Sewers entering or crossing streams shall be of sufficient depth below the natural bottom of the streambed to protect the sewer line, but with a minimum of 24 inches of cover on the pipe. In paved channels, the top of sewers shall be placed a minimum 18 inches below the bottom of channel pavement. Sewers shall remain fully operational during a 25-year storm event. Sewers and their appurtenances located along streams shall be protected against the 100-year storm event. In no case shall a sewer line be located within a Stormwater Management (SWM) and/or BMP facility or its associated easement.

## **6.06 Sewer-Only Accounts**

The County will allow sewer-only accounts. Sewer-only accounts will not be charged water use fees, but the private wells supplying such accounts must be fitted with meters. Meters must be accessible to and will be read by the County in order to establish quantities per billing cycle for applicable sewer charges. The size and location of the water meter shall be shown on the project plans. All water meters must meet or exceed AWWA specification C700, C701 or C702 latest revision as approved for the size and type of meter to be installed.

## **6.07 Pretreatment**

All users of the County's sewer system shall comply with the Fluvanna County Pretreatment Ordinance and the County's Pretreatment Program. See Chapter 21, Article III, Division 3 of the Fluvanna County Code.

## **6.08 Grease Traps**

Grease, oil and sand traps shall be provided when in the opinion of the County they are necessary for the proper handling of liquid wastes containing such ingredients or any other of a flammable or harmful nature.

All grease, oil and sand traps shall be of a type and capacity approved by the County. They shall be of substantial construction, watertight and equipped with easily removable covers which when bolted in place shall be gas and watertight.

All grease, oil and sand traps shall be maintained by the owner at his expense in continuously efficient operation at all times.

## **6.09 Inverted Siphons**

Inverted siphons shall not be allowed without specific written approval of the Director of Public Works, and only in cases where other alternatives make the use of inverted siphons in the best interest of the County.

# **7 Gravity Sanitary Sewer Design Parameters**

## **7.01 Tributary Population**

Sewer systems shall be designed to carry the peak flows generated by the estimated future population from all contributing points under consideration. The estimated future service population will be based on the adopted County Comprehensive Plan for the drainage area to be served. The estimated average daily flow will be computed using the unit flows from Table 3-1.

Consideration will be given to the domestic, commercial, institutional, and industrial wastes plus groundwater infiltration in determining the necessary capacity of the sewer system. A design analysis and design summary in the format contained in Detail G-06 in this manual shall be submitted with all project plans. A sewer shed map and overall design analysis showing all potential tributary connections shall be provided with the plans for any project which includes construction of any sewer line(s) which are included in the County's Water and Wastewater Master Plan.



## 7.02 Design Capacity

New sewer systems will be designed to carry the estimated peak flow from the contributing watershed plus any flows pumped into the watershed from pump station(s). Peak flows shall be determined as follows:

- A) For average daily flows ( $Q_A$ ) greater than 0 mgd and less than 0.50 mgd, peak flows ( $Q_P$ ) will be 4.0 times the average daily flow. ( $Q_P = 4.0 \times Q_A$ )
- B) For average daily flows greater than 0.50 mgd but less than 6.00 mgd, the peak flow in mgd will be equal to  $(4.136 - (0.273 \times Q_A)) \times Q_A$ , where  $Q_A$  is in mgd.
- C) For average daily flows greater than 6.0 mgd, peak flows shall be 2.5 times the average daily flow. ( $Q_P = 2.5 \times Q_A$ )

The unit flows from Table 3-1 will be assumed to cover infiltration. When deviations from the flow rates of Table 3-1 are proposed, a description of the procedure used for the sewer design shall be included with the submission of the site development plans. The use of flows other than those listed in Table 3-1 requires the written permission of the County.

## 7.03 Hydraulic Design Criteria

Sewers shall have a uniform slope and straight alignment between manholes, with uniform slope maintained along the entirety of each branch of the sewer system to the greatest extent practicable.

Sewers will be designed to be free flowing with a hydraulic grade below the crown of the pipe. All sewers will be designed with slopes in accordance with Table 7-1 below:

**Table 7-1 Minimum Slope**

<u>Sewer Size (Inches)</u>	<u>Minimum Slope (feet/100 Feet)</u>
8	0.40
10	0.28
12	0.22
14	0.17
15	0.15
16	0.14
18	0.12
21	0.10
24	0.08
27	0.07
30	0.06

36	0.05
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All sewers will be designed so that the actual depth of flow in the pipe during peak flow conditions will not exceed 80% of the pipe's nominal inside diameter ( $d/D \leq 0.80$ ). Capacity and velocity computations for gravity sewers shall be done using the Manning formula with units as follows:

Manning Equation: 
$$V = \frac{k}{n} R_h^{2/3} S^{1/2}$$

V = velocity (fps)

Q = flow rate (gpm)

S = pipe slope (% or ft/ft)

A = pipe cross-sectional area (sf)

R = pipe hydraulic radius (ft)

k = conversion factor between [SI](#) and [English units](#). (It can be left off, as long as you make sure to note and correct the units in your "n" term. If you leave "n" in the traditional SI units, k is just the dimensional analysis to convert to English. k=1 for SI units, and k=1.49 for English units)

Manning roughness coefficient, n, of 0.013 shall be used for all pipe materials.

Upper or terminal sewer runs shall have an absolute minimum slope of 1.00% regardless of diameter, unless there is a distinct possibility that the sewer line will be extended within five (5) years of construction.

Minimum grades shall not be less than those required to produce a velocity of approximately two and one quarter (2.25) feet per second when the sewer size selected is flowing full or half full. Pipe sizes shall not be arbitrarily increased in order to take advantage of a flatter grade.

Gravity sewers shall be designed such that the maximum velocity in any pipe will be 10 fps. Where site slope conditions dictate that velocities must exceed 10 fps, the sewer shall be constructed of ductile iron pipe conforming to USM 5.01.

Computations for velocity of flows shall be based upon the following values of "N" as used in the Manning formula for velocity of flow:

- a) Sizes 8 inch through 21 inches, N = 0.013
- b) Sizes 24 inch and above, N = 0.012

In cases where the calculated depth of flow is less than pipe flowing full, the velocity at actual depth of flow shall be computed. For sewage flow depth less than 1/4 full, an allowance shall be made for increased value of "N" and in no case shall velocities of less than 1.3 feet per second be permitted. The improved velocities shall be accomplished by steeper grades and not by changing pipe diameter.

The minimum size for gravity sewer mains shall be 8 inches in diameter. The diameter, length, and slope of all proposed sanitary sewer runs shall be shown on the profile views of the sewer on the project plans. The pipe length, size and material shall be shown in the plan view(s) of the sewer on the project plans.

Generally, the sizes of pipe shall be continually increasing with increase of tributary areas. However, when steep grades are available and length is such that a significant cost savings will result without jeopardizing the system, the size of pipe may be reduced a maximum of two nominal diameters, but not below 12 inches, with approval of the County Engineer. Proper hydraulic allowances must be made for resulting head losses.

Where pipe diameters increase at manholes in direction of flow, effluent invert shall be lowered below influent elevation to match crowns.

Special consideration shall be given to cases where pipe diameters decrease in direction of flow to prevent surcharging of the incoming pipe.

Where velocities greater than 15 feet per second are expected, special provisions shall be made to protect against internal erosion by high velocity. The pipe shall conform to appropriate ASTM or AWWA specifications which provide protection against internal erosion.

#### **7.04 Structural Design**

Structural requirements must be considered in the design of all sanitary sewers and appurtenances. This is a matter of detail design and is not subject to generalization. The following general criteria should be considered by the design engineer at a minimum:

- A) Special Structures - Whenever possible sanitary sewer structures shall be built as shown in the Standard Details. Structures other than those shown in the Standard Details shall be considered special structures and shall be designed and detailed by a professional engineer licensed in the State of Virginia.
- B) Pipe Foundation - In all cases the proper strength sewer pipe shall be specified for the proposed depth, width of trench and bedding condition. Soil conditions should be considered with samples being obtained where necessary to verify pipe selection and foundation design.
- C) Flotation - Sewer shall be designed to resist flotation where such conditions may be reasonably expected to exist, i.e. – large diameter PVC pipe in high ground water areas.

The proper strengths shall be determined and indicated for sewer pipe materials being specified. Strength shall be based upon pipe size, proposed depth, width of trench, bedding

conditions, existing ground conditions, etc. This is a matter of detail design not subject to simple generalizations. Minimum bedding shall be Class C.

In deep cuts, it is generally preferable to change pipe strengths to obtain proper design rather than vary bedding conditions. However, pipe strength or class shall be shown on plans with stations to indicate the location.

No change in strength or material shall be made between manholes unless it can be substantiated that a considerable cost savings would result and integrity of system would not be jeopardized. Proper precautions shall be taken regarding correct location(s) of varying strength of pipe.

The thickness of precast concrete manhole walls shall be increased when total depth of manhole exceeds 30 feet. The minimum manhole diameter shall be increased to 60 inches when the total depth equals or exceeds 24 feet.

Gravity systems receiving pumped flows shall be protected against sulfide attack for a distance of 1200 feet downstream from point of pumped flow entry. This shall be accomplished by the use of acid-resistant pipe and manholes. The Department shall approve the materials and design for the conditions at each individual location. Existing receiving manhole and manholes within 1200 feet shall be internally coated with an approved sulfide resistant lining or coating.

Where odor may be a problem, chemical addition or other odor control method approved by the County Engineer shall be added at the pump station or to the system.

Ductile iron pipe shall be used where sewers enter or cross streams, estuaries, lakes or reservoirs; cross jurisdictional wetland areas; or as a carrier pipe within any bore or tunnel crossing.

Ductile iron pipe shall be used in easements where, in the opinion of the Department, the sanitary sewer is not accessible from a street, parking lot, or driveway.

#### **7.05 Separation of Water Mains and Sanitary Sewers & Location of Sanitary Sewers**

- A) General - The following factors shall be considered when determining whether separation between two different pipes is adequate:
- 1) The materials and types of joints for each pipe
  - 2) Soil conditions.

- 3) Service branch connections into the pipes.
- 4) Offsetting of pipes around manholes.

#### B) Separation of Parallel Pipe Installations

- 1) Sewer lines shall be laid at least 10 feet horizontally from other utilities whenever possible. In all cases, sewer lines shall be installed at least 10 feet horizontally from water lines. Horizontal distance shall be measured outside-edge to outside edge.
- 2) If local conditions prevent a horizontal separation of 10 feet, the sanitary sewer line may be laid up to 5 feet from utility lines other than water lines with the permission of the Director of Public Works.

#### C) Separation of Pipe Crossings

- 1) Sanitary sewer lines crossing below water lines shall be laid to provide a separation of at least 18 inches between the bottom edge of the water line and the top edge of the sewer line whenever possible.
- 2) When local conditions prevent the required vertical separation from being met, the following construction shall be used:
  - (a) Sewers passing over or under water lines shall be constructed of AWWA approved water pipe as described in USM 5.01.
  - (b) Water lines passing under sewers shall be protected by providing:
    - (i) A vertical separation of at least 18 inches between the bottom of the sewer and the top of the water line.
    - (ii) Adequate structural support for the sewers to prevent excessive deflection of the joints and the setting on and breaking of the water line.
    - (iii) The length of the water line be centered at the point of the crossing so that joints shall be equidistant and as far as possible from the sewer.
  - (c) All pipes shall be tested in place without leakage prior to backfilling.
- 3) A minimum of 12 inches will be maintained between sanitary sewer lines and utility lines other than water lines.

### 7.06 Location of Gravity Sewers

Since all sanitary sewers must be accessible for operations and maintenance:

- A) In general, sewers shall be placed in utility easements dedicated to the County, and shall run adjacent to, and parallel to, the street or travel way. On curved streets, the sewer main

shall not be closer than 5 feet to the highway right of way line except at street intersections or as otherwise permitted. Manholes shall not be located in areas where water backs up during a storm. Detailed reasons why alternate routes cannot be used must be submitted for substantiation. Projected cost alone is not an acceptable reason.

No water line shall pass through or come in contact with any part of a sewer manhole.

- B) When sanitary sewer lines cross gas transmission lines the sanitary sewer will be constructed of Class 52 ductile iron pipe, or the sewer line will be installed in a steel casing running the entire width of the gas line easement. If the sanitary sewer is constructed of ductile iron pipe, the line will be polyethylene encased in accordance with ANSI/AWWA C105. If the gas transmission main is constructed of steel pipe, the distance to the nearest anode bed will be shown on the project plans. Test pits will be dug on the transmission main at the proposed crossings. Test pit locations will be shown and labeled on the Project Plans.
- C) Sanitary sewers shall be designed to run below the water system. All water lines will cross above sanitary sewers with a minimum vertical separation of 18 inches. The County may require the sanitary sewer to be constructed of ductile iron pipe when minimum separation is provided. At all utility crossings, except for water, a minimum vertical separation of 12 inches will be maintained between the utility line and the sanitary sewer.
- D) Sanitary sewer lines shall not be located within any public or private Stormwater Management (SWM) and/or BMP facilities, or their associated easements.
- E) Construction shall be along the centerline of rights-of-way or easements except when this location has been previously used by another utility, or when the width of a road right-of-way justified the use of two sewer lines. Exception to this specified location will be allowed only when it can be established that it is not practical to adhere to the standard location.
- F) All sewers shall be on continuous grade between manholes.
- G) Sewers should intersect in manholes at angles not less than 90 degrees. Additional manholes shall be installed as required or an alternate route used.
- H) Where sewer depth is 10 feet or less, sewer mains and manholes shall be located a minimum of 10 feet horizontally from any part of a building, structure, or its foundations. Where the depth of sewer is greater than 10 feet, the sewer mains and manholes shall be located a minimum of 15 feet from any part of a building, structure, or its foundation or a distance equal to the depth of the excavation whichever is greater.
- I) Sewer lines shall be protected from a 100-year flood by either raising manhole tops above flood plain or by the use of watertight frames and covers. Where watertight frames and covers are used, unventilated length of sewer cannot exceed 1000 feet. Manhole covers shall be no more than 30 inches above ground level.
- J) Vandal proof manhole frames and covers shall be used on all manholes not in paved streets unless watertight covers are required.

- K) Where possible in unpaved areas, manhole covers shall be approximately 12 inches above final grade.
- L) At the upstream manhole in a cul-de-sac, the maximum number of sewer connections allowed into the manhole is 3.

## **7.07 Water Crossings**

All crossings of streams, estuaries, lakes and reservoirs shall be constructed of Class 52 ductile iron pipe. The pipe and joints shall be tested in place and shall exhibit no infiltration, and shall be designed, constructed and protected against anticipated hydraulic and physical, longitudinal, vertical and horizontal loads and erosion and impact.

Construction of sewers on piers across ravines or streams shall only be permitted when it can be demonstrated that no other practical alternative exists. Such sewers on piers will be constructed of Class 52 ductile iron pipe with mechanically restrained joints. Detailed design information and details of such aerial crossings and piers shall be included in the Project Plans.

The Developer or his Design Engineer shall be responsible for obtaining all required State and Federal permits to install a surface water crossing, and for all expenses associated with such permit(s). At stream crossings, the top of the sewer shall be a minimum of 1 foot below the stream channel when the stream bed is rock, or 3 feet when the stream bed is sand or other unconsolidated material.

When a sanitary sewer runs parallel to a stream, the invert of the sewer shall be a minimum of three (3) feet below the invert of the adjacent stream channel to ensure that adequate crossings can be made. A profile of the stream channel invert shall be shown on the sanitary sewer profile.

## **7.08 Manholes**

The minimum inside diameter for a manhole shall be 4 feet. A larger inside diameter may be required depending on the pipe diameter and the type(s) of connector(s) used. The inside diameter of each manhole shall be noted on the sanitary sewer profiles. Pipes larger than 24 inches in diameter shall have minimum 5-foot diameter manholes.

Manholes equal to or greater than 18 feet deep shall have minimum inside diameter of 5 feet. Manholes equal to or greater than 25 feet deep (where permitted) shall have a minimum diameter of 6 feet.

Manholes shall be provided at all junctions with other sewers, at all points of change in alignment or pipe slope, and at the terminal point of the main. The maximum distance between manholes shall be 400 feet.

At all collector system manholes, the difference between the influent and effluent inverts shall be 0.20 feet unless otherwise stated in this manual.

Drop connections at manholes shall be avoided wherever practicable. However, where the proposed difference in invert elevations is equal to or greater than 36 inches a drop connection may be used. All drop connections shall conform to Standard Detail SC-07.

Where there is an increase in pipe size at a manhole, the crown elevations of the pipes shall match.

Manholes shall extend above the known level of flooding or, if this is not possible or practical, watertight manhole frames and covers shall be installed. On watertight gravity sewer lines manhole vents conforming to the Details Section in this manual will be provided at least every 1,000 feet.

Manhole tops located in open areas out of yards, roads, travel ways, and parking areas will be set a minimum of 2 feet above the surrounding finished grade unless otherwise directed by the County.

All manholes shall be provided with a watertight manhole insert as described in USM Standard Detail SC-02. The manhole insert shall be a No Flow/Inflow Insert, or Rainstopper Insert as manufactured by Southwest Packing and Seals, or approved substitute.

To assist in preventing infiltration/inflow, all newly installed manholes shall be constructed with an external manhole chimney seal between the manhole casting, adjusting rings, and cone section, as shown in USM Standard Detail SC-03.

Under no circumstances shall manholes be located in sidewalks or other pedestrian travel ways. Manholes shall not be located within parking spaces unless expressly permitted by the County.

Manholes within 1,000 feet of the discharge point for a sanitary sewer force main, or the first 3 manholes downstream of such discharge point, whichever encompasses the greater number of manholes, shall have interior linings to prevent corrosion. On new manholes, such lining shall be T-loc or approved equal. In situations where a force main is being connected to an existing manhole, the affected manholes (as described above) shall be thoroughly cleaned, and protected from corrosion by the application of a lining system approved by the County. The proposed lining system will be shown and specified on the project plans.

Manholes must be placed at a minimum of 10 feet horizontally from water mains (edge to edge) wherever possible. Exceptions to this separation distance must be submitted in writing to the Director of Public Works. Manholes must be of watertight construction and tested in place for leakage.

Manholes constructed on fill shall be constructed with a false bottom extending to undisturbed ground, or some another approved means of preventing settlement of the manhole.

All manholes in a project will be assigned a unique alphanumeric identifier on the project plans. Such designation shall consist of a two-letter designation and a four-digit number (XX-####).



## **7.9 Water Tightness**

Watertight manhole frames and covers shall be provided whenever manholes may be flooded. As a minimum, watertight frames and covers shall be used in areas where the frames will be below the 25-year flood level. Watertight systems shall be vented at least every 1,000 feet.

## **7.10 Service Connections**

Gravity sanitary sewer service connections shall be installed from the main to the property line or easement line (at a minimum) and shall have a minimum 4-inch inside diameter and shall be designed in accordance with Standard Detail SC-07 or Detail SC-08 in this manual. All service connections must be connected by means of a manhole connection or a pre-manufactured tee or wye, or with a saddle type connection approved by the County. Service connections to terminal manholes shall not exceed three in number at any one manhole. Service connections to in-line manholes must obtain prior approval from the County.

A sanitary sewer lateral table shall be included in the project plans. For residential subdivisions the table shall be organized in order of ascending lot numbers. For each sanitary sewer lateral, the table shall provide, as a minimum, the following information: identification of the upstream and downstream manholes from the connection point of the lateral to the main; the size of the main; the distance along the main from the downstream manhole to the connection point; the invert of both the main and the lateral at the connection point; the size, slope and length of the lateral; the elevation of the lowest proposed finish floor with plumbing fixtures of the building to be served by the lateral; and the difference in elevation between the crown of the main at the connection point and the lowest proposed finish floor with plumbing fixtures of the building to be connected to the lateral. If risers are to be used on the lateral, the length and height of the riser shall be included in the lateral table.

The lowest floor elevation of any structure to be served by gravity shall be a minimum of 4 feet above the invert elevation of its sewer service connection at the sewer main. For existing structures, connection to the public sewer with plumbing fixtures located on a floor of the structure that is less 4 feet above the sewer main as specified above shall not be allowed unless a written waiver is obtained from the County or a pumping operation is utilized.

Sewer laterals shall not be tied directly into a trunk sewer unless specifically approved by the County Administrator.

## **7.11 Pipe Material Selection and Depth of Cover**

The applicable pipe materials listed in Section 9 of this manual have been generally approved for use. However, the acceptability of specific pipe materials for use within the County's service area shall be determined by the County on an individual basis at the time of review of final plans. This will necessitate that prospective developers/builders or their engineers contact the County directly to ascertain its specific pipe material requirements. The type or types of pipe allowable for use on any specific project shall be shown on the approved project plans. There will be no change in pipe material along a pipe run, from manhole to manhole, unless approved by the County Administrator.

Normally, sewers constructed in a street, travel way or other paved surface shall have a minimum cover of 5 feet and maximum cover of 20 feet. Such sewer lines may be installed with between 3½ and 5 feet of cover, provided that the sewer is constructed of minimum Class 52 Ductile Iron Pipe but may be installed with greater than 20 feet of cover only with prior approval of the County Administrator.

Sewer constructed in unpaved areas will have a minimum cover of 4 feet and a maximum cover of 20 feet. Such sewer lines may be installed with between 2½ and 4 feet of cover provided that the sewer is constructed of minimum Class 52, Ductile Iron Pipe, but may be installed with greater than 20 feet of cover only with prior approval of the County Administrator. Any time the depth of cover is less than two pipe diameters for a significant distance, calculations will be provided showing that buoyant forces will not cause floatation of the line.

All sewers with a depth of cover of 20 feet or greater will be constructed of minimum Class 52 Ductile Iron Pipe. The class of pipe used will be in accordance with Table 7-2. All sewers constructed on fill will be constructed of minimum Class 52 Ductile Iron Pipe.

<b>Type 4" Laying Condition Cement-lined D.I.P.</b>				<b>Class 1 Gravel Bedding PVC** SDR-35</b>	<b>Max Trench Width (inches)</b>
<b>Pipe</b>	<b>Class 50</b>	<b>Class 51</b>	<b>Class 52</b>		
8	40	40	40	18	42
10	38	40	40	18	42
12	36	40	40	18	42
14	33	38	40	--	42
15	--	--	40	18	42
16	30	34	40	--	44
18	29	32	36	18	44
20	27	30	34	--	42
21	--	--	--	18	48
24	23	27	30	18	51
27	--	--	--	18	55
30	18	21	24	--	60
33	--	--	--	--	63
36	17	20	24	--	69
42	16	19	22	--	78
48	15	18	21	--	87
54	15	18	21	--	96
<b>** For depths in excess of 18 feet, Engineer shall provide design data.</b>					

Sewage force mains shall be constructed of Class 52 or greater ductile iron, and shall be H2Sewer Safe pipe as manufactured by Griffin Pipe Products, or an approved equal.

## 7.12 Casings and Tunnels

Pipelines that must be bored or tunneled under a roadway, or other obstruction, shall be installed in a steel casing or tunnel as shown in Detail G-05 in this manual. Pipe in casings and tunnels shall be constructed of a minimum of Class 52, ductile iron pipe with restrained joints. Casing spacers shall be as manufactured by PSI, or approved equal. Casings and tunnels on a slope shall be installed so that they will drain. Casings will conform to the details provided in this manual. Complete design information for any utility tunnel shall be included in the project plans.

## 7.13 Anchors

Sewer lines approved for slopes of 20 % or greater shall be anchored securely with concrete anchors or other approved method. Sewers with slopes greater than 14 % will be constructed of ductile iron pipe. Structural and installation details of anchors shall be included in the project plans. Spacing of anchors shall be as follows:

### ANCHOR SPACING REQUIREMENTS

<u>Slope (%)</u>	<u>Anchor Spacing (Center to Center)</u>
20 - 35	36 - ft
35 - 50	24 - ft
> 50	16 - ft

## 7.14 Force Main Service Connections

All properties connecting to the public sewer system shall be served by a gravity sanitary sewer connection. Service connections to force mains shall not be allowed unless formally reviewed and approved in writing by the County.

## 7.15 Private Building Sewer Connections

The design of all building sewer connections outside of the state road right-of-way or other dedicated easements is regulated by the VUSBC.

## **8 Sanitary Sewer System Construction**

### **8.01 General**

Construction of sanitary sewers and appurtenances within the County service areas shall be in accordance with plans and specifications approved by the County. Prior to the construction of an approved sanitary sewer, the Design Engineer shall place adequate line and grade stakes identifying the sewer, manholes, sanitary lateral stub-outs located at the property line, and other appurtenances to insure the system can be constructed in accordance with the approved plans. The Design Engineer shall then prepare legible cut sheets at 100-foot stations. Cut sheets will contain all data pertinent to the construction of the sewer main, the station and length of service connections, the location of all concrete encasements or cradles and the finished grade of all manhole rims. Three sets of all cut sheets shall be submitted to the County for review and approval.

If a deviation from the approved plans in the horizontal location or grade of any sewer, structure or appurtenance is necessary, a revision to the approved plans showing the proposed deviation must be submitted to the County for review and approval before the changes are constructed.

### **8.02 Excavation and Trenching**

Excavation shall conform to the lines and grades shown on the approved project plans and cut sheets. The slope of the sides of the excavation shall be kept as nearly vertical as possible consistent with worker safety and the types of materials encountered. Where required to maintain safe working conditions, trench walls will be sloped or benched. A clear area shall be maintained a sufficient distance back from the top edge of the excavation to avoid overloading which may cause slides, cave-ins or shifting of the pipe. The contractor shall provide sheeting, bracing and shoring necessary to perform the work, and protect existing structures and excavations in accordance with the Virginia OSHA Regulations. The width of the trench from the foundation to 12 inches above the pipe shall not exceed the maximum width as shown in Table 7-2.

The bottom of the trench shall be accurately graded to provide uniform bearing and support for each section of pipe on undisturbed soil along the entire length of the pipe, except where it is necessary to excavate for bell holes and for the proper sealing of pipe joints. Bell holes and depressions for joints shall be only of such length, depth and width as required to make a proper joint. Bell holes and depressions for joints shall be backfilled with granular material and compacted. Excavation shall not be carried below the established grades unless unsuitable materials incapable of supporting the pipe are encountered. Wherever the soils encountered at the trench bottom are incapable of adequately supporting the pipe, the trench shall be over excavated until a stable foundation is reached. The over excavation shall be filled with suitable backfill material having a maximum particle size of 1 inch, placed in 6-inch lifts and compacted until the trench bottom is brought to grade.

All water entering the trench excavation shall be removed and disposed of properly. Dewatering equipment shall be sized to maintain the trench in a satisfactory condition for pipe laying. Pipe laying will be permitted only where the depth of water is maintained below the invert of the pipe joint. Water shall be disposed of in a suitable manner without damage to adjacent property and in a manner protective of public health and convenience.

No more than 200 feet of trench shall be excavated in advance of completed pipe laying. Excavation at manholes and similar structures shall be sufficient to have a minimum of 12 inches of clear area between their outer surface and the embankment or sheeting.

Blasting operations shall be conducted in accordance with Applicable Law, as defined in Chapter 21 of the Fluvanna County Code, and all other applicable sections of the Fluvanna County Code and other applicable laws and regulations. After blasting or other approved methods of removal, no projection of rock shall remain nearer than 6 inches to any part of the sewer pipe when laid, nor shall they project beyond the lines and grades of masonry structures. Blasting shall not be done within 40 feet of a completed sewer. The ends of sewers adjacent to blasting operations shall be covered so as to prevent debris from entering the sewer. All blasting operations shall be monitored for air blast and vibration. Reports shall be provided to the County's Inspector as soon after completion of each day's blasting activities as is practical.

### **8.03 Pipe Embedment and Backfill**

VDOT Type B stone, sand, or other material approved by the County shall be used for pipe bedding. Material suitable for pipe bedding shall be deposited and compacted to eliminate the possibility of lateral displacement of the pipe. Bedding material shall be solidly hand tamped around the pipe in 6-inch lifts up to a level at least 6 inches above the top of the pipe. Pipe embedment shall be carried out simultaneously on both sides of the pipe.

The pipe backfill shall consist of clean earth loam, sand or gravel and shall not contain large stones or rocks, frozen material, cinders, ashes, refuse, vegetable or organic material. The backfill shall be deposited and compacted by mechanical tampers except in areas where paving is to be placed over the backfilled trench. Compaction shall achieve a density of at least 95 % of the maximum density as determined by the AASHTO Method T-180.

### **8.04 Pipe Installation**

Stockpiled pipe materials shall be handled by mechanical equipment and placed to avoid interference with traffic and the trenching operation. When installing pipe in the trench, proper implements, tools, and facilities satisfactory to the County and as recommended by the material manufacturer shall be provided and used by the Contractor for the safe and convenient prosecution of the work. All pipe, fittings, and accessories shall be carefully lowered into the trench piece by piece by means of a derrick, ropes, slings or other suitable tools or equipment in such a manner as to prevent damage to the materials and any protective coatings and linings. Under no circumstances shall such materials be dropped or dumped into the trench.

Adequate supports shall be provided for all pipes. In all cases and at all locations the subgrade shall be made by backfilling with crushed stone as indicated in Details G-01 and G-02 in this manual and shall be thoroughly compacted. Continuous and uniform stone bedding shall be provided in the trench for all pipes so that the pipe barrel bears on and is supported by the stone bedding at every point between bell holes. The finished subgrade shall be prepared accurately by means of hand tools. Trenching below the specified grade shall be backfilled with approved material and thoroughly compacted.

The pipe may be laid in a manner best adapted to securing speed and good results, however, the method of pipe laying and jointing shall be in accordance with the manufacturer's recommendations and shall be approved by the County. Damaged or unsound pipe or fittings shall not be accepted. Gravity sewers 24 inches or less shall be constructed with straight alignment between manholes.

Rubber gasket, "O" ring type joints shall be laid true to line and grade and shall be jointed together such that the completed pipe will have a smooth invert. After placing a length of pipe in the trench, the spigot end shall be centered in the open bell of the pipe previously laid and the pipe pushed home with a bar. **THE USE OF LIFTING AND HYDRAULIC EQUIPMENT TO MAKE PIPE JOINTS IS SPECIFICALLY PROHIBITED.** The trench pipe interface shall be shaped to the curvature of both the bell and barrel of the pipe. The trench shall be kept free of water while the work is in progress. The ends of the pipe shall be brushed clean so that proper joints can be made. As the work progresses, the interior of the pipe shall be cleared of dirt, cement, or other superfluous material. The exposed end of all pipes shall be fully closed to prevent earth, water, or other materials enter the previously installed pipe, the pipe shall be immediately cleaned with care taken to preserve any coatings. Gravity sewer pipe shall be laid on standard bedding in accordance with the standard details. Where mechanical joints are specified for ductile or cast-iron pipe and fittings, the joint shall be thoroughly coated with lubricant, the gasket and gland properly positioned, bolts inserted and diametrically opposite bolts drawn up until all bolts are tight. All bolts shall be tightened with a torque wrench set at 55 pounds.

Pipe cutting shall be accomplished with a mechanical cutter or a saw in a manner that will not damage the pipe. Ends of cut pipe shall be beveled to prevent damage to gaskets, fittings, etc.

All bends, tees, plugs and dead ends of pipe for force mains or gravity sewers shall be substantially braced or blocked in the adequate reaction backing. This backing shall be a thrust block of 3,000 psi concrete. The backing shall be placed between solid undisturbed earth and bear solidly against the pipe. All fittings to be braced, blocked and/or anchored shall be placed so that the pipe and fitting joints will be accessible for repair. Required bearing areas shall be determined by the Owner's or Developer's engineers based on pipe size, type fitting, maximum pressures, and type of soil in the thrust area, all subject to the review and approval of the County.

Materials for roadways or driveways shall be compacted to at least 95 % of the maximum density as determined by AASHTO Method T-180.

The site restoration of the entire construction area shall be finished in a neat and uniform condition acceptable to the County.

On gravity sewer lines, 3M-Brand ScotchMark sewer full range disc type line marker devices shall be installed on top of the pipe at the tee of each individual service connection, 5 feet from the stub-out end of each service connection, and at each change in direction along the route of the individual service connection. Marker tape shall be buried along the pipe route, 18 inches above the line, on each individual service connection.

## **8.05 Bores and Tunneling**

Carrier pipes within bores or tunnels for sanitary sewer installation shall be ductile iron (Class 52 minimum) pressure pipe with restrained joints. All casing pipes shall have an exterior corrosion protective coating.

## **8.05 Service Connections**

Pipe between the sewer and the property line shall conform to the applicable sections of this manual and in no case shall be less than four inches inside diameter. Only materials approved by the County may be used from the property line to the building. All pipes from the sewer to the building shall be laid to a grade of not less than  $\frac{1}{4}$  inch per foot unless otherwise approved by the County.

All connections and wyes that are for future use shall be capped as directed by the County. No pipe shall be cut for service connections except as approved by the County. The ends of pipe that enter sewer lines shall be neatly cut to fit the inner face of the pipe. When directed, such cutting shall be done before the pipes are built in. No service connections shall be made into any manholes.

Wyes for service connections shall be installed where indicated on the approved plans. Wye and service connections shall be installed in conformance with these Construction Standards. Each service lateral shall terminate at the property line with a line location marker placed above the stub-out.

In a structure to be served by gravity, the lowest elevation of any floor containing plumbing fixtures shall be a minimum of 4 feet above the crown elevation of the sewer main at its sewer connection. If the structure is ultimately served by a lift station, the lowest elevation of any floor containing plumbing fixtures shall be a minimum of 5 feet above the top elevation of the lift station wet well.

## **8.06 Private Building Sewers**

Building sewer connections from the property line to the building, except those portions which lie within a dedicated right-of way or easement, are regulated by the VUSBC.

## **8.07 Manholes**

The pre-cast base section of sanitary sewer manholes shall be installed on a compacted granular foundation prepared similarly to that required for the proper installation of the sanitary sewer.

Manhole lifting holes shall be plugged with rubber stoppers and an approved non-shrink grout after installation. The non-shrink grout will be applied to the inside and outside of the manhole. Joints shall be formed entirely of concrete employing a round rubber gasket, and when assembled, shall be self-centering and make a uniform watertight joint.

The invert channels of the manhole shall be smooth and semi-circular in shape, conforming to the inside of the adjacent sewer section. Changes in direction of flow shall be made with a smooth curve of as large a radius as the size of the manhole will permit. Changes in the size and grade of the channels shall be made gradually. The invert channels the bench of the manhole outside of the channels shall be brought to grade and formed with poured in place concrete. The bench of the manhole outside of the channels shall be an even float finish and shall slope toward the channels with a minimum slope of  $\frac{1}{4}$  of an inch per foot of run. The invert channel will be at least 0.8 times the diameter of the pipe for lines 8 to 12 inches in diameter. The difference in the elevation of the inverts of incoming and outgoing pipes shall be 0.2 feet.

Standard manhole drop connections shall be installed where indicated on the project plans. Drop connections shall conform to Detail SC-07 in this manual.

Adjusting rings may be used to bring the top of the manhole to the final grade, when this cannot be accomplished with standard pre-cast sections upon approval of the County Administrator. The number of adjusting rings shall be minimized. Manholes shall have an internal or external manhole chimney seal between the manhole frame, adjusting rings and cone section, as shown in Details SC-04 and SC-03, respectively.

Frames and covers shall be of the type and duty shown on the project plans and as specified in this manual.

### **8.08 Pipe Connections at Manholes**

Manholes shall be supplied with an approved, flexible pipe connection suitable for the pipes and manholes specified. Flexible gaskets for pipe connections to manholes shall be made with a flexible rubber manhole sleeve with a flanged waterstop cast into the manhole base by the manufacturer or other flexible connectors acceptable to the County. Flexible gasket for pipe connections shall meet the requirements of ASTM C-923. The sleeve shall be secured to the pipe by means of stainless steel clamps. Manholes with extra connections or openings that must be bricked up, or otherwise changed in configuration, are not acceptable. Connections to existing manholes, when approved by the County, shall be made by coring the manhole and installing a rubber boot.

### **8.09 Frames and Covers**

All frames shall be securely anchored to the related structures as directed by the County, and shall be installed so that the cover shall be exposed and flush with the street surface. If street surfaces are renewed or replaced by the Developer or Owner after the sewer system has been approved and accepted by the County, but while such streets are still the obligation of the Developer or Owner, the frames and covers shall be readjusted to proper location relative to new street surfacing. The frame and cover of manholes or cleanouts located in off-street areas shall be so installed that the covers shall be exposed and either flush or above the immediate surface as deemed advisable by the County.

Pursuant to Section 21.07.06 of the Virginia Sewerage Regulations, watertight manhole covers shall be provided and installed where required so that the cover is to at least the designated elevation of the 25-year flood/wave action. In addition thereto, adequate ventilation shall be provided when such a watertight section of gravity sewer exceeds 1,000 feet in length.



## 8.10 Acceptance Tests

Sewers will be inspected to determine if any deviation from line and grade has occurred. The pipe alignment will be checked by illuminating the interior of the pipe. If the pipe shows poor alignment, displaced pipe, or other defect, including a visible leak, the defect shall be corrected before acceptance.

An acceptance test shall be specified for all gravity sewer lines. The test may be either a water test or air test. Where water testing is specified (exfiltration), the leakage outward shall not exceed 100 gallons per inch of nominal pipe diameter per mile per day (2,500 gpd/mi maximum) for any section of the system including manholes. Where the exfiltration test is employed, a minimum of 4 feet of head at any point in the line and a maximum head of not more than 10 feet shall be used.

Where air testing is specified, test methods and acceptability criteria shall be in accordance with ASTM F1417. Air testing of gravity lines shall generally be acceptable for all types of pipe materials.

If air testing is employed, manholes shall be tested by exfiltration. Use inflatable stoppers to plug all lines into and out of the manhole being tested. The stoppers shall be positioned in the lines far enough from the manhole to insure testing to those portions of the lines not air tested. The manhole shall then be filled to the top with water. A 24-hour soak shall be allowed. Leakage shall not exceed  $\frac{1}{4}$  gallon per hour for a 4-hour test period.

The contractors shall furnish weirs, standpipes, pipe plugs, water, pressure gauges, stop watches, air compressor, hose and such materials and assistance as required to perform these tests. All acceptance tests shall be conducted by the contractor in the presence of the County.

Acceptance tests shall not be made until the sanitary sewer, manholes and required sewer service connections, as shown on the approved project plans, have been installed, sewer trenches backfilled and compacted to finished subgrade.

Sanitary sewers, including manholes, shall be inspected prior to acceptance testing, and any water leakage into the system sufficient to constitute any noticeable trickle or dribble, first shall be corrected and eliminated prior to undertaking the acceptance test.

Whenever it has been necessary to construct underdrains or place gravel under pipelines in order to dewater the trench during construction of the sewers, the acceptance test will not be made until pumps (which have been used in the dewatering process) have been disconnected.

All acceptance tests shall be scheduled with the County at least 48 hours in advance. Each section of completed sewer shall be tested to the satisfaction of the County Inspector. Sewers shall be tested from manhole to manhole. In general, the test procedure shall be as follows:

### A) Low Pressure Air Testing Procedure

- 1) All debris, silt, earth or other materials shall be removed from the sewer prior to acceptance testing. The pipe may be flushed or sprayed with water. None of this water or debris shall be allowed to enter the existing sewer.

- 2) Test plugs shall be supplied and installed within the pipe at each manhole. Each plug shall be securely braced.
- 3) If the pipe to be tested is expected to be below the groundwater table:
  - (a) A small diameter perforated vertical pipe shall be installed from the invert elevation of the sewer to the surface prior to backfilling; or
  - (b) A pipe probe shall be inserted by boring or driving into the backfilling material adjacent to the invert elevation of the pipe, and the depth of the groundwater level above the pipe invert shall be determined immediately prior to acceptance testing the sewer.
  - (c) All gauge pressures in the test shall be increased by the amount of this back pressure due to ground submergence over the end of the probe.
- 4) Air shall be slowly added to the portion of the pipe under test until the internal air pressure is raised to 4 psi gauge plus the groundwater pressure.
- 5) As a safety precaution, no one should be allowed in the manhole after the air pressure is increased in the sewer line. If the County suspects that the test plug may be leaking, the pressure shall be relieved before any adjustments are made to eliminate air leakage at the plug. The contractor may pre-coat the plug with a soap solution to check plugs for leakage.
- 6) The contractor may allow the air temperature to stabilize for at least 2 minutes with the pipe subjected to an internal pressure of 4 psi by adding only the amount of air to maintain 4 psi.
- 7) If the internal air pressure decreases, the time required for the pressure to drop from 3½ to 2½ psi gauge will be observed and recorded. The time interval shall be compared with the established standards in accordance with Tables 8-1 and 8-2.
- 8) Pipe failing to maintain the stipulated pressure for a period equal to or greater than the holding time shown in Tables 8-1 and 8-2 shall be deemed not to have passed the low pressure air test and is unsatisfactory for acceptance by the County. The contractor shall replace sewers or house connections that fail to pass this test. A single repair clamp will be allowed between manholes to facilitate the replacement of defective materials or workmanship.

#### B) Exfiltration Testing

- 1) Service laterals, stub and fittings into sewer lines being tested should be properly capped or unplugged, and carefully braced to resist the thrust actions developed by the internal water pressure. In preparing the blocking of plugs or end caps, it should be recognized that the 5 to 10 feet of head in the standpipe will exert considerable thrusts against the plugs or caps. For example, a 10-foot head will generate a total force of 215 pounds against an 8-inch plug. Further considerations must be given to the fact that

greater pressure will be developed in the downstream portion of the line, due to lower elevations, than in the upper reaches of the sewer line.

- 2) A tapped, plumber's type plug shall be inserted and tightened in the inlet pipe of the downstream manhole to which the water supply connection is made for filling the pipe.
- 3) The upstream (upper) manhole shall be securely plugged for connection to the standpipe. The standpipe shall then be placed in this manhole and connected to the tapped plug. The standpipe must be capable of handling from 5 to 10 feet of water head to determine the tightness and soundness of the sewer line, as specified and directed by the County.
- 4) Water shall be introduced into the line at the downstream (lower) manhole until the standpipe in the upstream manhole has been completely filled. By filling the line from the lowest level, the air in the line is easily pushed ahead and finally dispelled through the standpipe at the upper end of the test section. Since entrapped air will give distorted test results, all entrapped air will be expelled. The rate of drop in the standpipe may be quite rapid until the air has been expelled.
- 5) After filling with water, the line should be allowed to stand for at least several hours before beginning the test. During this time, some water absorption into the manhole structures will take place. After the water absorption has been stabilized, the water level in the standpipe should be checked and water added, if necessary.
- 6) The test shall now begin. The drop in the standpipe shall be measured and recorded over a 10-minute period. To verify the first results, a second 10-minute test is required. This will also verify whether a stable condition exists in the line.
- 7) The measured drops in the standpipe shall be converted to leakage in terms of gallons per inch diameter per mile per day. (Caution should be taken about conducting exfiltration tests on sewer lines laid on steep grades. Consideration must be given to the downstream portion of the system to prevent excessive pressures in these lower lines). For these installations and where the upstream manholes are very deep, it is not advisable to fill the standpipe or manhole to the top when performing the test.
- 8) The contractor shall replace sewer and house connections that fail to pass this test. A single clamp shall be allowed between manholes to facilitate the replacement of defective materials or workmanship.

TABLE 8-1  
SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR PVC SEWER PIPE

1 Pipe Diameter (In.)	2 Min. Time (min: sec)	3 Length for Min. Time (ft)	4 Time for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)								
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft	

4	3:46	597	.380L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46

Normal Pipe Size in	T (Time) Min/100 ft	Nominal Pipe Size in.	T (Time) Min/100 ft
4	0.3	15	2.1
6	0.7	18	2.4
8	1.2	21	3.0
10	1.5	24	3.6
12	1.8		

D <sub>1</sub> Nominal ft <sup>3</sup> /min Pipe Size in	Q ft <sup>3</sup> /min	D <sub>2</sub> Nominal Pipe Size in	Q
4	2	15	4
6	2	18	5
8	2	21	5.5
10	2.5	24	6
12	3		

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### 8.11 Force Main Testing

Sewer force main testing shall be in accordance with water main leakage tests. Specific procedures shall be detailed on the construction plans.

### 8.13 Coordination

Phases of the construction which involve the temporary interruption of essential services shall be scheduled in consultation with the Utility Provider, Property Owners or Utility Users and the County or their representative and shall not be of longer duration than essential to accomplish the purpose for such interruptions. Liaison in this matter shall be required before beginning any work. The Contractor shall notify the County not less than 48 hours in advance of commencing work. The Contractor shall give not less than 48 hours' notice in advance of the time and date of making any connections to the existing water or sewer system. The County may disapprove the

time and date of any and all connections and will advise the Contractor as to a suitable time and date.

The contractor shall not operate any valves on the County system or make connections to existing sewer and water lines before proper notification is made to the County so that inspection of this work can be made.

#### **8.14 Grades, Lines and Levels**

The Design Engineer shall establish baseline and control points. From these points the Contractor shall furnish necessary personnel and equipment to establish line and grade as required for the work. The Contractor shall furnish detailed construction documents to the County before beginning construction. The data on the documents shall include all information as specified in these specifications but as a minimum shall include, but not be limited to, centerline elevations (existing and proposed), centerline cut, centerline invert, manhole locations, manhole top and invert elevations, grade between manholes, and bench mark locations and elevations. Stationing intervals shall be every 50 feet.

The Contractor shall be responsible for the preservation of all stakes and marks established by the Design Engineer, and if any of the stakes and marks are carelessly or willfully disturbed, the cost of replacing them shall be charged against the Contractor.

Design Engineer shall certify that all streets, including curb and gutter, are to the correct finish grade prior to acceptance of utility construction by the County.

#### **8.15 Measurement and Payment – Classified Construction**

For purposes of measurement and payment the following terms shall have the meaning assigned to each.

- A) Main Trench: A trench essentially parallel to rights-of-way or property lines and in which the proposed utility lines are to be installed.
- B) Service Trench: A trench essentially perpendicular to main trenches and in which the proposed utility service pipes are to be installed.

Classified Excavation: The removal and disposal of earth, hardpan or rock materials according to the following:

- A) Earth Excavation: The removal and disposal of pavement, less than 4 inches thick, underground structures and utilities indicated to be demolished and removed, and all other materials encountered not classified as hardpan or rock excavation.

- B) Hardpan Excavation: The removal and disposal of material that cannot be removed from the trench without the use of an air spade or blasting. Indurated clay, shale or sand with cementitious materials is typical of this material.
- C) Rock Excavation: The removal and disposal of all solid rock that cannot be excavated without continuous and systematic drilling and blasting or continuous use of rock excavation equipment. Boulders 1/2 cu. yd. or more in volume, solid rock, and rock in ledges are typical of this material.
- D) Hand Excavation: Excavation made with hand tools when in the opinion of the Engineer such excavation is necessary. Hand excavation where called for on the drawings will be considered part of the contract and will not be paid for under unit prices. Hand excavation shall be performed under the drip line of trees, at curb and gutters, pipe crossing utilities, sidewalks, driveways, utility poles and any other place where the contractor must hand dig to prevent damage to existing utilities or structures or for the safety of personnel.
- E) Test Hole Excavation: Excavation made at the direction of the Engineer for any purpose related to work.
- F) Concrete Paving Removal: Removal of paving greater than 4 inches thick, including concrete curbs, gutters and sidewalks.

#### Measurement and Payments for Excavation:

- A) Hardpan and Rock: Main line trench and force main trench shall be computed and paid for according to the actual depth of the hardpan or rock to the invert of the pipe plus the 6 inch bedding material and the actual length of the trench, and, for main line trench and force main trench, the actual width of the trench not to exceed the nominal pipe diameter plus 24" for pipes up to 30 inches and less in diameter. The width of the service trench shall be 2 feet. For pipe 36 inches, or greater in nominal diameter, the trench width shall be the outside diameter plus 36 inches and trench depth shall be based on the depth of rock to the outside barrel of the pipe plus 6 inches. Where the trench width is not calculated to a foot or half-foot, the measurement shall be rounded to the next 6 inches. Manhole and structure excavation shall be for the depth encountered including the base and 6 inch cushion of bedding material. The horizontal dimensions shall assume a square extending 1 foot beyond the exterior walls of the structure when forming is not required and 2 feet when forming is required. Payment for rock excavation in the pipe trench will not be allowed for this distance.
- B) Earth: Main line trench, force main trench and service trench, when payment is to be computed on a volumetric basis shall be computed as set forth for hardpan and rock, except that the depth shall be in accordance with the cut sheet, which is the bottom of the pipe for force mains and the invert of the pipe for gravity lines. When excavation payments are on a depth basis, measurements shall be from the ground surface at the centerline of the trench to the invert of the pipeline.

- C) Bedding in rock, hardpan or earth: Bedding required for pipe laid in rock, hardpan, or earth shall be included in the unit excavation price for these items.
- D) For trenches, the pay width for single pipe excavation shall be the nominal diameter of the pipe, plus 12 inches or a minimum width of 24 inches. When two or more pipes are laid in the same trench, the trench width shall be the sum of the nominal diameters of the pipe plus 12 inches plus 6 inches for each space between the pipes. For lowering or raising mains, the trench width shall be 48 inches. When pay width is not an even foot or half foot it shall be increased to the nearest foot or half foot.
- E) Unauthorized excavation consists of removal of materials beyond indicated elevations or specified widths, without written approval of Engineer. Unauthorized excavation shall be replaced at Contractor's expense.
- F) Hardpan or rock excavation shall not be backfilled until Engineer has verified that such excavation was required and has determined the hardpan or rock profile.

## 9 Sewer System Materials and Standards - Pipe and Fittings

### 9.01 Pipe Materials

The following pipe materials are approved for use in systems to be owned by the County.

- A) Ductile Iron Standard Mechanical Joint Pipe - Ductile iron standard mechanical joint pipe shall conform to ANSI/AWWA C151/A21.51 or latest revision and shall be double-lined with cement mortar, seal coated and have a protective exterior coating. Thickness class shall be minimum Class 52. A greater thickness class may be required when conditions so dictate. Polyethylene encasement, in accordance with ANSI A21.5 (AWWA C105) may be required under certain soil conditions.
- B) Ductile Iron "Push-On" Joint Pipe - "Push-on" or "slip" joint ductile iron pipe shall conform to ANSI/AWWA C151/A21.51 or latest revision, as manufactured by Griffin Pipe Products, Protecto 401 coated, or approved equal. It shall conform to the requirements for mechanical joint pipe in regard to strength and class. Protecto 401 coated pipe, or approved equal, shall be used for all portions of all sanitary sewer force mains 3" and larger.
- C) Ductile Iron Flanged Pipe - Ductile iron flanged pipe shall conform to ANSI ANSI/AWWA C151/A21.51 or latest revision. Thickness class shall be a minimum Class 53. Threads shall conform to ANSI B1.20.1. The pipe shall conform to the requirements for mechanical joint pipe in regard to protective coating and lining.

- D) Ductile Iron Polyurethane-Lined Pipe - Polyurethane lined ductile iron pipe shall be as manufactured by U.S. Pipe, "Polyurethane Lined", or approved equal.
- E) Ductile Iron Restrained Joint Pipe - Where restrained joint pipe is to be used, it shall conform to ANSI/AWWA C151/A21.51, and shall be as manufactured by U.S. Pipe, TR Flex Restrained Joint Pipe, or approved equal.
- F) Polyvinyl Chloride Pipe - PVC pipe shall conform to ASTM 3034 (SDR35). Pipe shall be clearly marked to show class, size, and manufacturer's name. Fittings for PVC pipe shall be mechanical joint ductile iron.
- G) High Density Polyethylene Pipe (HDPE) - will be considered for installation for sanitary sewer force mains only. Its general use will be reviewed on a case-by-case basis for all of the applicable methods of installation, i.e. normal open trench construction or horizontal directional drilling when jack and bore casing pipe with internal carrier pipe is not practical. The design engineer shall specify the particular pipe and the rating shall meet or exceed 150 psi operating pressure.
- H) Steel casing Pipe - for boring or jacking under highways and railroads shall meet the requirements of ASTM A139, Grade B. Nominal pipe diameter and wall thickness shall be as indicated on the Standard Drawings. No protective coating or lining will be required. Casing pipe laid in an open cut shall be, steel pipe.
- I) Special Pipe Coatings - Where required, ductile iron pipe shall be coated inside with 24 mils dft of Kop Coat 300M by Carboline Company, or approved equal, in accordance with manufacturers recommendations. Coating shall be applied and tested by the pipe manufacturer in accordance with the manufacturer's recommendations. Certification of coating shall be submitted to the Engineer.

## 9.02 Pipe Fittings

The following fittings are approved for use in systems to be owned by the County.

- A) Ductile Iron Pipe Fittings - Ductile iron fittings shall be cement-mortar lined with seal coating, mechanical joint ductile iron, with a minimum pressure rating of 250 psi. Standard fittings shall conform to ANSI/AWWA C110/A21.10 or latest revision. Compact fittings shall conform to ANSI/AWWA C153/A21.53 or latest revision. Fittings shall be as manufactured by Griffin Pipe Products, U.S. Pipe or approved equal.
- B) Field Installed Joint Restraints - Field installed mechanical joint restraints shall have a minimum working pressure of 250 psi, a minimum safety factor of 2:1, and shall be as manufactured by EBAA Iron, Inc., Megalug, or approved equal.
- C) Field Installed Restrained Flange Adapters - Field installed restrained flange adapters shall be ductile iron, have flange bolt circles that are compatible with ANSI/AWWA C115/A21.15 or latest revision. The flange adapters shall have a minimum pressure rating of 250 psi, and shall be as manufactured by EBAA Iron, Inc., Megaflange, or approved equal.



- D) Pipe Skids and Casing End Seals - Pipe skids shall be configured to suit the specific installation, and shall be Model S-12G as manufactured by Pipeline Seal and Insulator (PSI), Inc., or approved equal. Casing end seals shall be standard pull-on type, Model S as manufactured by PSI, Inc., or approved equal.

### 9.03 Pipe Supports

- A) Pipes shall be supported by steel pipe hangers, clamps, brackets, rods and inserts as required to support the imposed pipe loads. Hangers in general shall be new, manufactured of carbon steel and hot dipped galvanized after fabrication or 304 stainless steel.
- B) Pipes 2 ½ inches and larger shall be supported with adjustable floor stand type pipe supports as detailed on the drawings. Pipe supports shall be Standon Model S89 flange support, Standon Model S96 cradle support as manufactured by Material Resources, Inc. or approved equal.
- C) Pipes 2" and smaller shall be supported from the floor, walls or ceiling depending on the type of building construction. Pipe supports for these size pipes shall be as manufactured by Unistrut Building Systems, B-Line or 12-12 approved equal. Supports shall consist of floor stands, wall brackets or clevis type hangers. Strut and appurtenances shall be stainless steel. Clips for copper tubing shall be copper coated. Minimum threaded rod size shall be 3/8 inch.
- D) Ductile Iron and steel pipe supports shall be spaced in accordance with the following schedule:

Pipe sizes (inches)	1/2 -3/4	1- 1 1/4	1 1/2 - 2	3 - 4
Max spacing (feet)	4	6	8	10

- E) PVC pipe supports shall be spaced in accordance with the following schedule:

Nominal pipe size (inches)	1/2 -3/4	1- 1 1/4	1 1/2 - 2	3 - 4
Max spacing (feet)	2.5	3	4	6

- F) Maximum spacing between pipe supports shall be 10 feet for all pipes 6" and above. This is a maximum spacing and does not take into account valves, fittings, flow meters, risers, drops and other devices. Locations where these are installed will require additional supports.
- G) In addition to the above, pipe supports shall be located as per the following:

1. Maximum spacing as indicated above.
2. Maximum of 12 inches from all horizontal and vertical changes in direction.
3. On the suction and discharge of pump piping to eliminate pipe stresses on the pump flanges.
4. On the connections to all equipment to eliminate pipe stresses on the equipment connections and allow equipment removal.
5. On the inlet and outlet piping to the water meter to allow the removal of the water meter.
6. At the location of valves, fittings or other devices that cause additions weight to the piping.
7. Additional pipe supports as indicated on the drawings.

#### **9.04 Gate Valves**

Valves 3-inches to 12-inches shall be resilient wedge gate valves, ductile iron bodied, non-rising stem with 2 inch operating nut, counter-clockwise opening, mechanical joint or flanged ends, designed for bubble tight closure at 200 psi working pressure.

Gate valves shall conform to AWWA C509, and shall be manufactured by Mueller, American Flow Control, Kennedy or approved equal.

Gate valve extensions shall have a 2-inch square wrench nut on top end and socket to fit 2 inch square nut on bottom. Valve extensions shall be Mueller A-26441, or approved equal.

#### **9.05 Plug Valves**

Valves greater than 12 inches shall be Plug valves, semi-steel, mechanical joint or flanged end, nickel seat permanently welded to the body, resilient Neoprene covered eccentric plug, replaceable 316SS permanently lubricated upper and lower journal bearings and externally accessible, replaceable V-ring or U-cup valve shaft seals.

Underground valves shall be provided with operators with non-corrosive type of construction for input shaft, seals, bushings and bolting. Operators shall be totally enclosed and permanently lubricated for direct burial of the valves and frequent submergence in water up to 20 feet of head. The operator shall open the valve on a counterclockwise rotation of the operator wrench.

Plug valves shall meet or exceed AWWA C-504&507, and shall be as manufactured by DeZurik, Keystone, or approved equal.

#### **9.06 Valve Boxes**

Valve boxes, base extensions, head and cover shall be cast iron. The cover or head shall be round and shall have the word "Sewer" cast upon it. Valve boxes shall meet or exceed ANSI/AWWA C110/A21.10-82 or latest revision, and shall be as manufactured by East Jordan Iron Works, Tyler, Bingham & Taylor or approved equal.

## 9.07 Tracer Wire and Access Boxes

Non-ferrous force mains shall have a tracing wire installed during construction.

Copper tracer wire shall be THHN, 12 gauge, insulated with a green colored insulation. Wire shall be secured to the pipe every 8 feet and within 12 inches on either side of fittings. Tracer wire access boxes shall be installed no more than 1000 feet apart and adjacent to all inline valves on force mains. A concrete mow collar shall be installed at finished grade around all tracer wire access boxes.

The tracer wire access boxes shall be made of cast iron with a permanently attached 3" x 12" ABS tube with a flared end to secure it in the ground with tamper-resistant cast iron locking lid and stainless steel terminal connectors on the bottom side to which tracer wires are attached. Lid shall be opened using a standard AWWA pentagon key. Enough slack shall be coiled inside the box to allow the removal of the lid. Lid shall be marked sewer.

## 9.08 Automatic Air Release Valves

Air release valves shall be the combination air-vacuum type, with a working pressure from 0 to 300 psi, stainless steel float, and resilient seat. Valves shall be type "S/SL" with minimum 1 inch diameter screwed NPT or flanged connection as manufactured by Crispin Multiplex Manufacturing Company., or approved equal.

## 9.09 Manholes

Sanitary sewer manholes shall consist of precast reinforced concrete sections, an eccentric conical section, and an expanded base section, extending a minimum of 4 inches and a maximum of 8 inches beyond the outside vertical wall (riser section) of the manhole.

Manhole sections shall be precast and manufactured in accordance with ASTM C-478. Manholes shall be carefully made and shall have no honeycombs or other deteriorated surfaces. All surfaces shall be smooth. Each section shall have no more than two holes for the purpose of handling and setting. Joints shall be of the O - ring rubber gasket type or other jointing system approved by the County. The joint design shall meet the requirements of ASTM C-361. When assembled the joint shall be uniform and watertight.

In addition to the O-Ring gasket, 301 mastic joint sealer shall be used to assist in sealing the joint from either internal or external hydrostatic pressure. Other joint systems acceptable to the County may be used. The joint design shall meet the requirements of ASTM C443 and the gaskets shall meet ASTM C-361. No mortar joints will be permitted. The interior/exterior of all precast manhole sections shall be coated with a minimum of 16 mils dft of Kop Coat 300M by Carboline Company, or approved equal, in accordance with the manufacturer's recommendations

Steps for manholes shall be securely placed in position in the manhole sections during the manufacturing process and shall be made of minimum 0.5" diameter epoxy coated steel and shall have a polypropylene plastic coating. Steps shall be models ML-10, ML-11 and I-11 as manufactured by American Step Company, or approved equal. Steps will be set in the manholes as shown in the Details Section in this manual.

Insert holes for the required sewer connections shall be cast in the manhole sections during the manufacturing process and shall conform to the actual minimum diameters required to properly seal the connection. Riser sections shall be continuous where pipe enters the manhole. On pipes sized 18 inches and larger, sealing shall be accomplished by using an integrally cast rubber gasket as manufactured by A-Lok Corporation, or an approved equal. On pipes sized less than 18 inches, sealing shall be accomplished by flexible connectors comprised of rubber boots and dual stainless steel straps as manufactured by Kor-N-Seal, or an approved equal.

All manholes shall be equipped with a watertight manhole insert as shown in the Detail SC-02 in this manual. The manhole insert shall be a No Flow/Inflow insert, or Rainstopper insert as manufactured by Southwest Packing & Seals, or an acceptable substitute approved by the County.

When frames and covers will be subject to traffic loading, they shall be heavy weight, 350 pounds. Where there will be no traffic loading, the frames and covers may be light weight, 290 pounds.

Castings shall be of best quality, tough, gray iron, free from cold shunts, blow holes, and other imperfections and shall meet the requirements of ASTM A-48, Class 30. The castings shall be sound, true to form and thickness, cleaned by sandblasting and neatly finished. The bearing surfaces shall be machine ground and finished to insure satisfactory seating and anti-rocking. Covers shall receive one coat of black asphalt base paint at the factory.

Covers shall be furnished with two pick holes and two center lifting holes. Frames and covers subject to traffic loading shall be as manufactured by East Jordan Iron Works, Product Numbers 104514 and 104325 respectively, or an approved equal. Covers for use in easements and remote locations shall be of the cam-locking type as manufactured by East Jordan Iron Works, Product Number 104500, or an approved equal. The castings on all manholes shall be anchored to the manhole.

## **9.10 Construction Within Public Rights of Way**

On projects in which the County Administrator has specifically allowed sanitary sewer system extension(s) to be designed and constructed within public right(s) of way, the following additional materials specifications shall apply:

- A) Pipe Materials – All gravity sewer lines, sewage force mains and sewer service laterals constructed within public rights of way shall be Protecto 401-coated Class 52 Ductile Iron, or approved equal, and shall meet the applicable portions of the specifications in Section 9.01 of this manual.
- B) Tapping Saddles – Where permitted for use, tapping saddles shall be epoxy-coated cast iron with stainless steel bands, by Genco or approved equal.

## **9.11 Marker Posts**

In easements and in undeveloped wooded areas, plastic markers shall be installed every 200 feet, and at all manholes, valves, and fittings. Markers shall be as manufactured by Carsonite or

approved equal. Exceptions are where sanitary gravity and force main lines are installed in "kept" yards where the property owners may object to the placement of these markers. Contractors will be required to properly install the markers per manufacturer's recommendations, parallel to the sewer line facing roadway, or as additionally directed by the County.

## **10 Sewage Pumping Stations and Force Mains**

Public sewage pumping stations will only be allowed when approved by the County and consistent with the County's Water and Wastewater Master Plan. Sewage pump stations will be used when it has been determined by the County that a pump station is the only practical way to provide sanitary service based upon a finding that:

1. It is economically impractical to extend a gravity sewer and the use of a pump station will not adversely affect the County's ability to serve the area with a gravity sewer at a future time; and
2. The proposed design and plan for the pump station and connecting lines do not adversely affect the current financial status of the County sewer system; and
3. The proposed design of the pump station permits replacement of the pump station with a gravity sewer without significant capital outlay at a future time; and
4. The pump station will not overload the existing sewage facilities and will not otherwise negatively affect the County's ability to efficiently manage the sewer system.

The design requirements for a sewage pumping facility shall be determined through discussions with the County prior to initiating the design of the proposed facility.

Firm capacity for the pumping station and force main shall be based on Section 7.02 Design Capacity of these Standards, and shall take into consideration such parameters as minimum, average and peak station inflows as well as minimum, average and maximum pumping rates.

Pumping into a common force main shall be avoided if possible. When it is necessary, the County may require the Developer to submit a hydraulic evaluation investigating potential impacts to other connected pumping stations to the County for review and approval. This may require an upgrade in electric service, pump size, controls and the installation of VFD's at the expense of the Developer.

### **10.01 Sewage Pumping Stations**

- A) The type of equipment to be installed in the pumping station will be influenced by the interim and ultimate capacity of the station and an evaluation of the period of time that the service of the station will be required.

- B) A magnetic-type flow meter shall be installed in the discharge piping and analog wet well level indication instrumentation shall be installed to record wet well level and control pump operation.
- C) The architecture of the pumping station shall be consistent with the zoning and general appearance of the surrounding area.
- D) Site grading, seeding or sod, and trees or shrubs shall be provided to present a finished appearance, as approved by the County department having jurisdiction.
- E) Approved fencing with gates shall be provided as deemed necessary to properly protect the facility. Unless otherwise approved, an eight-foot chain link fence with three (3) rows of barbed wire shall be installed around the operational area with at least one 12 foot double gate.
- F) The Design Engineer shall determine the availability of electric service and coordinate the available electrical service with that required for the facility. The engineer shall also determine the need for primary service extension and advise the Department if an extension is necessary. Minimum service shall be 240 volts single phase for up to 7.5 horsepower motors. Motors larger than 7.5 horsepower shall be 3-phase with VFD's to convert single phase to three phase or the pumping station supplied with 3 phase power. Control cabinets shall have HVAC as required for temperature and humidity control.
- G) "Reliability Class" shall be class 1 for all pump stations in accordance with the Virginia Department of Environmental Quality SCAT Regulations and shall comply with the requirements thereof. Each pumping station shall have a permanently installed emergency generator and automatic transfer switch. The transfer switch shall be installed inside a building. The fuel storage tank shall be sized to operate all pumps for 48 hours continuous operation.
- H) The Design Engineer shall consider the need for protection of the pumping station, force main, and receiving manholes against hydrogen sulfide attack and odor, and shall provide the proper equipment if such protection is found necessary.
- I) All motors, motor control and other electrical equipment shall be housed in a building. Adequate provisions shall be incorporated for the proper ventilation, drainage and flood protection in order to ensure maximum reliability, electrical and personnel safety.
- J) Pump Control and SCADA Telemetry shall be through a Programmable Logic Controller as specified by the Department. Telemetry shall be to the SCADA Control Center and be compatible with existing hardware and software.

- K) Where structurally separate wet well and dry wells are provided, adequate provision for differential settlement shall be incorporated by means of flexible pipe joints consisting of a minimum of at least two standardized mechanical joint bell connections or the approved equivalent.
- L) In all permanent sewage pumping stations over 1.0 MGD an adequate headwork structure and wet well shall be provided. The following items shall be provided: employee access via stairs; channel grinders for solids, bar rack for large solids and a davit hoist for removing screenings from headwork. A maintenance platform shall be provided in each wet well.
- M) All handrails, ladders and grating shall be aluminum. All pumping stations shall be of sufficient size and contain adequate clearances to provide ample room for maintenance and equipment replacement. In wet well/dry well stations a bridge crane shall be provided for removing pumps.
- N) The facility shall be connected to a public water supply. An RPZ type backflow preventer shall be installed on the water service. Where a public water supply is not available, a water supply well shall be installed.

## **10.02 Force Mains**

- A) Force mains shall have a positive slope from the pumping station to the point of discharge unless unusual conditions make it impractical. Extra depth of bury shall be provided in lieu of air or air/vacuum relief valves wherever feasible. Every effort shall be expended to maintain the force main below the hydraulic gradient. Where a relief valve is required, an automatic valve shall be provided and installed inside a standard manhole with adequate means of drainage. When this is not possible, all high points shall have a combination air/vacuum valve installed
- B) Every effort shall be made to maintain a full force main under operating conditions.
- C) Sizing of main shall be such that velocity shall be a minimum of 2.5 feet per second for self-scouring velocity. A velocity of 6 feet per second should not be exceeded.
- D) All force mains shall be cement-lined ductile iron pipe, C900 PVC pipe or HDPE pipe. Where Hydrogen sulfide could be present the ductile iron pipe shall be epoxy lined.
- E) The Design Engineer shall consider ground conditions in the case of metallic conduits and provide suitable cathodic protection and polyethylene bagging where necessary.

- F) Steel casing pipe shall be in accordance with the Standard Drawings for casing pipe. There shall be a minimum of 4" clear space around the pipe and all appurtenances.
- G) The potential for sulfide and odor generation must be fully evaluated based on the characteristics and properties of odor causing compounds and the principals of control. The appropriate odor and/or sulfide control system shall be provided.

## 11 Supporting Construction

### 11.01 Driveways and Access Roads

A) General - Required driveways and access roads for the County's Wells and Pumping Stations comply with the following and are typically unpaved, unless otherwise specified:

B) Applicable Specifications - Virginia Department of Transportation Road and Bridge Standards and Specifications.

C) Products

- 1) Crushed aggregate shall be Type 21A.
- 2) Semi-Permeable Filter Fabric shall be a synthetic (man-made) filter material to prevent the migration of soil fines from the subgrade and act as reinforcement for the road and meet the following specifications:
 

a) Weight (oz/sq.yd.) ASTM-D1910	4 (min)
b) Thickness (mils) ASTM D-1777	40-50
c) Tensile Strength (lbs.) ASTM D-1682	100 (min)
d) Elongation (%) ASTM - 1682	50 (min)
e) Fabric to retain soil greater than 106 microns (No. 140 sieve)	
f) Fabric to pass soil less than 25 microns.	

D) Execution

- 1) The subgrade for all paved areas shall be excavated to a depth and form sufficient to bring it, when thoroughly compacted, to the proper distance below and parallel with the prescribed level of the sub-base. The subgrade shall be completely tamped in an approved manner prior to placing the sub-base. Compaction shall conform to the Density Requirements in Section 304.04, Compaction Requirements, Virginia Department of Transportation Standard Specifications, which requires the subgrade to be compacted to not less than 98% of the determined dry-weight density.



- 2) The semi-permeable filter fabric shall be placed prior to the sub base construction. Roll widths shall overlap a minimum of 4 feet. Roll end overlap and placement on curves shall be as per the manufacturer's recommendations.
  - 3) The base of Type 21A Stone shall be a minimum of six (6) inches in thickness after compaction and shall be compacted to not less than 100% of the determined dry-weight density.
- E) Maintenance - Until the expiration of the warranty period, the road shall be maintained and all depressions and holes that may occur promptly filled with similar material so as to keep in a safe and satisfactory condition.

## 11.02 Clearing and Grubbing

### A) Protection

- 1) Streets, roads, adjacent property and other works to remain shall be protected throughout the Work.
- 2) Existing trees, shrubs and bushes:
  - (a) Trees shall be protected by fencing, barricades, or wrapping as may be required.
  - (b) Shrubs and bushes shall be protected by fences or barricades as may be required.
  - (c) Shallow-rooted plants shall be protected at ground surface under and in some cases outside the spread of branches by fences, barricades or ground cover protection as may be required.

- B) Requirements of Regulatory Agencies – Applicable Law as defined in Chapter 21 of the Fluvanna County Code, and including without limitation Federal, State and Local laws and code requirements shall control the disposal of trees and shrubs.

### C) Products

### D) Execution

- 1) General
  - (a) When working within temporary or permanent Rights-of-Way, all means possible shall be used to protect from injury and damage, all property, including trees, shrubbery, lawns, fences, buildings, walls, roads, water courses, natural features or any improvements thereto, which may exist. Trees, shrubs or vegetation will not be maliciously injured or destroyed and will not be removed or cut without permission of the County.
  - (b) All operations shall be confined to the width of the Rights-of Way secured by the County or property lines unless further restrictions are specified. All damage done to

property resulting from a Contractor's negligence shall be repaired without charge to the satisfaction of the County with the exception of those items (trees, shrubbery etc.) that must be removed for construction and have been agreed upon beforehand, in writing, between the Contractor and the County.

## 2) Clearing

- a) Limits of clearing shall be within the Rights-of-ways, to limits shown on the Drawings or to limits staked on the ground by the County.
- b) Trees in construction zones or Rights-of-Ways shall not be removed until inspected and/or tagged by the County.
- c) No trees shall be removed within the construction zones or Rights-of-ways except the following:
  - i) Trees or vegetation within VDOT's Rights-of-Ways shall not be removed or altered unless a separate specific permit is obtained from the District Roadside Development Specialist authorizing such removal or alteration.
  - ii) Trees within an excavated area such as footing or trench.
  - iii) Trees whose root system will be destroyed by the excavation.
  - iv) Trees that interfere with the movement of the Contractor's equipment with the approval of the Engineer. Any trees that interfere with the movement of the Contractor's equipment shall be reviewed by the Engineer before they are removed.
- d) All trees bordering any construction zone or Right-of Way shall be protected by acceptable methods. Trees damaged by the Contractor will be either repaired or replaced as determined by the County at the Contractor's expense.
- e) Vegetation within the areas to be cleared, which may be designated to be saved by the County shall be left standing and uninjured.
- f) Remove trees, sapling, shrubs, bushes, vines and undergrowth within the limits of clearing to the heights above ground given in the following table:
  - (i) Trees over 6-inches in diameter: 12 inches
  - (ii) Shrubs, saplings, bushes and trees under 6 inches in diameter: 3 inches
- g) Stumps required to be removed shall be to a depth of 18 inches. This depth shall be measured from the existing ground surface or the proposed finished grade, whichever is the lower.

Engineering requirements shall control removal of stumps under fills, foundations, or any construction in contact with the stumps.

### 3) Grubbing

- (a) Limits of grubbing shall coincide with the limits of clearing.
- (b) Remove all stumps, roots over 4-inches in diameter, and matted roots within the limits of grubbing to the depths below. Such depths shall be measured from the existing ground surface or the proposed finish grade whichever is the lower.
  - i) Footings                      18 inches
  - ii) Walls                            12 inches
  - iii) Roads                         18 inches
  - iv) Parking Areas                12 inches
  - v) Lawn Areas                    8 inches
  - vi) Fills                            6 inches

### 4) Trimming of Trees

- (a) When required, with the County's approval, trees shall be trimmed to remove branches or roots which interfere with construction or traffic. Paint all cut branches and roots with wound paint as recommended for the application.
- (b) No trees or vegetation shall be removed or altered within VDOT's right-of-way unless a separate specific permit is obtained from the District Roadside Development Specialist authorizing such removal or alteration.

### 5) Disposal - Burning of materials on the site will not be permitted.

### 6) Removal of Materials

- a) Material to be removed shall be removed from the site daily as it accumulates.
- b) Should the Contractor elect to continue work beyond normal working hours, material to be removed shall not be allowed to accumulate for more than 48 hours.
- c) Disposal of surplus material within VDOT's right-of-way is prohibited. All surplus material must be disposed of as the work progresses and shall not be stored on VDOT's right-of-way for future removal.

E) Dumping - Prior to depositing surplus material at any off-site location, the Contractor shall obtain a written agreement between himself and the owner of the property on which the disposal is proposed. The agreement shall state that the owner of the property gives permission for the contractor to enter and deposit the material at no expense to the County. A copy of the agreement shall be furnished to the County. Contractor's Disposal shall comply with all Federal, State and Local laws and regulations.

## 11.03 Abandonment

A) **Abandonment of Sanitary Sewer Service** - Excavate at the main and expose the lateral connection. Sever the lateral pipe in the vicinity of the main and cap both ends of the pipe as

approved by the inspector. If it is impractical to excavate the lateral at the main due to depth or location, e.g. a highly travelled road, then the service shall be abandoned using an inserted expandable plug, (Zurn is an acceptable manufacturer) which is inserted down the service to the vicinity of the main and then grout filled behind to seal the pipe. The sewer main shall be inspected with CCTV to verify that it was not affected by the work prior to tentative acceptance being granted by DPW.

- B) **Abandonment of Sanitary Sewer Mains and Manholes** - Sanitary sewer mains and manholes to be abandoned shall be permanently disconnected from the remaining system. Details of special abandonment shall be approved by the Department on a case-by-case basis and per Detail MAN-19. All open ends on abandoned pipe to be permanently sealed by plugging with a pipe plug or cap unless otherwise approved by the County. Salvageable items shall be returned to the Department of Public Works.
- C) **Abandonment of Water Service** - Excavate at the main and expose the corporation stop. Turn off the corporation stop and disconnect the service pipe from the corporation stop. If practical, the corporation stop should be removed and a screw plug installed in the hole. If it is not practical to remove the corporation stop, provide a screw plug for the corporation stop. If the corporation stop is left in place, assist the inspector in referencing the location of the corporation stop for County records. Remove the meter box, yoke and service line. The inspector will deliver the meter to the Customer Service Section of the Department of Public Works.
- D) **Abandonment of Water Mains** - Water mains and hydrants to be abandoned shall be permanently disconnected from the remaining system. Details of the abandonment shall be approved by the Department on a case-by-case basis. All open ends on abandoned pipe to be permanently sealed by plugging with a pipe plug or cap unless otherwise approved by the County. All valve boxes, fire hydrants, flushing hydrants (blow offs) or other appurtenances shall be removed. Salvageable items shall be returned to the Department of Public Works.

## 12 Appeals

### 12.01 Appealable Decisions

Any Applicant for sewer service or water service from the County who is denied a variance under Section 1.08, shall have the right to appeal any such determination by the County Administrator to the Chairman of the Fluvanna County Board of Supervisors. In a case of a denial of a variance, the Applicant shall have the right to request a Written Determination by the County Administrator of the reasons for such denials, if not already received.

## **12.02 Written Appeals**

The Applicant shall have the right to appeal an Appealable Decision by filing a written request no later than thirty (30) days after the date of any written decision. The County Administrator shall note and record all such appeals as of the date of receipt thereof and shall forward the same to the Chairman and the members of the County Board of Supervisors, within five (5) business days of a receipt of the appeal.

## **12.03 Board Consideration of Appeal**

The County Administrator shall place the appeal on the agenda of the earliest scheduled Board of Supervisor's Meeting, based upon date of receipt of the appeal.

## **12.04 Decision on Appeal**

The Board, on consideration of the appeal, may affirm or reverse, in whole or in part, any Appealable Decision of the County Administrator. The Board may also direct that the County Administrator prepare an amendment to the Utility Standards Manual to address the issue raised by the appeal. In the case of a denial of service, the Board may direct the County Administrator to provide service to the Applicant upon such terms and conditions as may be established by the Board. The vote of a majority of the Board shall be required to reverse any decision of the County Administrator.

## **12.05 Deadline for Board Action**

The Board shall render a decision on any such appeal within ninety (90) days after such appeal is first placed on the agenda of the Board, unless any such Applicant and the Board may mutually agree to an extended time period. Failure of the Board to act on such appeal shall be deemed a denial of the appeal.

## **12.06 Form of Appeal**

All appeals shall be filed upon the forms provided by the County and shall be accompanied by a written statement of the reasons any such Applicant disputes the determination of the County Administrator. All such forms shall be filed at the main offices of the County at 132 Main Street, Palmyra, VA 22963 during normal business hours.





# Utility Master Plan Overview and Connection Fee Rate Analysis

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Fluvanna County, VA

October 5, 2022

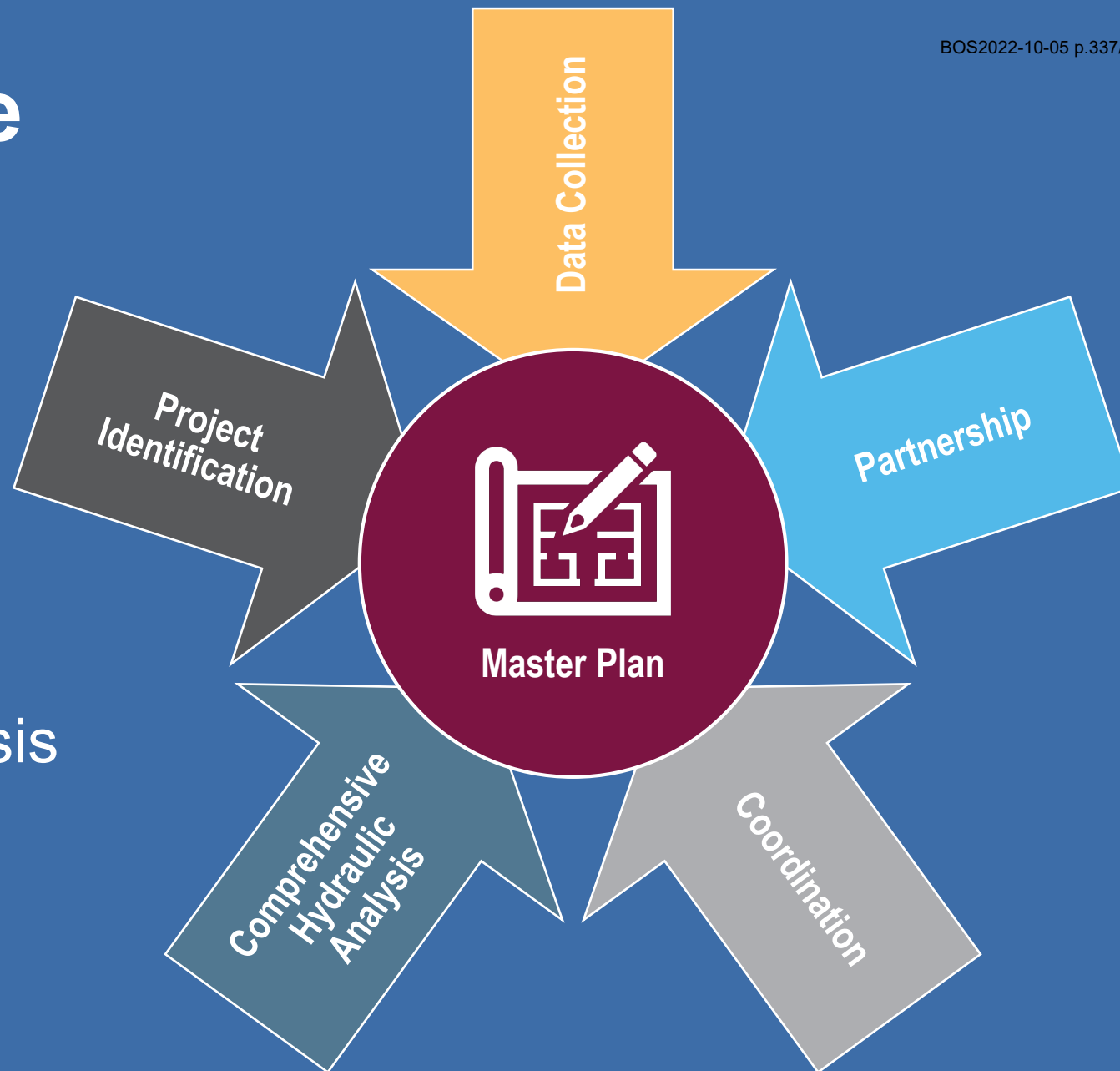
# Purpose and Scope

*“...to provide Fluvanna County and its Public Works Department with a roadmap for its planning of improvements, upgrades, extensions, and expansions to meet future needs while maintaining cost-effective water and wastewater service to a growing number of County customers...”*



# Purpose and Scope

- Asset Management Plan
- Utility Master Plan
- Capacity Fee and Rate Analysis



# Central Fluvanna Utility Systems

---

Fork Union Sanitary District (FUSD) and Palmyra



Figure 1 - Well House Heater



Figure 2 - Backwash Tank Drain



Figure 3 - Backwash Tank Support



Figure 4 - From Work Around Supports



Figure 5 - Wasp Nests



Figure 6 - Diesel Storage Tank



Figure 7 - Roof Trim Peeling



Figure 8 - Door Damage



Figure 9 - Chem Barrel Storage



Figure 10 - Chem Pump Shelf



Figure 11 - Chem System Containment



Figure 12 - Tank Feet



Figure 13 - Tank Manway Rust

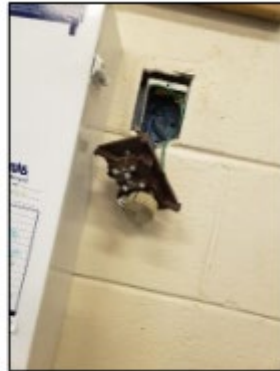


Figure 14 - Thermostat



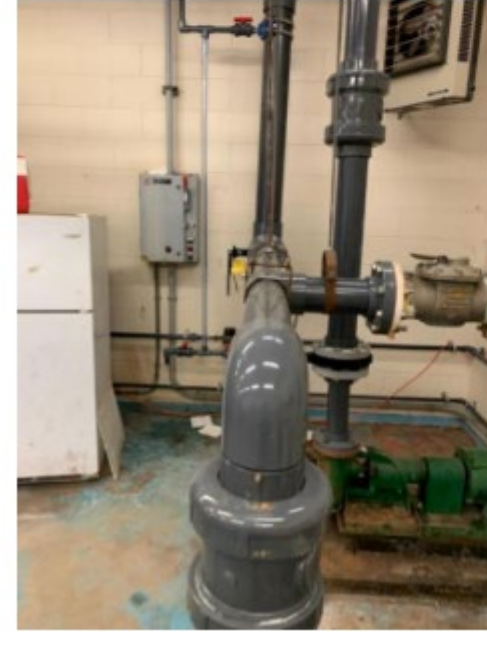
Figure 15 - Threaded Sample Tap



Figure 16 - Relief Valve



Figure 17 - Well House

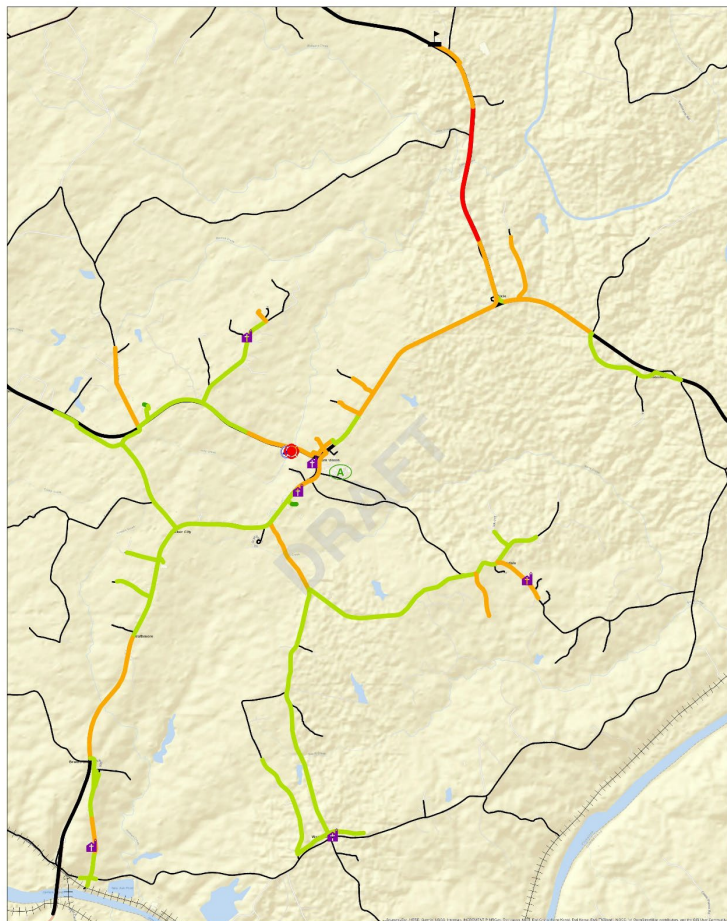


Likelihood of Failure (LoF) Model							
Category	Category Weight (CW)	Criteria	Criteria Weight (W)	Criteria Breakdown	Score (S)	Criteria Score (CW x W x S)	Max Category Score
Asset Attributes	60	Material	50%	Polyvinyl Chloride	4	120	240
				Ductile Iron Pipe	8	240	
		Age/Remaining Useful Life	50%	Age between 81 and 100% remaining useful life	2	60	300
				Age between 61 and 80% remaining useful life	4	120	
				Age between 41 and 60% remaining useful life	6	180	
				Age between 21 and 40% remaining useful life	8	240	
Age less than 20% remaining useful life	10	300					
Known Hotspots	40	Operational Parameters	100%	Operating Pressures 90-150 psi	8	320	400
				Operating Pressures 40-90 psi	4	160	
				Operating Pressures < 40 psi	2	80	
				Operating Pressures > 150 psi and/or Flow Velocity > 6 ft./s	10	400	
						Total Max LoF Score	940

Consequence of Failure (CoF) Model							
Category	Category Weight (CW)	Criteria	Criteria Weight (W)	Criteria Breakdown	Score (S)	Criteria Score (CW x W x S)	Max Category Score
Economic	35	Pipe Diameter	100%	≤ 6-inch	1	35	350
				8 to 10-inch (Includes 8- and 10-inch pipes)	2	70	
				12 to 20-inch (Includes 12, 16- and 20-inch pipes)	4	140	
				24 to 36-Inch (Includes 24, 30- and 36-inch pipes)	8	280	
				>40 Inch (Includes anything > 42-inch pipes)	10	350	
Transportation	20	Transportation Impact/ Cover Conditions	100%	>25' from any road	2	40	200
				Within 25' of any road (local, subdivision)	4	80	
				Within 26' to 100' of a railroad, planned railroad track station, bridge, or major road (US, CR, SR, Interstates)	7	140	
				Crosses or within 25' of any major road (US, CR, SR, identified City Road or Interstates), railroad, planned railroad track, or bridge.	10	200	
LoS	20	Level of Service Impact	100%	Operating Pressures > 85 psi	4	80	200
				Operating Pressures between 40-85 psi with a minimal impact on fire protection	2	40	
				Operating Pressures < 40 psi with significant effect on fire protection	10	200	
Infrastructure	25	Critical Infrastructure	100%	Proximity (0-100 ft.) to Tier 4 Critical Facilities (Churches)	1	25	250
				Proximity (0-100 ft.) to Tier 3 Critical Facilities (Schools)	4	100	
				Proximity (0-100 ft.) to Tier 2 Critical Facilities (Military Installations)	7	175	
				Proximity (0-100 ft.) to Tier 1 Critical Facilities (Emergency Response, Medical)	10	250	
						Total Max CoF Score	1000

Priority		Criticality			
		1-3	4-6	7-8	9-10
Condition	9-10	Mid Priority Program Rehab	High Priority Program Rehab	Highest Priority Immediate Action	Highest Priority Immediate Action
	7-8	Low Priority	Frequent Condition Evaluation	Frequent Condition Evaluation	Highest Priority Immediate Action
	4-6	Low Priority	Regular Monitoring	Frequent Condition Evaluation	Frequent Condition Evaluation
	1-3	Low Priority	Regular Monitoring	Regular Monitoring	Regular Monitoring

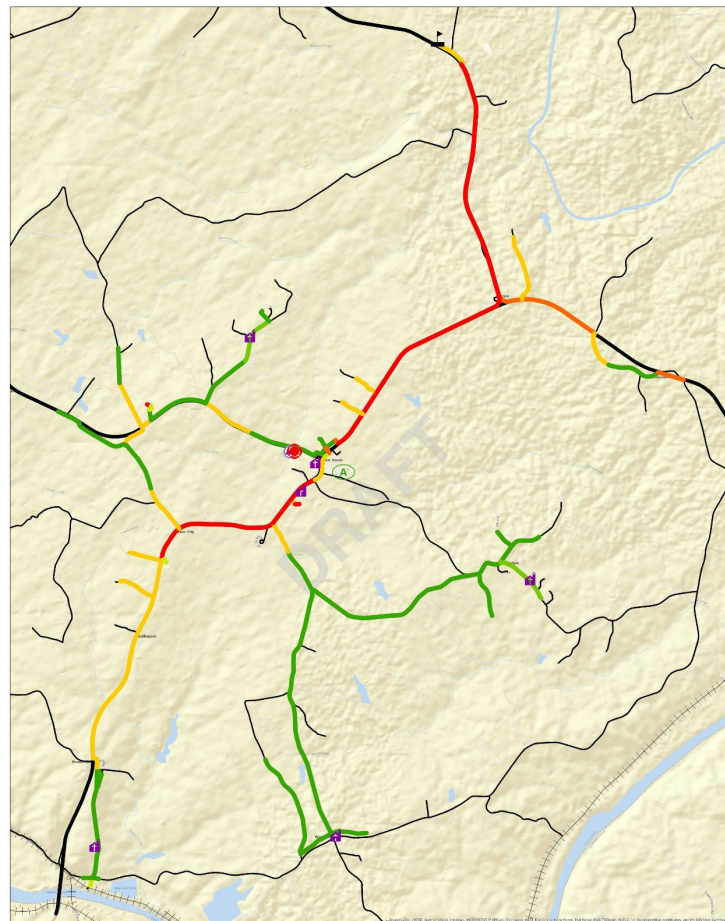
### Fluvanna County - Waterline LoF



Waterlines	Buildings	Transportation
320	Ambulance	Major roads
400	Church	Minor roads
560	Military Academy	Railroads
640	School	
	Fire Station	

Fluvanna County's Likelihood of Failure (LoF) was calculated using waterline properties of pipe remaining useful life, material, and operating pressures.

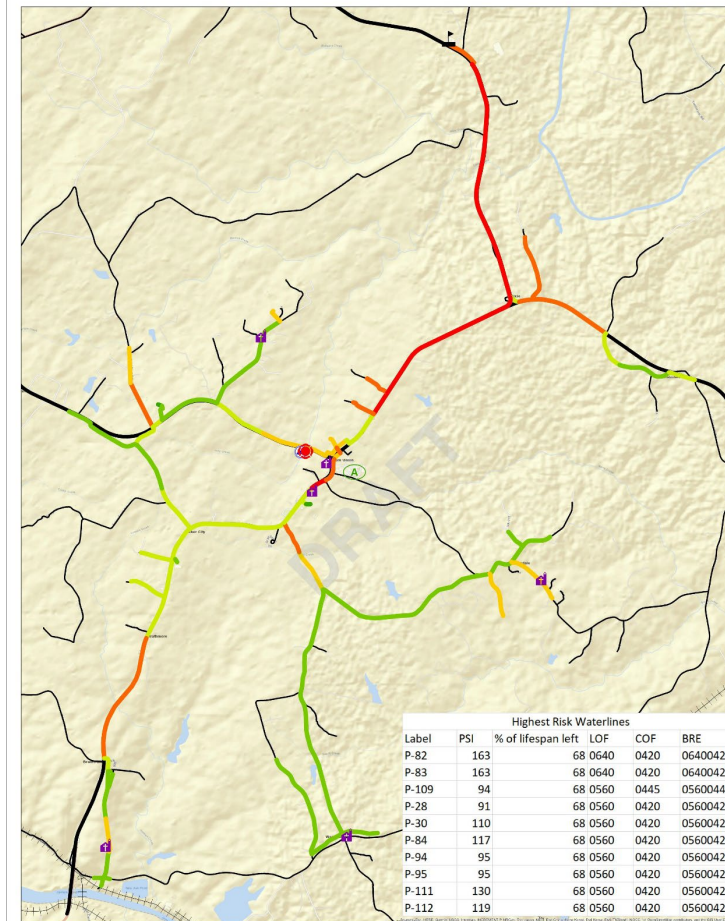
### Fluvanna County - Waterline CoF



Waterlines	Buildings	Transportation
155 - 195	Ambulance	Major roads
200 - 245	Church	Minor roads
250 - 295	Military Academy	Railroads
300 - 345	School	
350 - 395	Fire Station	
400 - 445		

Fluvanna County's Consequence of Failure (CoF) was calculated using waterline properties of pipe diameter and operating pressures, proximity to critical building infrastructure (ambulance, military academies, schools, and fire stations), and transportation infrastructure.

### Fluvanna County - Waterline BRE



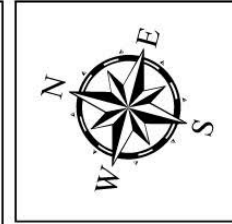
Highest Risk Waterlines					
Label	PSI	% of lifespan left	LOF	COF	BRE
P-82	163	68	0640	0420	06400420
P-83	163	68	0640	0420	06400420
P-109	94	68	0560	0445	05600445
P-28	91	68	0560	0420	05600420
P-30	110	68	0560	0420	05600420
P-84	117	68	0560	0420	05600420
P-94	95	68	0560	0420	05600420
P-95	95	68	0560	0420	05600420
P-111	130	68	0560	0420	05600420
P-112	119	68	0560	0420	05600420

Waterlines	Buildings	Transportation
03200430	Ambulance	Major roads
03200435 - 04000260	Church	Minor roads
04000265 - 04000445	Military Academy	Railroads
04000450 - 05600260	School	
05600265 - 05600415	Fire Station	
05600420 - 06400420		

Fluvanna County's Business Risk Exposure (BRE) is represented as the concatenation of the LoF and CoF scores. The top ten pipes for failure are represented in red. Note that there is a small section on Route 15 near Careby Ln. that is within these ranges.

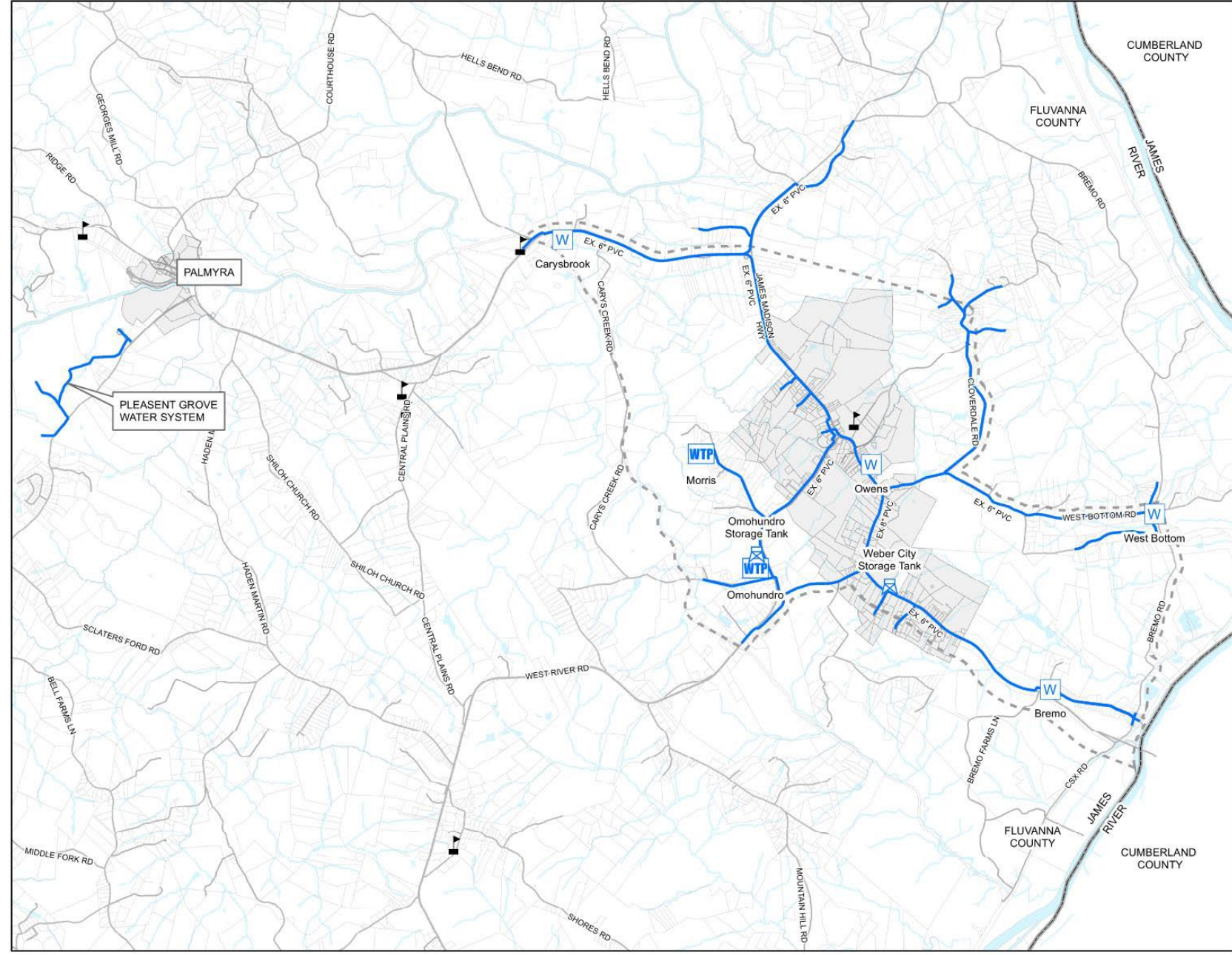
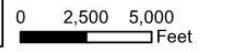


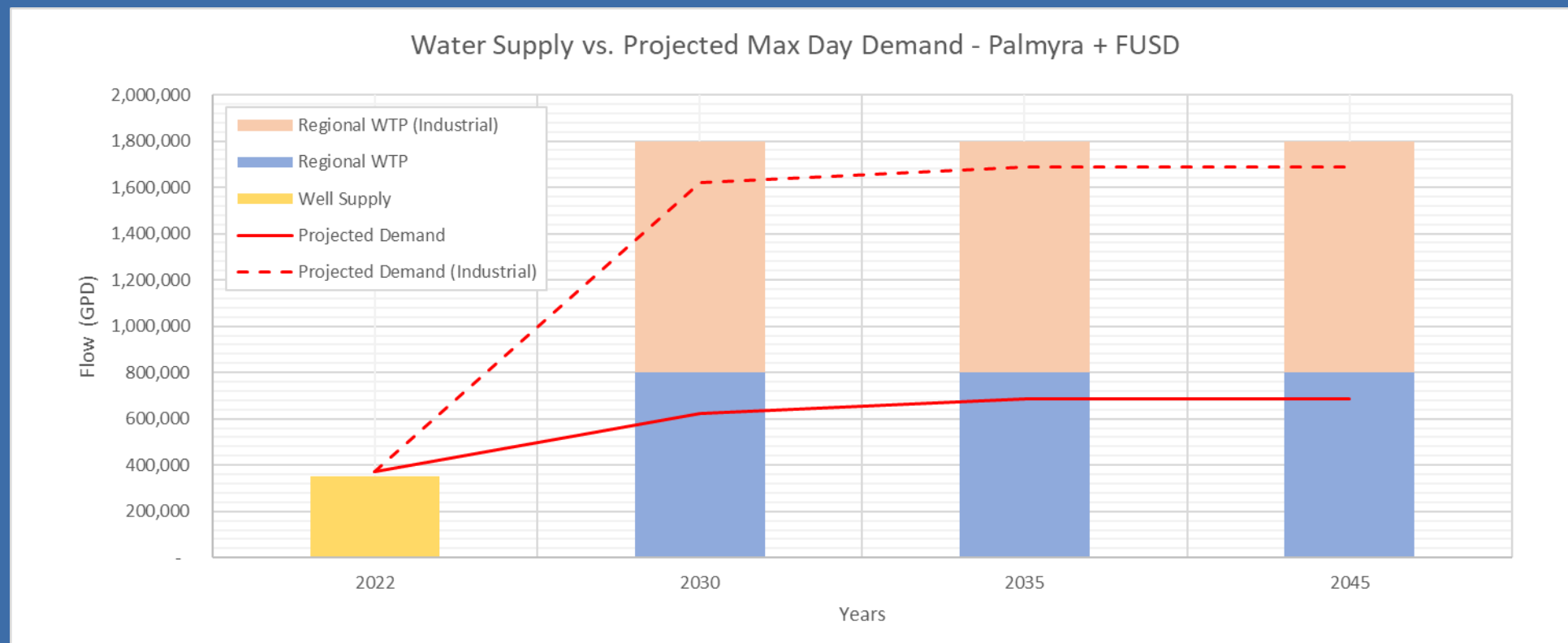
FIGURE NO. <b>3-3</b>	DATE APR 2022	SCALE 1 in = 5,000 feet	TITLE EXISTING FUSD/PALMYRA WATER INFRASTRUCTURE
	PROJ. NO. 50112292	PROJECT	UTILITY MASTER PLAN FLUVANNA COUNTY, VA



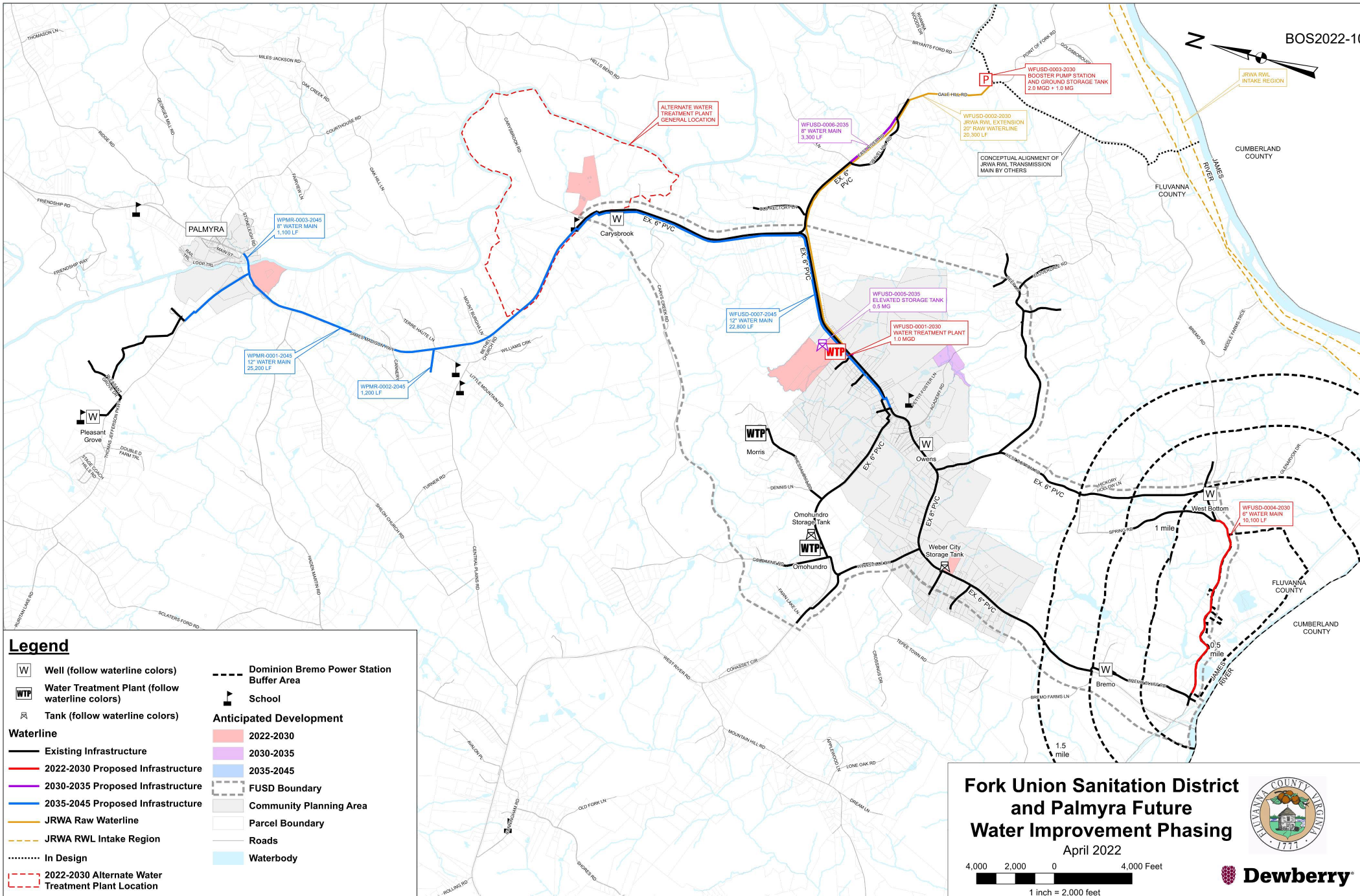
### Legend

- Existing Water Line
- Existing Well
- Existing Water Treatment Plant
- Existing Elevated Tank
- School
- FUSD Boundary
- County Boundary
- Community Planning Area
- Roads
- Waterbody









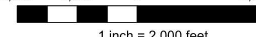
**Legend**

- W Well (follow waterline colors)
- WTP Water Treatment Plant (follow waterline colors)
- T Tank (follow waterline colors)
- Waterline**
- Existing Infrastructure
- 2022-2030 Proposed Infrastructure
- 2030-2035 Proposed Infrastructure
- 2035-2045 Proposed Infrastructure
- JRWA Raw Waterline
- JRWA RWL Intake Region
- ..... In Design
- - - - 2022-2030 Alternate Water Treatment Plant Location
- - - - Dominion Brevo Power Station Buffer Area
- School
- Anticipated Development**
- 2022-2030
- 2030-2035
- 2035-2045
- FUSD Boundary
- Community Planning Area
- Parcel Boundary
- Roads
- Waterbody

**Fork Union Sanitation District  
and Palmyra Future  
Water Improvement Phasing**

April 2022

4,000 2,000 0 4,000 Feet



1 inch = 2,000 feet



**Dewberry**  
 Dewberry Engineers Inc.  
 8835 LAKE BROOK DRIVE, SUITE 200  
 CHARLOTTE, VA 23041  
 PHONE: 804.290.7867  
 FAX: 804.290.7928

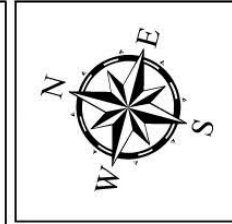


TITLE: EXISTING FUSD/PALMYRA WASTEWATER INFRASTRUCTURE  
 PROJECT: UTILITY MASTER PLAN FLUVANNA COUNTY, VA

SCALE: 1 inch = 5,000 feet

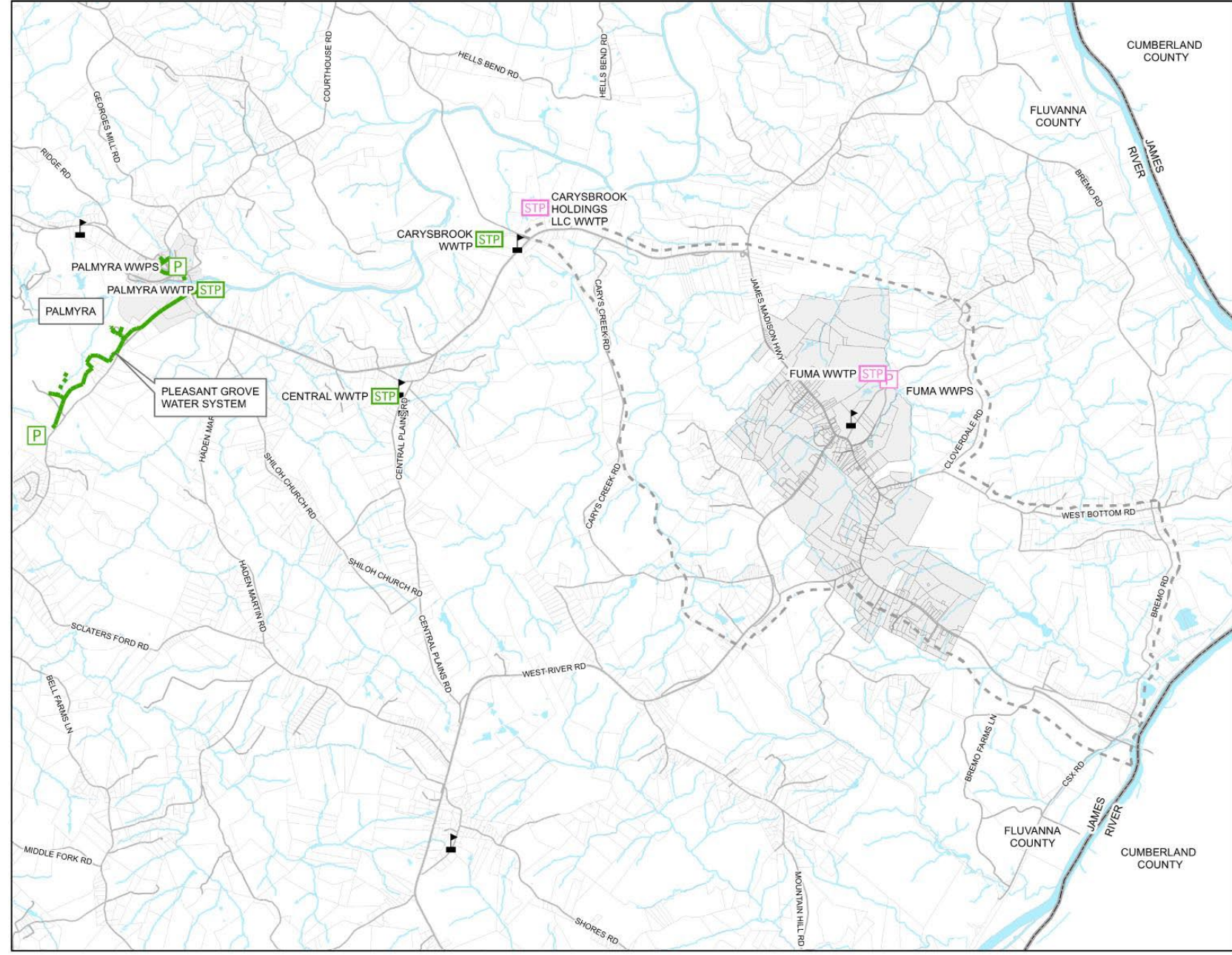
DATE: APR 2022  
 PROJ. NO.: 50112292

FIGURE NO.: **3-5**

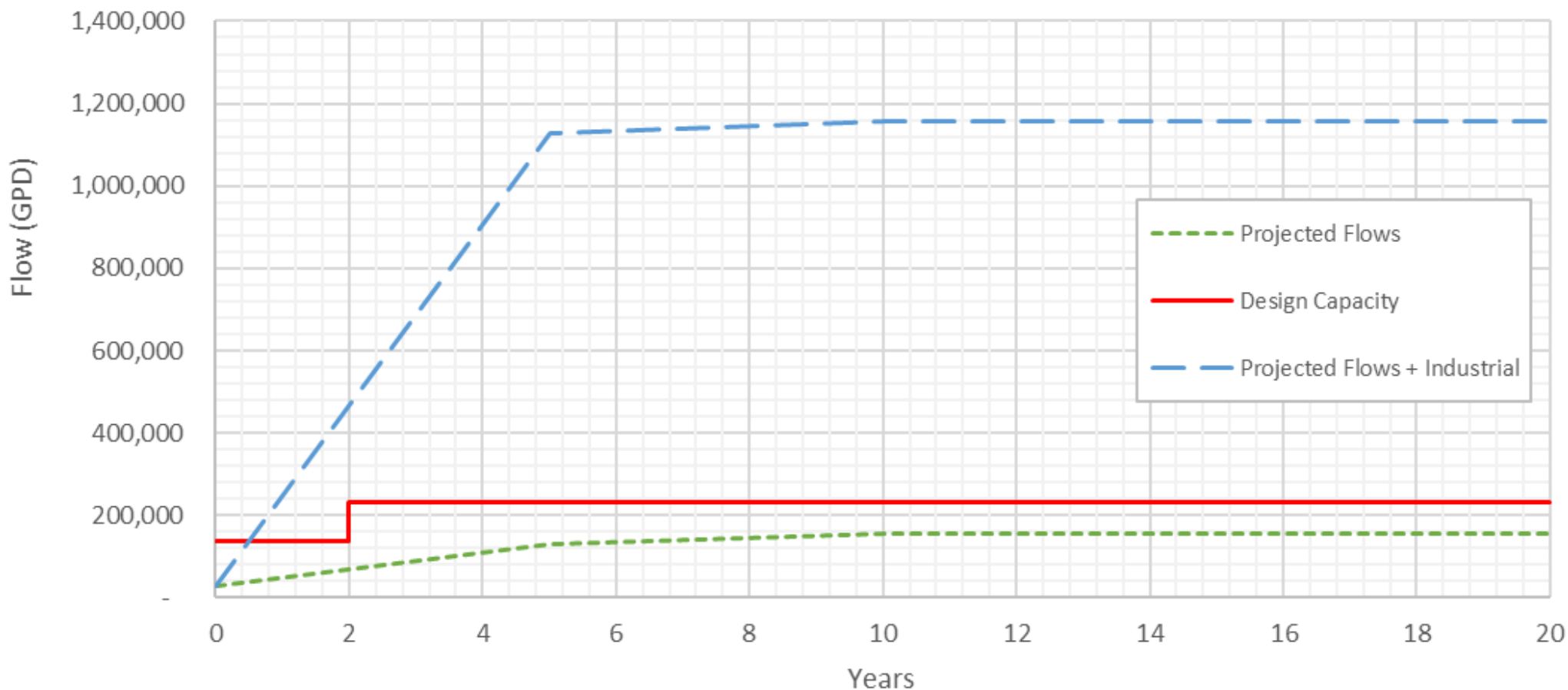


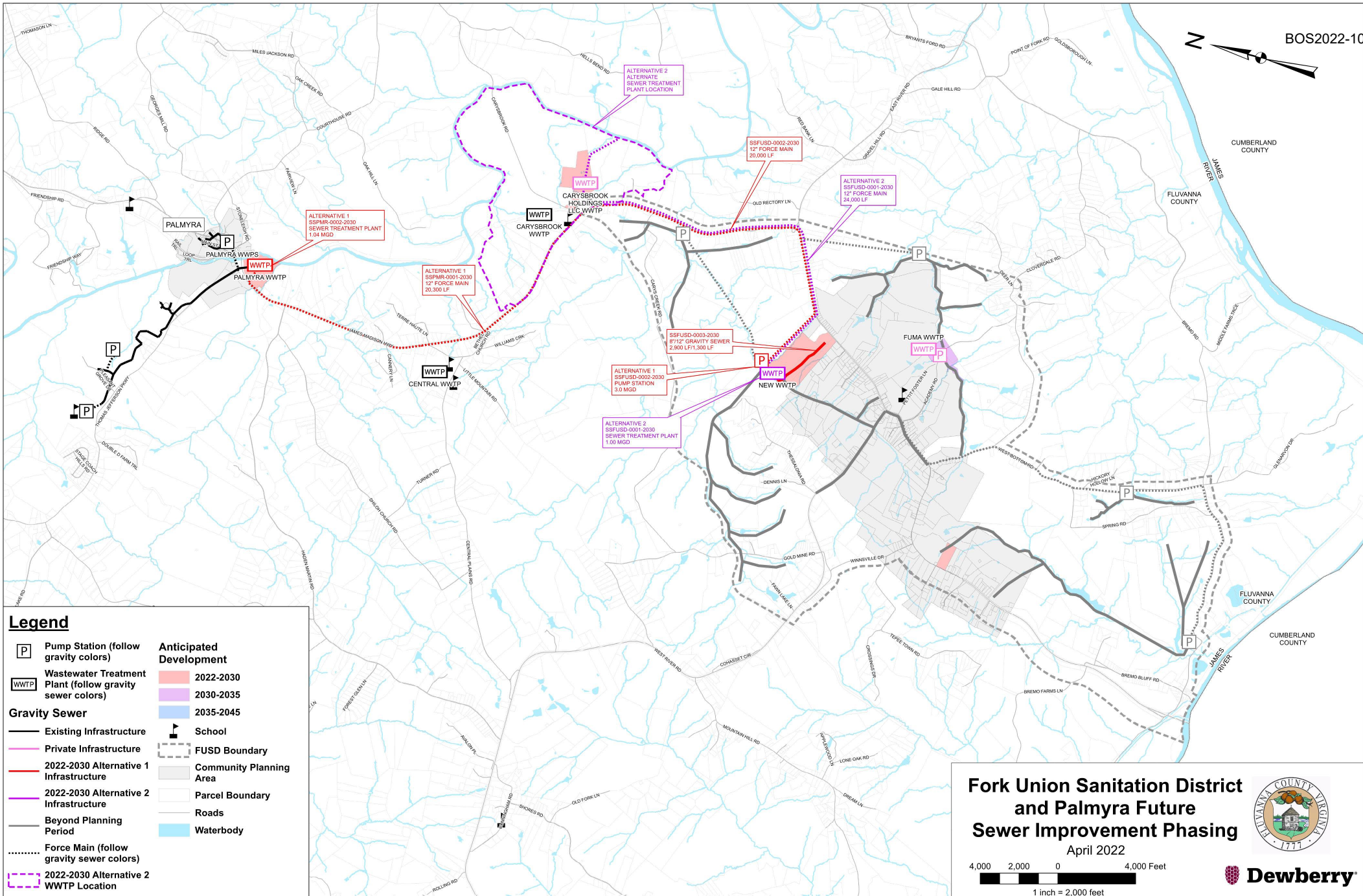
**Legend**

- Existing Sewer Treatment Plant
- Existing Pump Station
- Existing Gravity Sewer
- Existing Force Main
- Private Sewer Treatment Plant
- Private Pump Station
- School
- FUSD Boundary
- County Boundary
- Community Planning Area
- Roads
- Waterbody



### Treatment Capacity vs Projected Flows - Central Fluvanna (Palmyra + FUSD)

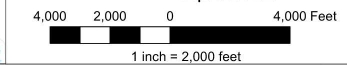




**Legend**

	Pump Station (follow gravity colors)		Anticipated Development
	Wastewater Treatment Plant (follow gravity sewer colors)		2022-2030
	Gravity Sewer		2030-2035
	Existing Infrastructure		2035-2045
	Private Infrastructure		School
	2022-2030 Alternative 1 Infrastructure		FUSD Boundary
	2022-2030 Alternative 2 Infrastructure		Community Planning Area
	Beyond Planning Period		Parcel Boundary
	Force Main (follow gravity sewer colors)		Roads
	2022-2030 Alternative 2 WWTP Location		Waterbody

**Fork Union Sanitation District and Palmyra Future Sewer Improvement Phasing**  
 April 2022



# Zion Crossroads Utility System

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**Dewberry**  
 Dewberry Engineers Inc.  
 4825 LAKE BROOK DRIVE, SUITE 200  
 CHARLOTTE, NC 28217  
 PHONE: 804.290.7867  
 FAX: 804.290.7928

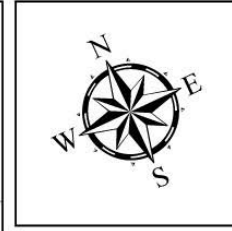


TITLE EXISTING ZION CROSSROADS WATER INFRASTRUCTURE  
 PROJECT UTILITY MASTER PLAN FLUVANNA COUNTY, VA

SCALE 1 in = 2,000 feet

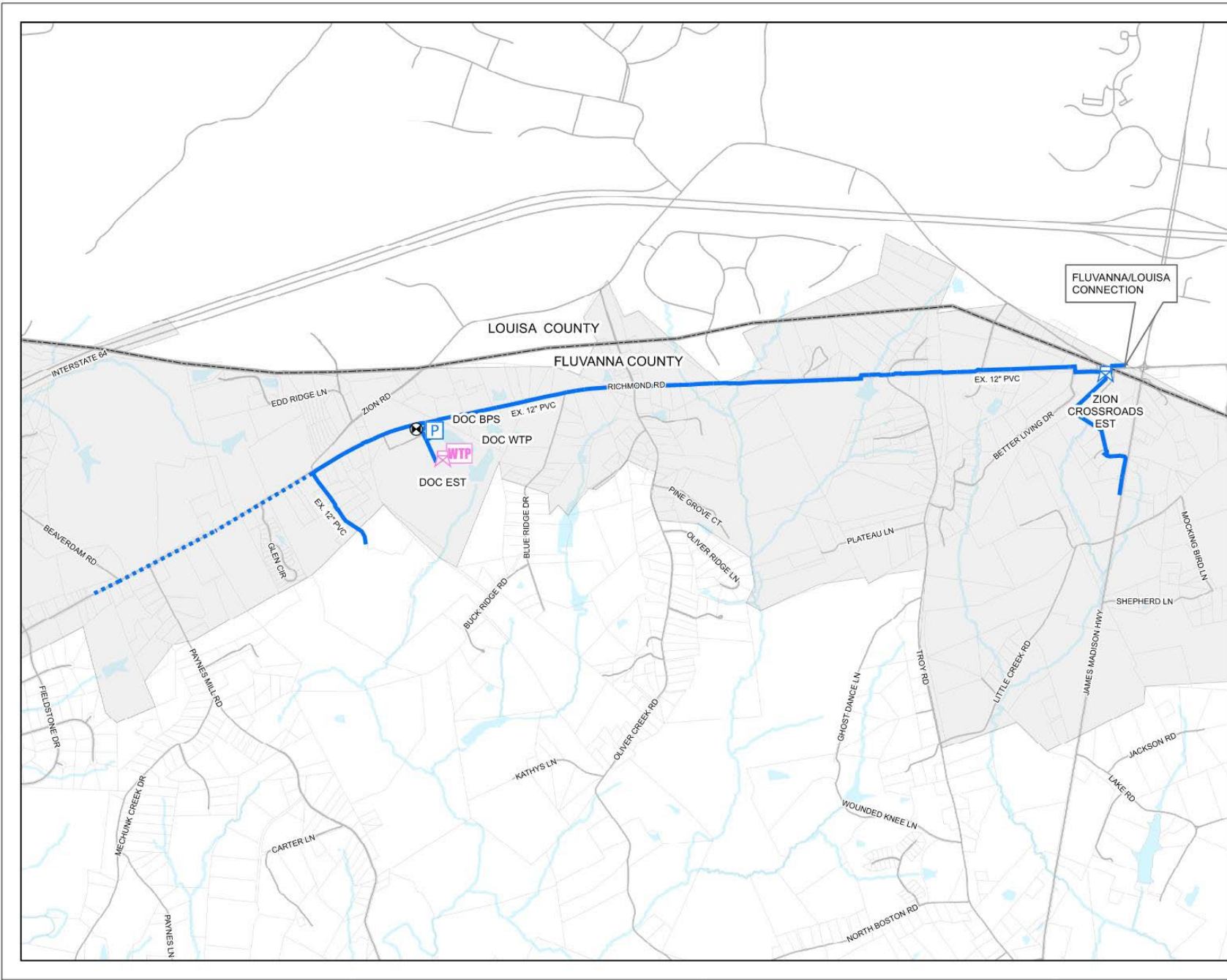
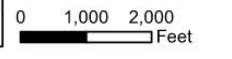
DATE APR 2022  
 PROJ. NO. 50112292

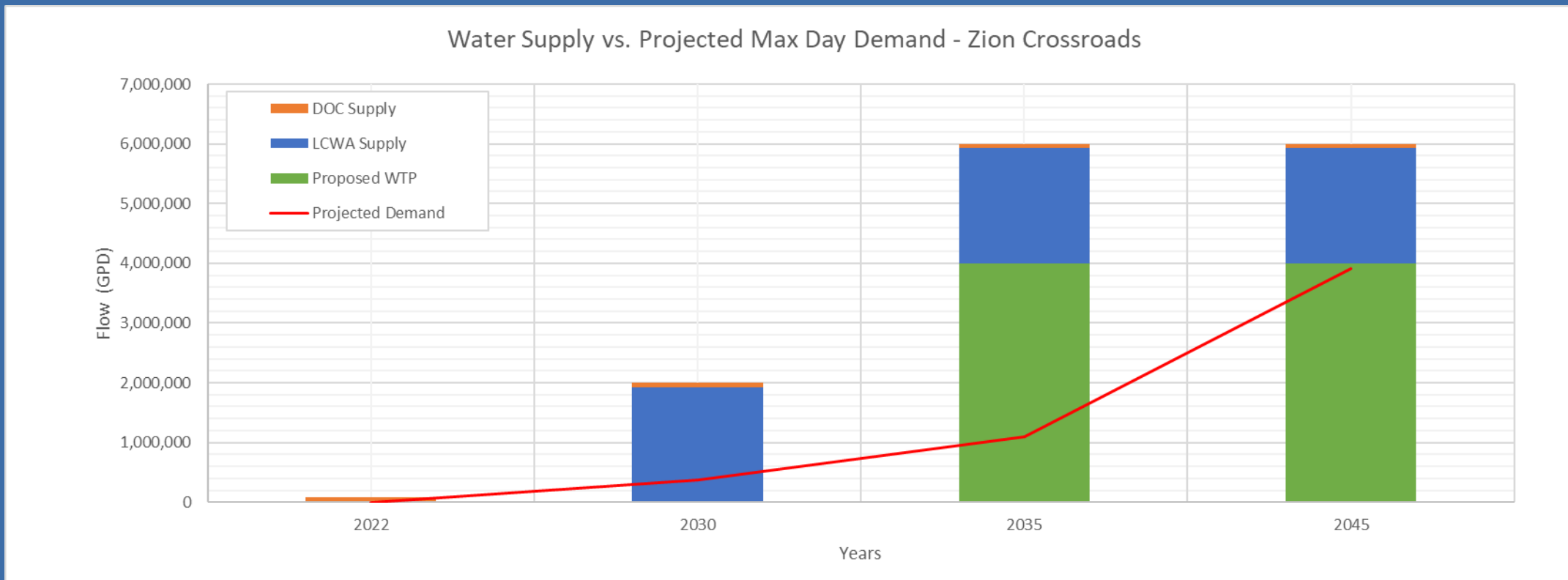
FIGURE NO. **3-4**

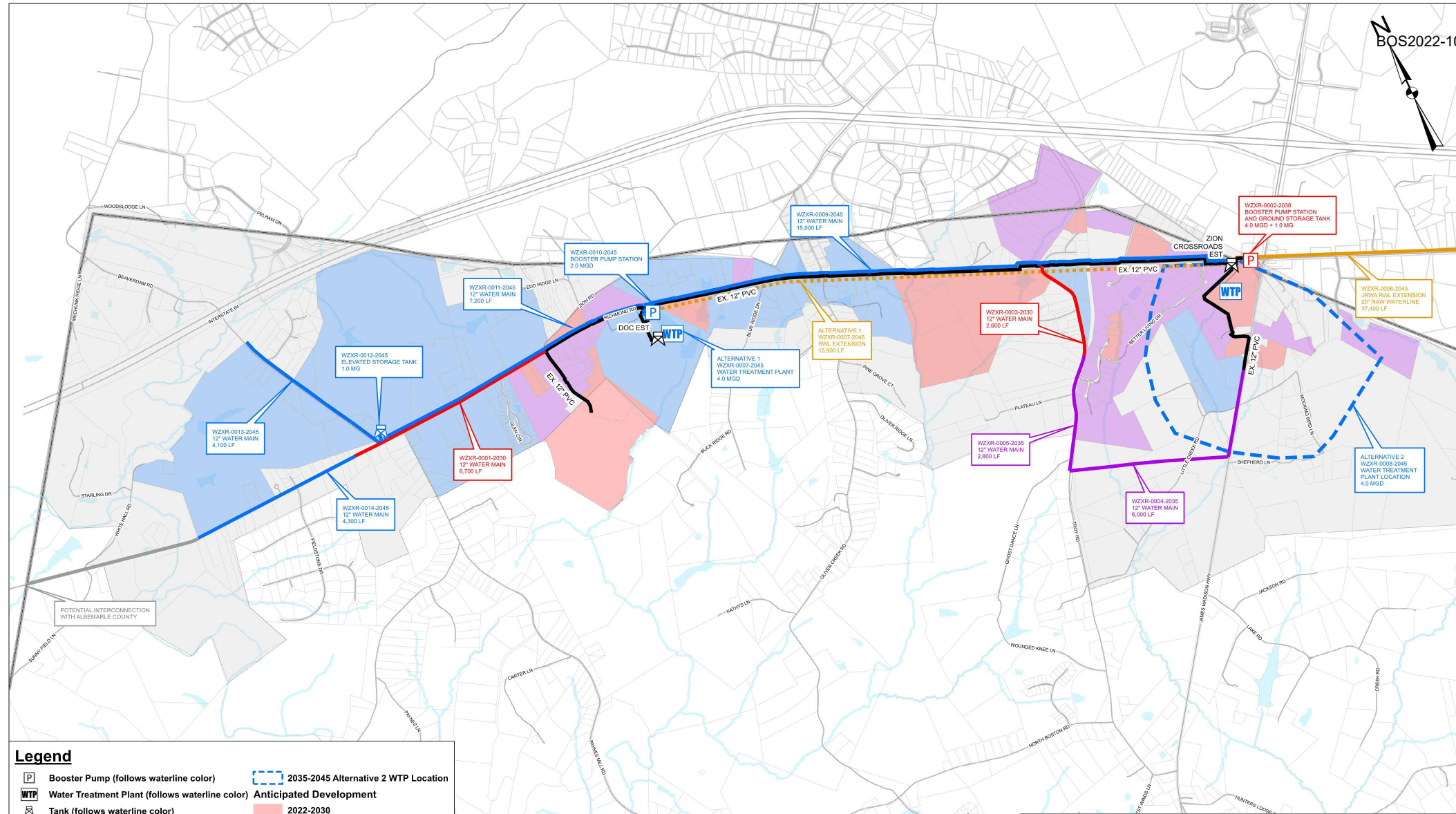


**Legend**

- Existing Booster Pump Station
- Existing Elevated Tank
- PRV
- Existing Waterline
- In Design Waterline
- Private Water Treatment Plant
- Private Elevated Tank
- County Boundary
- Community Planning Area
- Parcel Boundary
- Roads
- Streams







**Legend**

Booster Pump (follows waterline color)	2035-2045 Alternative 2 WTP Location
Water Treatment Plant (follows waterline color)	<b>Anticipated Development</b>
Tank (follows waterline color)	2022-2030
<b>Waterline</b>	2030-2035
Unknown Time Frame	2035-2045
2022-2030 Proposed Infrastructure	Roads
2030-2035 Proposed Infrastructure	Streams
2035-2045 Proposed Infrastructure	Parcel Boundary
Existing Infrastructure	Waterbody
JRWA Raw Waterline	County Boundary
DOC RWL Extension	Community Planning Area

**Zion Crossroads Future Water Improvement Phasing**

April 2022

1 inch = 1,000 feet



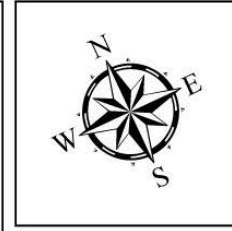


TITLE EXISTING ZION CROSSROADS  
 WASTEWATER INFRASTRUCTURE  
 PROJECT UTILITY MASTER PLAN  
 FLUVANNA COUNTY, VA

SCALE 1 inch = 2,000 feet

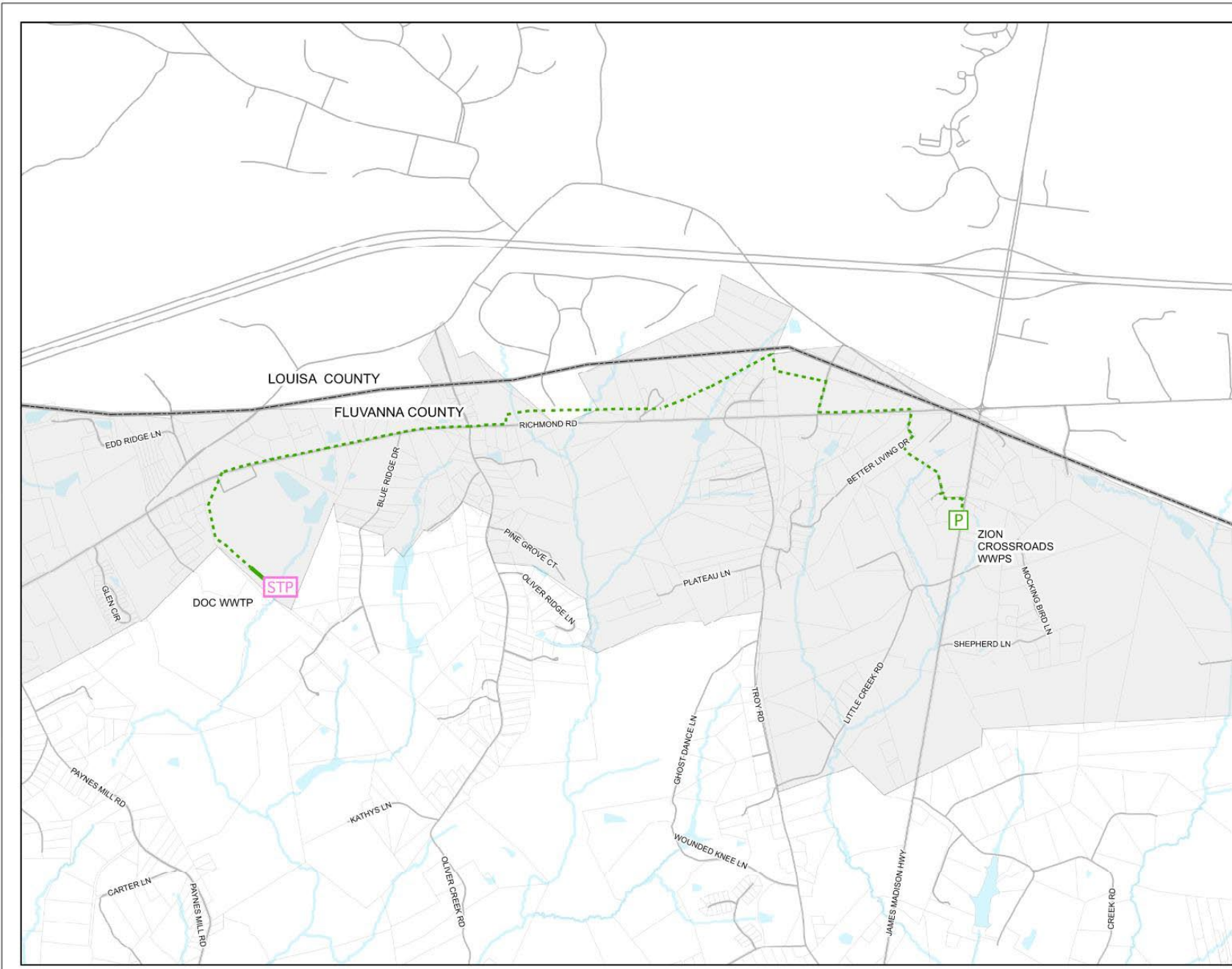
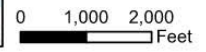
DATE APR 2022  
 PROJ. NO. 50112292

FIGURE NO. **3-6**

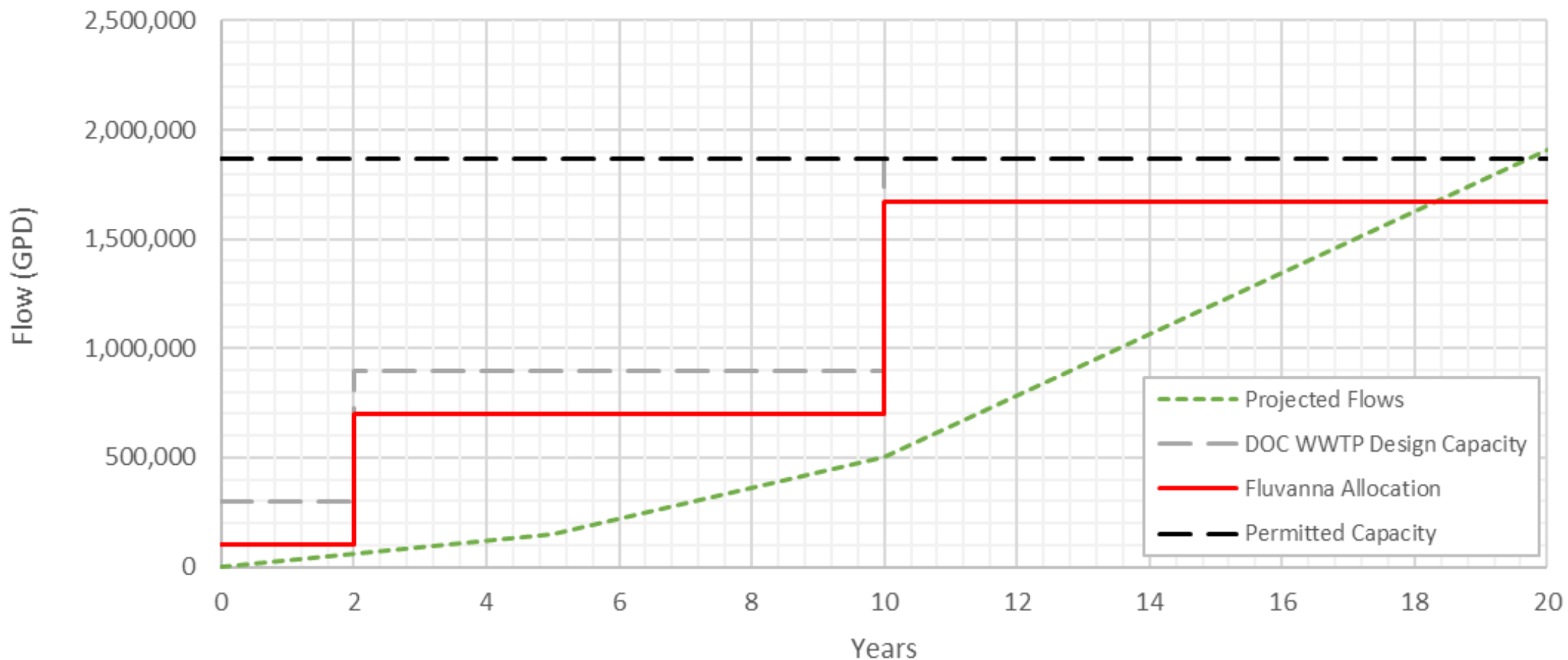


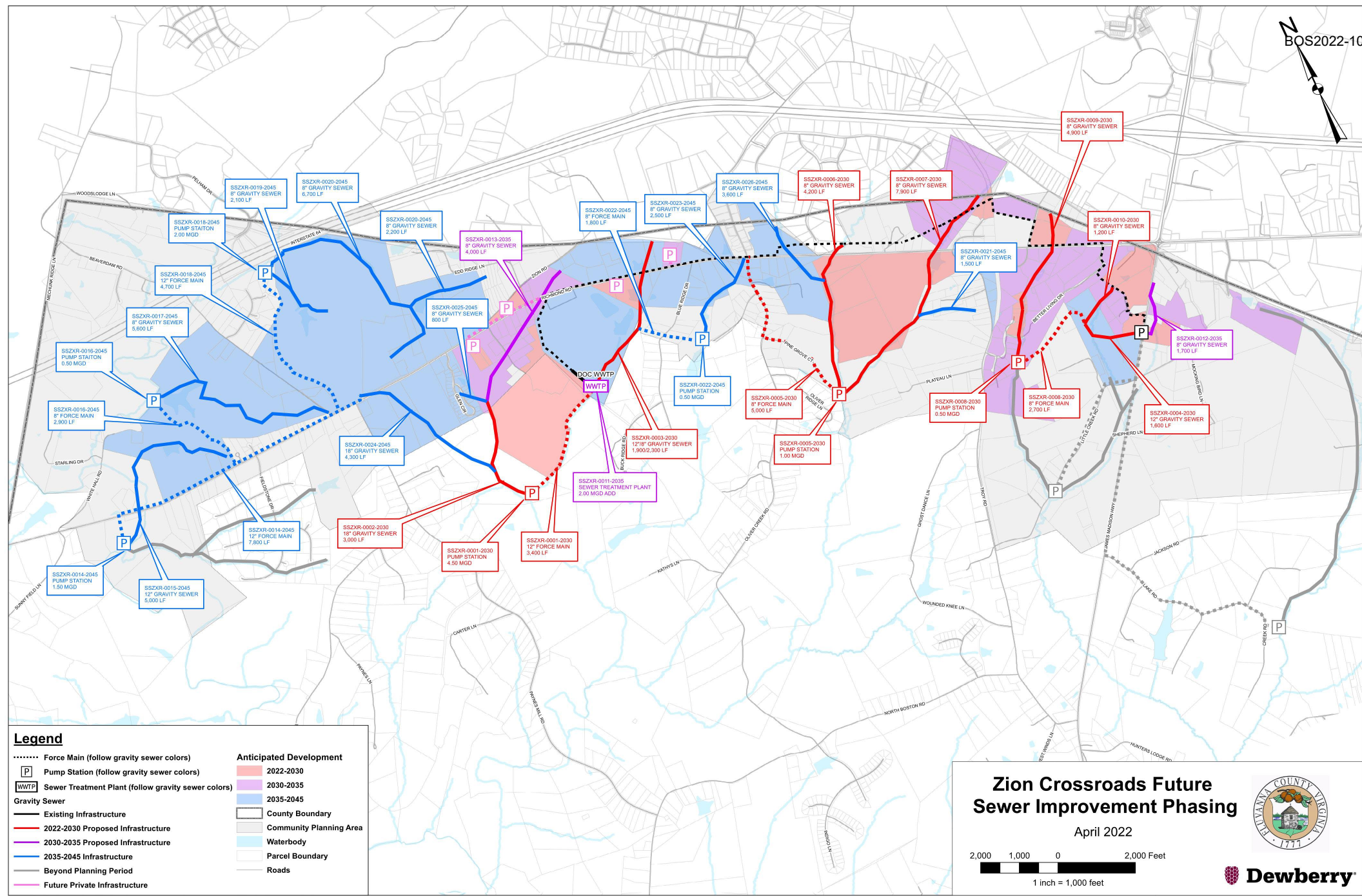
**Legend**

- Existing Pump Station
- Existing Force Main
- Existing Gravity Sewer
- Private Wastewater Treatment Plant
- Zion Crossroads Sewersheds
- County Boundary
- Community Planning Area
- Parcel Boundary
- Roads
- Waterbody



### Treatment Capacity vs Projected Flows - Zion Crossroads





**Legend**

- ..... Force Main (follow gravity sewer colors)
- [P] Pump Station (follow gravity sewer colors)
- [WWTP] Sewer Treatment Plant (follow gravity sewer colors)
- Gravity Sewer**
  - Existing Infrastructure
  - 2022-2030 Proposed Infrastructure
  - 2030-2035 Proposed Infrastructure
  - 2035-2045 Infrastructure
  - Beyond Planning Period
  - Future Private Infrastructure
- Anticipated Development**
  - 2022-2030
  - 2030-2035
  - 2035-2045
- County Boundary
- Community Planning Area
- Waterbody
- Parcel Boundary
- Roads

**Zion Crossroads Future Sewer Improvement Phasing**

April 2022



# Capacity Fee and Rate Analysis

---

# Overview and Goals

- Holistically analyze water and sewer rates and fees county-wide
- Ensure Water and Sewer funds are financially sustainable with in planning period (35 years)
- Provide sufficient revenue for emergencies and long-term infrastructure upgrades
- Ensure costs remain competitive within the region
- Minimize subsidies to Water and Sewer funds
- Set rates to meet future needs of the system
- Plan for preventative maintenance and recapitalization

# Assumptions

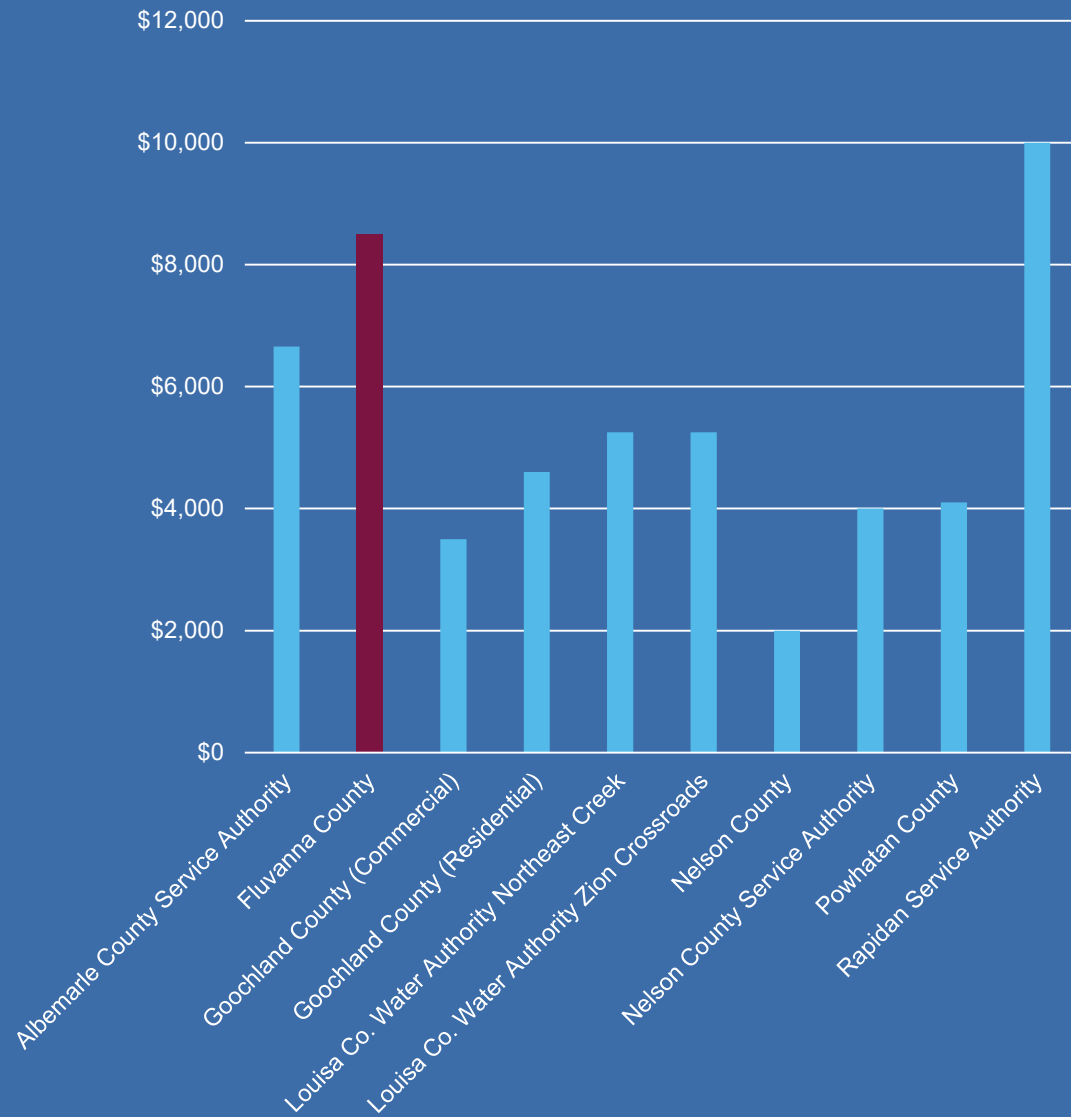
- Ensure County repayment within the planning period
- Private well and septic system construction for 2 EMU equivalent customers (1-inch meter) is estimated at \$40,000
- Proposed rates set to match existing current rates
  - Water: FUSD
  - Sewer: County (Palmyra)
- Water Base Service Fee: \$21.42 per EMU
- Sewer Base Service Fee: \$25.81 per EMU
- Minimum Usage included in Base Service Fee: 2,000 gallons per month per EMU for both water and sewer

# Projected Revenue

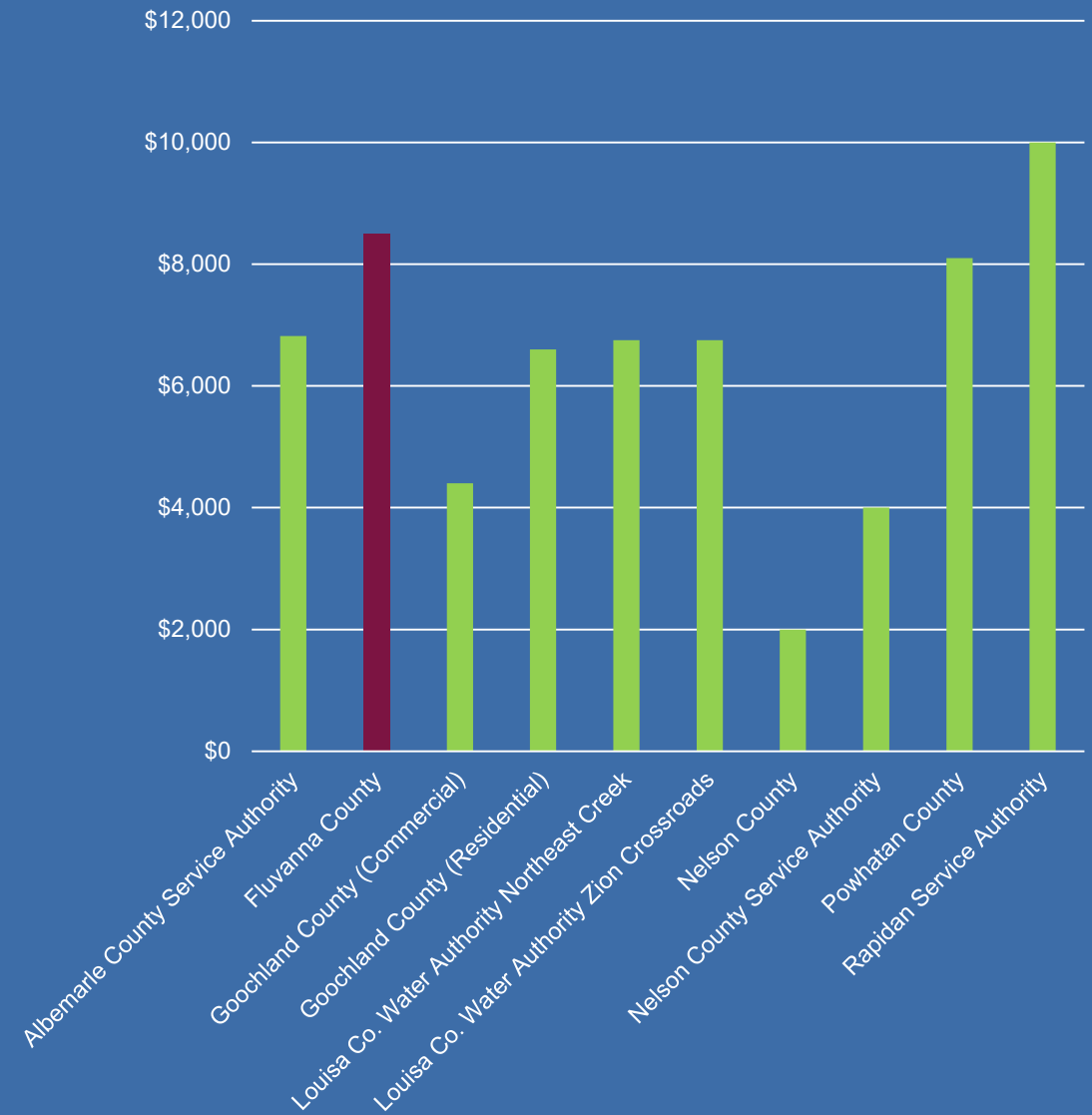
## Over 35-Year Planning Period

	Water Connection Fee	Water Rates (above base service)	Sewer Connection Fee	Sewer Rates (above base service)	Capital Subsidy from O&M (W/S)	Overall Water Revenue	Total Sewer Revenue	Total Water and Sewer Revenue
Scenario 1 Break-Even, Separate Capital and O&M Budgets	\$17,422	\$5.93 per 1,000 gallons	\$25,206	\$7.28 per 1,000 gallons	W: 0% S: 0%	\$0	\$0	\$0
Scenario 2 Proposed Fees and Rates (BOS Presentation 9/7/22)	\$8,500	\$11.22 per 1,000 gallons	\$8,500	\$17.65 per 1,000 gallons	W: 57% S: 68%	\$28.7M	\$64.5M	\$93.2M
Scenario 3 Reduced W&S Connection Fees, includes County Debt Repayment	\$5,750	\$11.22 per 1,000 gallons	\$6,250	\$17.65 per 1,000 gallons	W: 74% S: 77%	\$3.9M	\$46.5	\$50.4M
Scenario 4 Reduced W&S Connection Fees, excludes County Debt Repayment (County Subsidy)	\$5,750	\$11.22 per 1,000 gallons	\$6,250	\$17.65 per 1,000 gallons	W: 64% S: 75%	\$18.4M	\$52.3M	\$70.7M

## Water Connection Fees

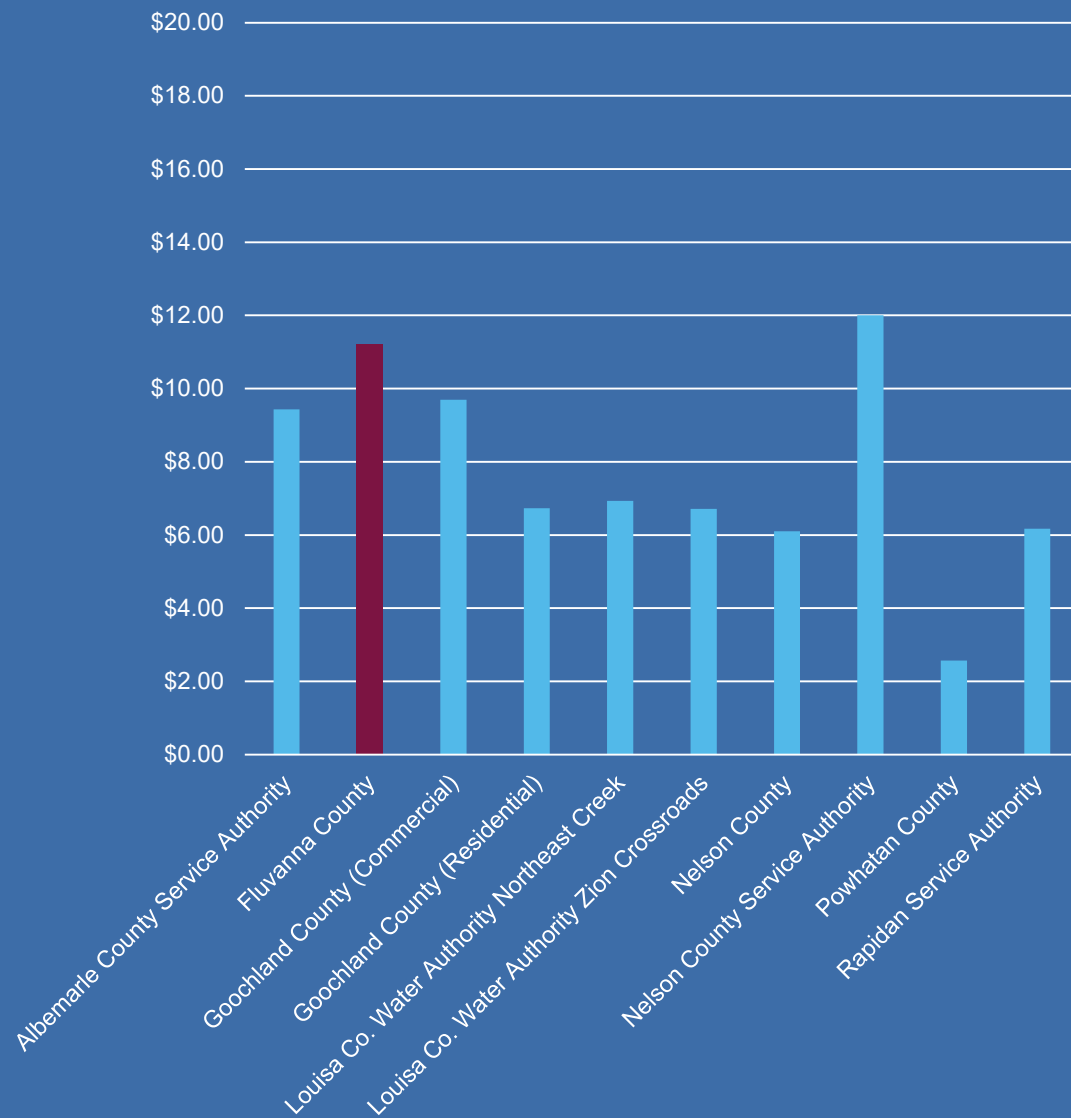


## Sewer Connection Fees

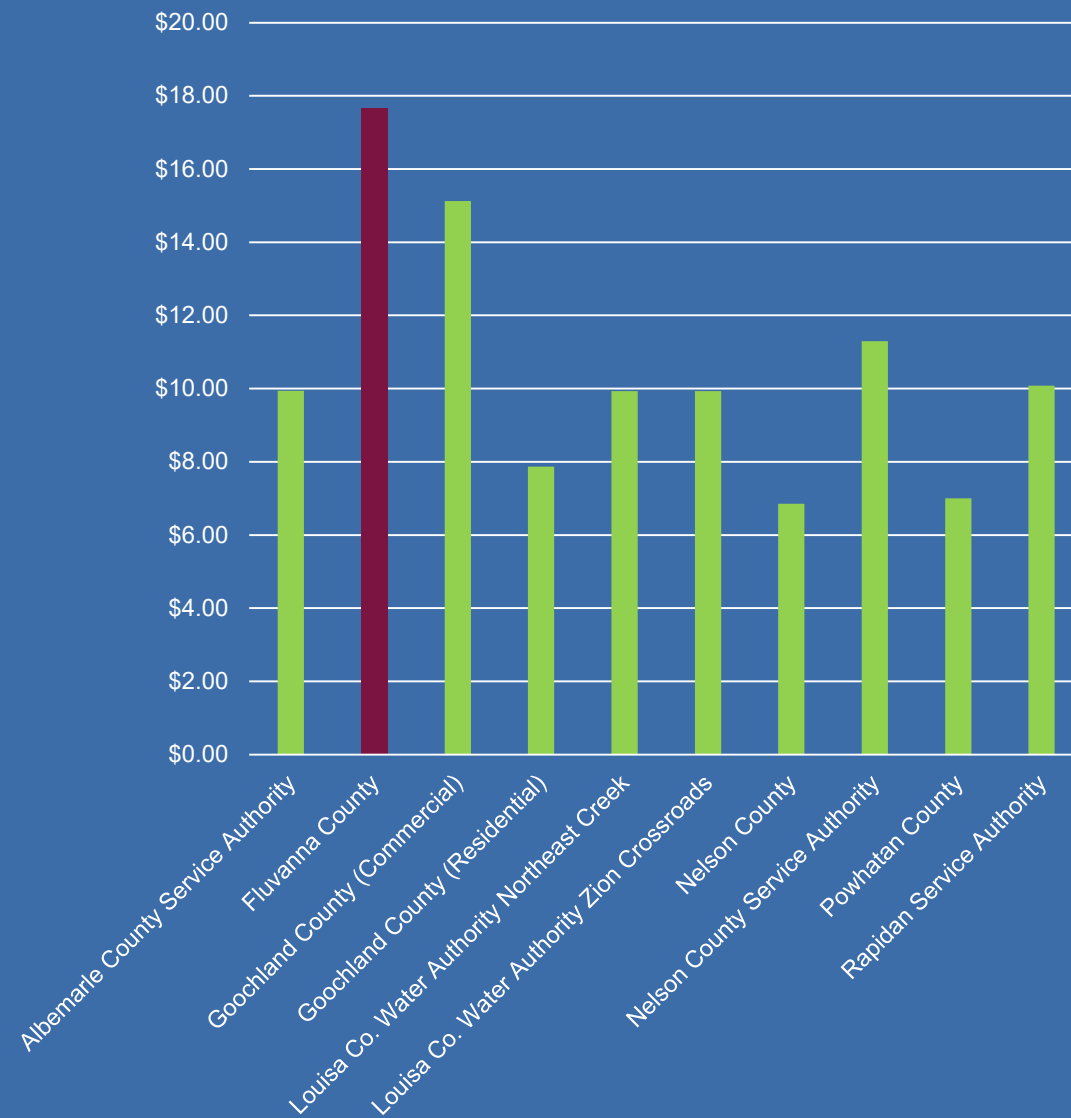




## Water Rates



## Sewer Rates



# Recommendation

- Institute rates and fees summarized in Scenario 2
  - Water Connection Fee: \$8,500
  - Sewer Connection Fee: \$8,500
  - Water Rate: \$11.22 per 1,000 gallons above Base Service Fee
  - Sewer Rate: \$17.65 per 1,000 gallons above Base Service Fee
- Annually review and adjust fees and rates as needed to ensure financial sustainability and reasonable costs to customers

# Questions?

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# Utility Master Plan

## Fluvanna County, Virginia

Dewberry Project No.: 50112292

September 2022



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## Chapter 1. Executive Summary

### 1.1 Purpose and Scope

The purpose of this Utility Master Plan (UMP) is to provide the Fluvanna County (County) and its Public Works Department (PWD) with a roadmap for its planning of improvements, upgrades, extensions, and expansions to meet future needs while maintaining cost-effective water and wastewater service to a growing number of County customers. Note that this document is meant for planning purposes only. All demand projections and future projects are based on data available at the time of writing and are subject to change as the County experiences development over the next several decades. The County is not committed to any suggestions provided in this UMP, as all suggestions are subject to change based on actual development. This UMP should be considered a “living document,” subject to change as the planning period advances.

This UMP provides a comprehensive evaluation of the County’s water and wastewater systems within the Zion Crossroads (ZXR), Fork Union Sanitary District (FUSD), and Palmyra Service Areas and identifies the recommended improvements and upgrades projected to be required through the Year 2045. This UMP is based on the best information available and serves primarily as a planning-level roadmap for the County for water and wastewater improvements.

The development of this UMP incorporates the following steps:

1. Collect and review available information on the County’s existing water and wastewater systems.
2. Conduct workshops with representatives from Public Works, Administration, and Planning Departments to gather information and develop concurrence regarding the methodologies used to develop the UMP.
3. Obtain information from Fluvanna County on proposed land use, targeted growth areas, and future population predictions.
4. Develop demand projections through 2045 and distribute the demand projections throughout the ZXR and FUSD Service Areas in areas projected to be developed during several future time steps. Note that data from the calendar year 2019 (January 2019 to December 2019) is used as the baseline year for demand projections, since this time frame is the most recent year that a full set of data is available at the time the population demand projections were developed.
5. Model the water and wastewater systems to identify Capital Improvement Projects (CIPs) needed to accommodate the projected growth within the County.
6. Develop the UMP to summarize project activities, provide costs, recommendations for CIPs, and Renewal and Replacement throughout the planning period.

### 1.2 Existing Water System

Fluvanna County owns and operates several water systems within the County. The largest water system owned by the County serves the FUSD. The County also owns a small water system that serves Pleasant Grove Park and high school in Palmyra.



### 1.2.1 Fork Union Sanitary District Water System

The FUSD water system is owned and operated by Fluvanna County and is supplied by six wells and contains two elevated storage tanks (ESTs). FUSD water system consists of approximately 26 miles of waterlines, ranging in diameter from 4 to 8 inches, and is located within the FUSD Area and Palmyra Area.

As of May 2021, the FUSD water system provided water service to 466 residential and commercial customers as follows:

- Residential customers: 428
- Commercial customers: 38
- Total customers: 466

Water service is provided by the County to meet a daily average demand of approximately 136,000 GPD within the FUSD water system, based on daily consumption data provided by the county. This total does not account for flushing and unmetered water usage within the system.

### 1.2.2 Pleasant Grove Water System

The Pleasant Grove water system is owned and operated by the County and serves Pleasant Grove Park in Palmyra. The system is supplied by a single well and water treatment plant (WTP) and serves all park buildings and fixtures, and the nearby high school.

### 1.2.3 Zion Crossroads Water System

The County recently completed construction of an EST, water booster station, and water main in the ZXR are that will serve as the beginning of a comprehensive water distribution system. Further water main along Richmond Rd. and a pressure reducing valve (PRV) vault are in design.

## 1.3 Existing Wastewater Systems

There is no comprehensive public wastewater service for the ZXR or FUSD Areas, but the County has recently completed construction of a wastewater pump station (WWPS) in the ZXR service area that will form the beginnings of a comprehensive wastewater collection system for ZXR. Several small wastewater treatment plants (WWTPs) serve particular areas in FUSD, such as public schools, but no further system exists. A small public sewer system serves the County government complex in Palmyra and Pleasant Grove Park and consists of gravity sewer, several pump stations, force mains and a WWTP.

## 1.4 Future Demand Projections

Future demand projections in Fluvanna County are evaluated to predict water and wastewater demands and identify system improvements required to meet future needs. Recommended improvements within the planning period (2020-2040) are identified based on land use phasing and the development and geographic distribution of demand projections throughout the ZXR Service Area and FUSD Service Area. These projections are developed utilizing methodologies consistent with the provisions of Fluvanna County's 2040 Comprehensive Plan, Capital Impacts

Study, and input from the County's Public Works, Administration, Economic Development, and Planning Departments.

The proposed projects identified in this UMP are based on these projections and will be periodically adjusted based on actual growth patterns within the ZXR and FUSD service areas. This is particularly true of any project planned for more than 3 years in the future.

## 1.5 System Modeling

Water and wastewater system digital hydraulic models were developed for all of Fluvanna's existing and future public utility systems in order to evaluate system conditions throughout the planning period and to identify improvements required to meet future needs. Bentley WaterGEMS CONNECT Edition is used to model the water systems and Bentley SewerGEMS CONNECT Edition is used to model the wastewater systems.

For water systems, fire flow is applied to the demands to determine storage and flow requirements. For wastewater systems, the Harmon Population Equation is used to generate peak flow multipliers within the model to simulate a peak-hour flow event.

## 1.6 Water System Improvements

A water system analysis, conducted for each water system, evaluates future improvements required for projected future growth through the end of the planning period in 2040.

The water system improvements program involves improvements to the water supply, water storage, and water distribution infrastructure needed to ensure adequate supply and pressures throughout the planning period. The County will construct major infrastructure projects required to provide adequate water supply to a broad geographic area while the private sector constructs waterlines required to provide water service to a site-specific area. Both the Virginia Department of Health (VDH) and County requirements are considered in the development of this plan.

### 1.6.1 Future Demand Projections

The evaluation of the planning period from 2020 to 2040 indicates, the projected demand exceeds the County's current water supply and will not be sufficient to meet future demands through the end of the planning period. Water supply improvements are necessary to account for these future demands and will be satisfied by the construction of the James River Raw Waterline, which will supply raw water to all service areas.

### 1.6.2 Future Water Supply and Storage

The County has an agreement with Louisa County to provide up to a maximum day capacity of 0.4 MGD, and an agreement with the Virginia Department of Corrections (DOC) to provide up to a maximum day capacity of 0.075 MGD. The agreement with Louisa County may be increased to a higher flow tier to provide a maximum day capacity of 2.0 MGD. For future water demand, the James River Raw Waterline (JRWL) will be the primary source of raw water for Fluvanna County. Treatment facilities will need to be upgraded or new facilities constructed to treat the raw water from the JRWL. Under Special Use Permit (SUP) 21-03 a WTP is planned to provide water in a 1.5-mile radius around the Dominion Bremono Power Station. Existing wells will not be necessary

to provide water once the JRWA and WTPs are online; however, they may remain operational to provide additional flow in emergencies.

Additional water storage is required to meet peak daily demands (equalization storage) as well as fire flow requirements (fire flow storage). New ground and ESTs will be required to supply this flow. Refer to **Chapter 6** for a complete list of recommended CIP projects.

## 1.7 Wastewater System Improvements

Wastewater system hydraulic models evaluate the improvements needed for the existing system, and future improvements required for future growth through the end of the planning period in 2040.

The wastewater improvement program involves improvements including upgrades, expansions and extensions to treatment capacity, pump stations, force mains, and gravity interceptor pipes. The County will construct major infrastructure projects required to provide adequate wastewater collection to a broad geographic area while private developers will construct smaller scale infrastructure to support development. Both the VDH and County requirements are considered in the development of this plan.

### 1.7.1 Future Demand Projections

Evaluation of future development conditions in Fluvanna County identifies wastewater system improvements required to meet future needs associated with the projected growth of population and development within ZXR, FUSD, and Palmyra. These future development regions and timeframes were established during workshops held with Fluvanna County staff, to determine where and when these new developments would require wastewater service.

### 1.7.2 Nutrient Allocation Evaluation

The County WWTPs' current and projected nutrient allocations are evaluated to determine the ability of the plants to accept additional future flows. Based on the required offsets calculated, the County may need to implement a reclaimed water distribution system and/or obtain additional nutrient allocation credits from alternate sources in order to expand past the current permitted discharges. See **Chapter 4** for further discussion of nutrient allocation requirements.

### 1.7.3 Wastewater Collection and Treatment

Based on the anticipated developments outlined by the County, several Capital Improvement Program (CIP) projects are identified for each region of the wastewater systems. Throughout the planning period, the system average daily demand (ADD) increases significantly, requiring a major addition to the existing wastewater system infrastructure, including the construction of a WWPSs, force mains, trunk gravity sewer lines, and upgrades to WWTPs. Refer to **Chapter 7** for a complete list of recommended CIP projects.

## 1.8 Implementation

The capital improvement plan envisioned for the County, especially in the northern area (ZXR) is larger than projects undertaken by the County in the past. As the County prepares to grow to the extents projected in this UMP, there could be several implementation challenges with various

natures including political, economic and environmental. It is important to use this report as a “living document” and coordinate the needs of the actual growth with the availability of resources and demands at various stages of the development plan.

- The implementation plan establishes the timing by phase and cost associated with each water and wastewater improvement project needed to meet projected growth during the planning period and improve existing system deficiencies. Descriptions of the proposed water and wastewater system improvements, organized by phase, are provided in Chapters 6 and 7. The description lists the requirements for the improvement and the timing of the improvement. The estimated planning phases indicate the order of when future projects will be required based on the future demand projections. The precise timing of the construction of projects will be growth dependent and based on actual rate of development within the County and available funding.

Table 1-1, Table 1-2, and Table 1-3 provide a summary of the anticipated approximate costs of CIP projects divided by service area. Table 8-4 and Table 8-5 in **Chapter 8** outline the projected water and wastewater system improvements by service area, summarizing the following information:

- Name of system improvement.
- Budgetary cost estimate in 2022 dollars.
- Year of project completion and planning period in which the project is estimated to be needed based on demand estimates. The recommended projects included in this plan are conceptual and are for high-level planning purposes are within 5- and 10-year time frames. When the County is ready to proceed with a specific project, it is recommended that a Preliminary Engineering Report (PER) be completed to evaluate the project in detail and to provide more refined budget cost estimates. The PER will also be required to obtain state regulatory approvals. It should be noted that the planning, permitting, engineering and construction for projects can often take at least 3 to 5 years (actual timeframe dependent on project complexity); therefore, adequate time should be planned for the completion of projects.

*Table 1-1: Countywide CIP Costs*

CIP Project Type	Fiscal Year		
	2022 - 2030	2030 - 2035	2035 - 2045
Water	\$30,876,000	\$13,386,000	\$85,786,000
Wastewater	\$56,772,000	\$42,500,000	\$21,693,000
<b>Grand Total</b>	<b>\$87,648,000</b>	<b>\$55,886,000</b>	<b>\$107,479,000</b>

Table 1-2: FUSD/Palmyra CIP Costs

CIP Project Type	Fiscal Year		
	2022 - 2030	2030 - 2035	2035 - 2045
Water	\$20,310,000	\$8,480,000	\$3,240,000
Wastewater	\$35,241,000	\$0	\$0
<b>Grand Total</b>	<b>\$55,551,000</b>	<b>\$8,480,000</b>	<b>\$3,240,000</b>

Table 1-3: Zion Crossroads CIP Costs

CIP Project Type	Fiscal Year		
	2022 - 2030	2030 - 2035	2035 - 2045
Water	\$10,566,000	\$4,906,000	\$82,546,000
Wastewater	\$21,531,000	\$42,500,000	\$21,693,000
<b>Grand Total</b>	<b>\$32,097,000</b>	<b>\$47,406,000</b>	<b>\$104,239,000</b>

All costs presented in this report are for planning purposes only. The County is by no means obligated to the dollar amounts presented. These costs are provided for budgetary and planning purposes only and should be expected to change due to market volatility and shifting project timelines. Actual construction costs should be determined at the time of design and construction of each project. Budgetary costs presented below include engineering, land acquisition, and construction cost.

Cost estimates do not consider potential funding from third party sources. Potential funding sources include both federal and state grants, or private funding for certain projects.

Cost estimates are total estimates not considering potential funding from third-party sources for certain CIPs. Note that pursuant to an agreement with DEQ, the County may receive partial funding of that CIP described herein as: WZXR-0014-2045. In addition, the County may receive partial funding from Dominion Energy pursuant to SUP 21-03 and related re-zoning for CIP WFUSD-0002-2025 (described in Chapter 6) and related projects as more specifically described in such SUP 21-03 and related documentation, including specifically, but without limitation, the Statement of Proffers.

## 1.9 Summary of Recommendations

- Focus short-term water supply goal on rehabilitation and maximizing the available capacity in the County wells while JRWL process is ongoing (See **Section 4.3.1.1.2**).
- Focus mid-term water supply goal of replacing well-based FUSD system with raw waterline and WTP system serving existing FUSD users and those user areas identified in that 1.5 mile radius around the Bremono Power Station as specifically identified in SUP 21-03; and use existing wells to create emergency supply (See **Section 4.3.1.1**).
- Construct County Owned WTPs in FUSD and Zion Crossroads (See **Section 4.3.1**).
- Develop a PER for the initial DOC WWTP expansion (See **Section 4.3.2.2.1**).
- Add projects identified in the CIP to the County's CIP (See **Chapter 6 and 7**).
- Conduct a PER prior to design for each recommended project.

## Chapter 2. Introduction

This chapter of the UMP provides an introduction and summary of the work performed to complete this UMP.

### 2.1 Purpose

The Fluvanna County PWD provides water and wastewater service to a growing number of water and wastewater customers. Cost efficient, environmentally sound water and wastewater service is a major contributor to the County's quality of life. To ensure a continued high quality of service, while keeping pace with the challenges of a growing community, the County has developed this UMP. The purpose of the UMP is to assist the County with its planning for improvements, upgrades, extensions, and expansions that are required to meet future needs. The UMP addresses the phasing of improvements and upgrades required through the Year 2040.

This UMP is based on the best information available at this time. The UMP serves as a roadmap for the County's PWD. It will need to be updated based on actual development in the County and in response to changes that the County makes to its Comprehensive Plan in the future.

### 2.2 Scope

Preparation of the UMP involves extensive coordination with the Fluvanna County PWD to incorporate available information into the UMP, the information includes existing water and wastewater systems records, design information for planned projects, and methodologies for demand projections and system modeling.

The approach for development of the UMP incorporates the following steps:

1. Collect and review available information on the County's existing water and wastewater systems.
2. Obtain information from Fluvanna County on proposed land use, targeted growth areas, and population projections through the planning period.
3. Develop demand projections through 2040 and distribute the demand projections throughout the ZXR, FUSD, and Palmyra Service Areas in areas projected to be developed during several future time steps. Note that data from January 2019 to December 2019 is used as the baseline year for demand projections, since this time frame is the latest year that complete data is available at the time the population demand projections are developed.
4. Model the water and wastewater systems to identify CIPs that will address existing system deficiencies as well as growth within the County.

Develop the UMP to summarize project activities, provide costs, and recommendations for CIPs throughout the planning period.

Projects that are identified as improvements and upgrades to the County's existing water and wastewater systems are summarized in **Chapter 6** and **Chapter 7**. The implementation plan for

these improvements, outlining cost estimates and implementation schedules for each individual project, is included in **Chapter 8**.



## Chapter 3. Existing System

This chapter of the UMP provides an overview of Fluvanna County's existing water and wastewater systems.

### 3.1 Existing Water System Overview

In this report, the water systems are addressed by their locations within Fluvanna County. These water systems are ZXR, FUSD, and Palmyra.

The ZXR area is on a private well system and are not managed by the County, but the County has recently completed construction of an EST, booster pump station (BPS), and water main in the ZXR service area that will form the beginning of a comprehensive water system for that area. The FUSD, Carysbrook and Palmyra water systems are owned and operated by the County. There is also a large private water system that serves the Lake Monticello community. More detailed information on the existing County's waterlines, water treatment/supply facilities, storage facilities, and pumping facilities are provided in the following sections for each water system.

Demand data given in this chapter for the calendar year of 2019 is based upon well production data from each water system and accounts for flushing and unmetered water usage within the systems as discussed in Section 4.2.1.

#### 3.1.1 Fork Union Sanitary District Water System

The FUSD is located along James Madison Highway corridor and includes parts of Carysbrook, Dixie, Holmhead, Fork Union, Cohasset, Weber City and Bremo Bluff. The system primarily serves residential with some commercial and industrial users. As of May 2021, the FUSD water system provided water service to 466 residential and commercial customers as follows:

- Residential customers: 428
- Commercial customers: 38
- Total customers: 466

Raw water for the FUSD system is supplied through various wells throughout the system, as listed in Table 3-1. Based upon the current data received from the County, the water supply facilities provide for a combined ADD of approximately 136,000 gallons per day (GPD). This total does not account for flushing and unmetered water usage within the system. The yield of each well per month in the system in 2019 is shown in Figure 3-1.

The system consists of approximately 23.7 miles of waterline inside the FUSD boundary ranging from 4" to 8", and an additional 2.5 miles of 6" waterline extending outside the FUSD boundary. FUSD and Carysbrook are connected through a 6" PVC pipeline. Most pipeline within the system was installed from 1969 through 1982 and is primarily PVC pipe. There are six (6) operating well facilities, which provide water supply to the system, two ESTs, two WTPs (WTPs), and six (6) well pump stations. The system operates under one pressure zone with the maximum design flow of 295,000 GPD (Table 3-3). The existing FUSD water infrastructure is shown in Figure 3-3.

Table 3-1: Well Sites in the FUSD Water System (2019)

Well Site	Average Monthly Usage (Gallons)	Average Daily Demand (GPM)
West Bottom	130,000	4,300
Carysbrook*	-	-
Owens	230,000	7,600
Bremo	310,000	10,300
Melton (Emergency Use Only)	50,000	1,600
Morris	2,370,000	77,900
Omohundro	1,480,000	48,700
<b>Total</b>	<b>4,570,000</b>	<b>135,759</b>

\*Carysbrook well currently offline

Table 3-2: Tanks in the FUSD Water System

Tank	Capacity (Gallons)	Tank Type	Overflow Elevation/HGL Setpoint (ft)
Weber City Storage Tank	200,000	Elevated	584
Omohundro Storage Tank	150,000	Elevated	584

Table 3-3: Pumps in the FUSD Water System

Pump	Design Flow (GPM/GPD)	Design Head (ft)	Controlling Tank
West Bottom	15/21,600	175	Omohundro Storage Tank
Carysbrook	75/108,000	300	Omohundro Storage Tank
Owens	15/21,600	150	Omohundro Storage Tank
Bremo	30/43,200	120	Omohundro Storage Tank
Morris	35/50,400	200	Omohundro Storage Tank
Omohundro	35/50,400	150	Omohundro Storage Tank
<b>Total</b>	<b>205/295,200</b>	<b>-</b>	<b>-</b>

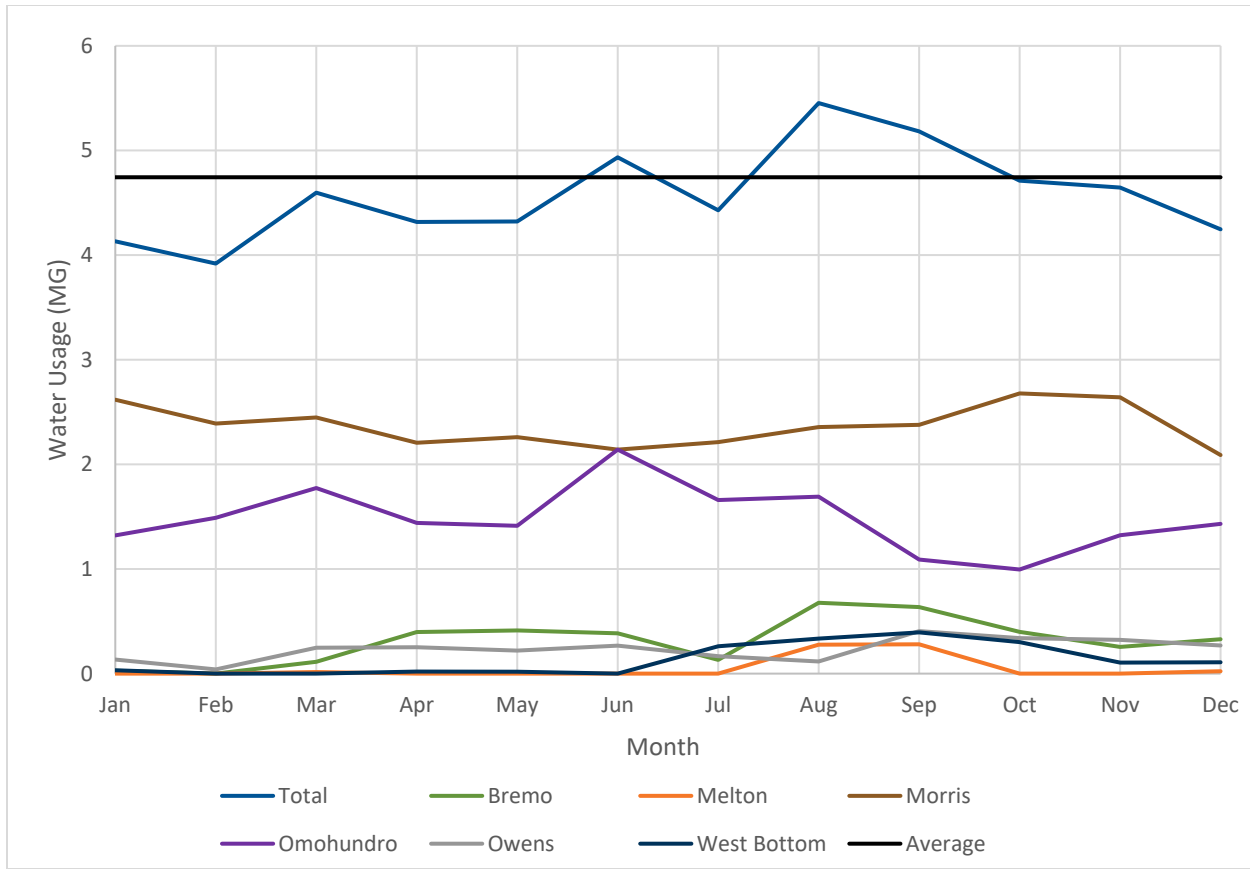


Figure 3-1: FUSD Water Usage (2019)

### 3.1.2 Pleasant Grove Water System

The Pleasant Grove water system operates with one well and pumping station and serves Pleasant Grove Park in Palmyra. This system consists of approximately 7.3 miles of waterline, and primarily consists of 8-inch diameter pipe. The Pleasant Grove water system is not connected to the FUSD water system.

Table 3-4: Well Sites in the Palmyra Water System

Well Site	Monthly Usage (Gallons)	Average Daily Demand (GPM)
Palmyra	1,450,000	50,000

### 3.1.3 Zion Crossroads Water System

A very limited County-owned water distribution system exists within the ZXR area, with a recently constructed 0.5 MG EST and BPS forming the beginnings of a more comprehensive ZXR water system. The EST is located near the intersection of Richmond Road and James Madison Highway. The only WTP in the ZXR area is owned by the DOC is on the site of the Fluvanna Correctional Center for Women. A 12" waterline runs from the EST along Richmond Rd. to the DOC WTP. Another 12" waterline runs south from the tank along James Madison Hwy. Additional

waterline along Richmond Rd. is currently in design, as well as a pressure reducing valve vault at the BPS. The existing ZXR water distribution infrastructure is shown in Figure 3-4.

## 3.2 Existing Wastewater Overview

Within Fluvanna County, there are several WWTPs that serve various regions of the county. Each of the following WWTPs operate independently and serve separate areas/facilities. Fluvanna County Public Schools owns, and the County operates and maintains the Carysbrook WWTP located in Carysbrook, near the bus depot, the Central WWTP located near Fluvanna Middle School. The County owns and operates the Palmyra WWTP located in Palmyra. The Fork Union Military Academy (FUMA) WWTP is located in FUSD and is privately owned and operated by FUMA. The Carysbrook Holdings, LLC WWTP is privately owned and is located in Carysbrook. DOC owns and operates the DOC WWTP, located in the ZXR area.

### 3.2.1 FUSD/Palmyra Area Wastewater System

The FUSD/Palmyra wastewater system is located along the James Madison Highway corridor and includes the Palmyra WWTP, Carysbrook WWTP, Central WWTP, FUMA WWTP (located at FUMA), and Carysbrook Holdings, LLC WWTP (located at tax map #42A14). These systems serve residential, commercial and educational users and are supported by three (3) County-owned sewer pump stations and two (2) privately owned sewer pump station that collect and convey sewage to one of the treatment plants within the region. Table 3-5 shows the average daily loads of the existing sewer systems. Figure 3-2 shows the flows through each of the FUSD/Palmyra WWTPs throughout the calendar year 2019. Note that the privately owned WWTPs are not displayed as detailed flow data was not provided. The existing FUSD and Palmyra wastewater infrastructure is shown in Figure 3-5.

*Table 3-5: FUSD/Palmyra Wastewater Systems Calculated Average Daily Loads (2019)*

Wastewater System	System Average Daily Load (GPD)
Palmyra System	12,800
Central	8,000
Carysbrook	2,200
Fork Union Military Academy	23,000
Carysbrook Holdings, LLC	2,400

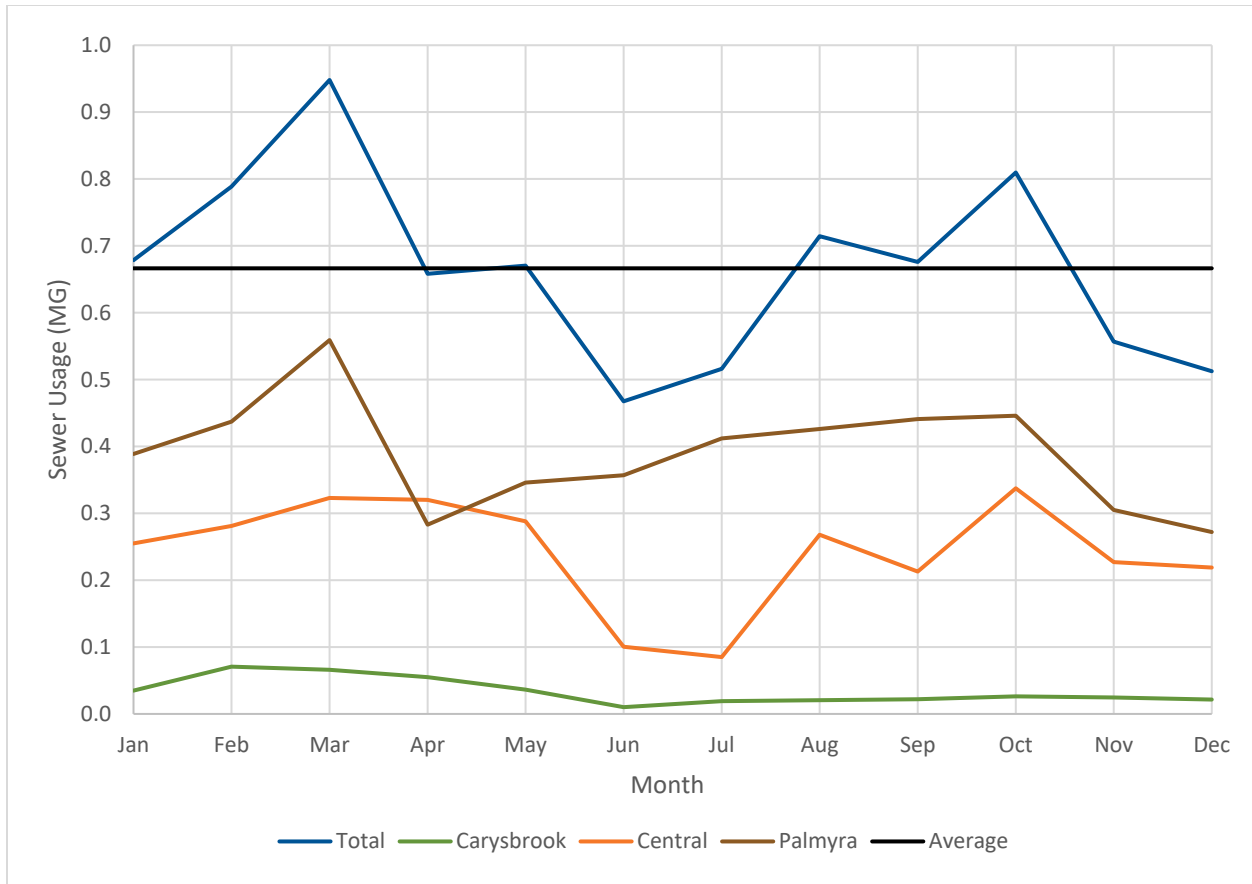
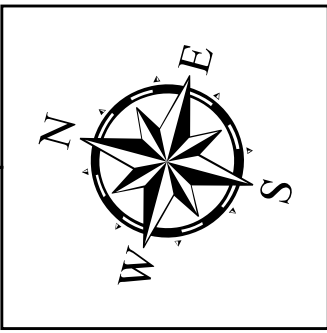
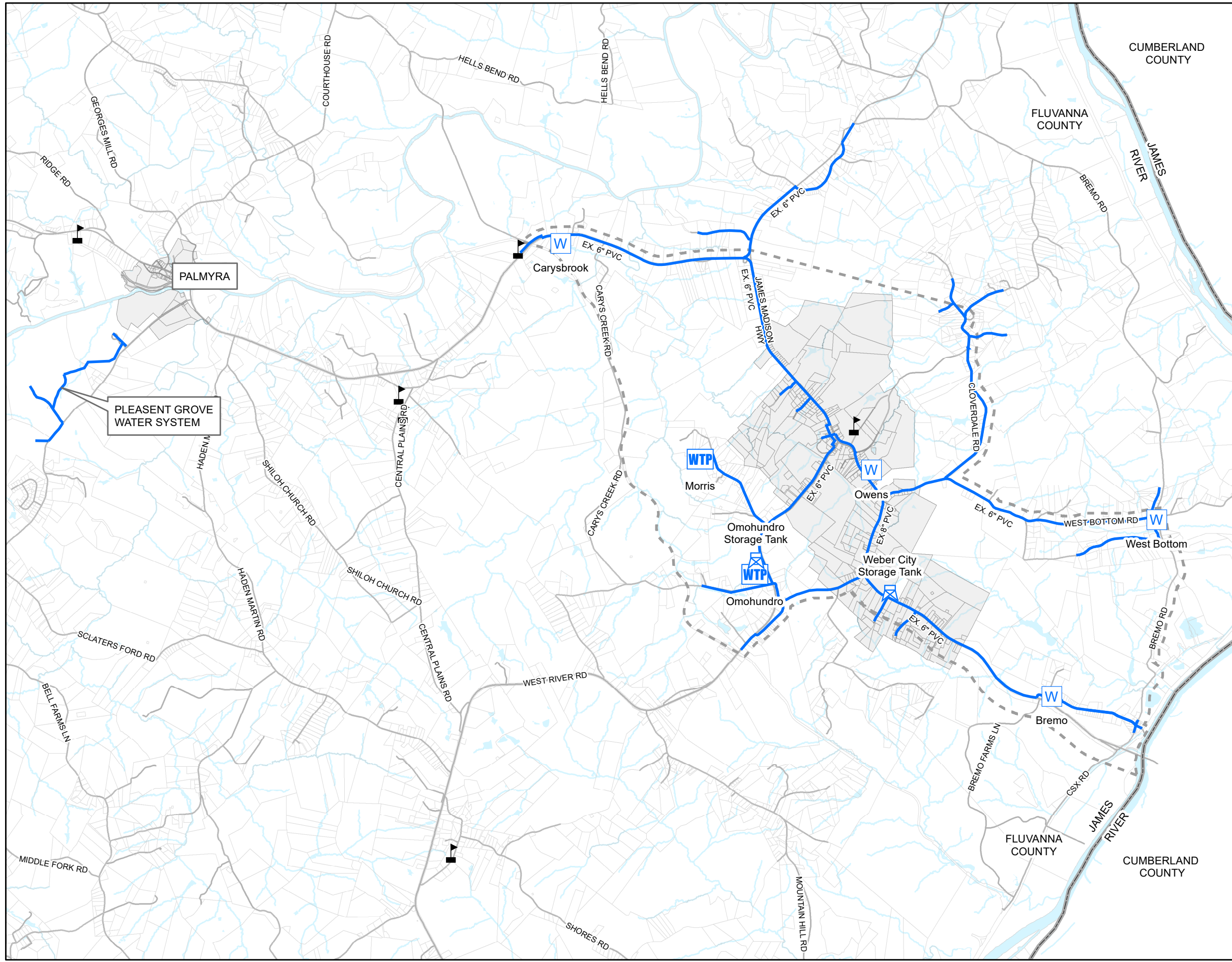


Figure 3-2: FUSD Sewer Usage (2019)











### 3.2.2 Zion Crossroads Wastewater System

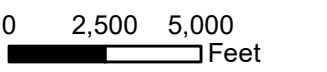
A comprehensive wastewater conveyance and treatment system does not exist for the ZXR area of Fluvanna County. DOC owns and operates the only WWTP in the ZXR area. The plant was constructed in the mid-1990s. The DOC WWTP is on the site of the Fluvanna Correctional Center for Women. There is an existing pump station on-site that pumps flow into the DOC WWTP. Fluvanna County recently constructed a County-owned WWPS on James Madison Highway to convey sewer flow to the DOC WWTP. Fluvanna County has an agreement with the DOC to treat 100,000 gallons of wastewater per day. The existing ZXR wastewater infrastructure is shown in Figure 3-6.





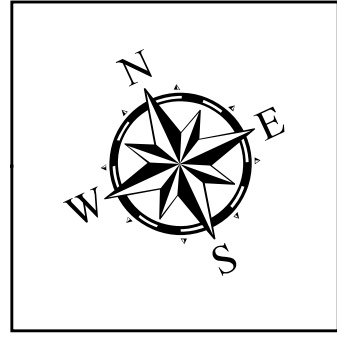
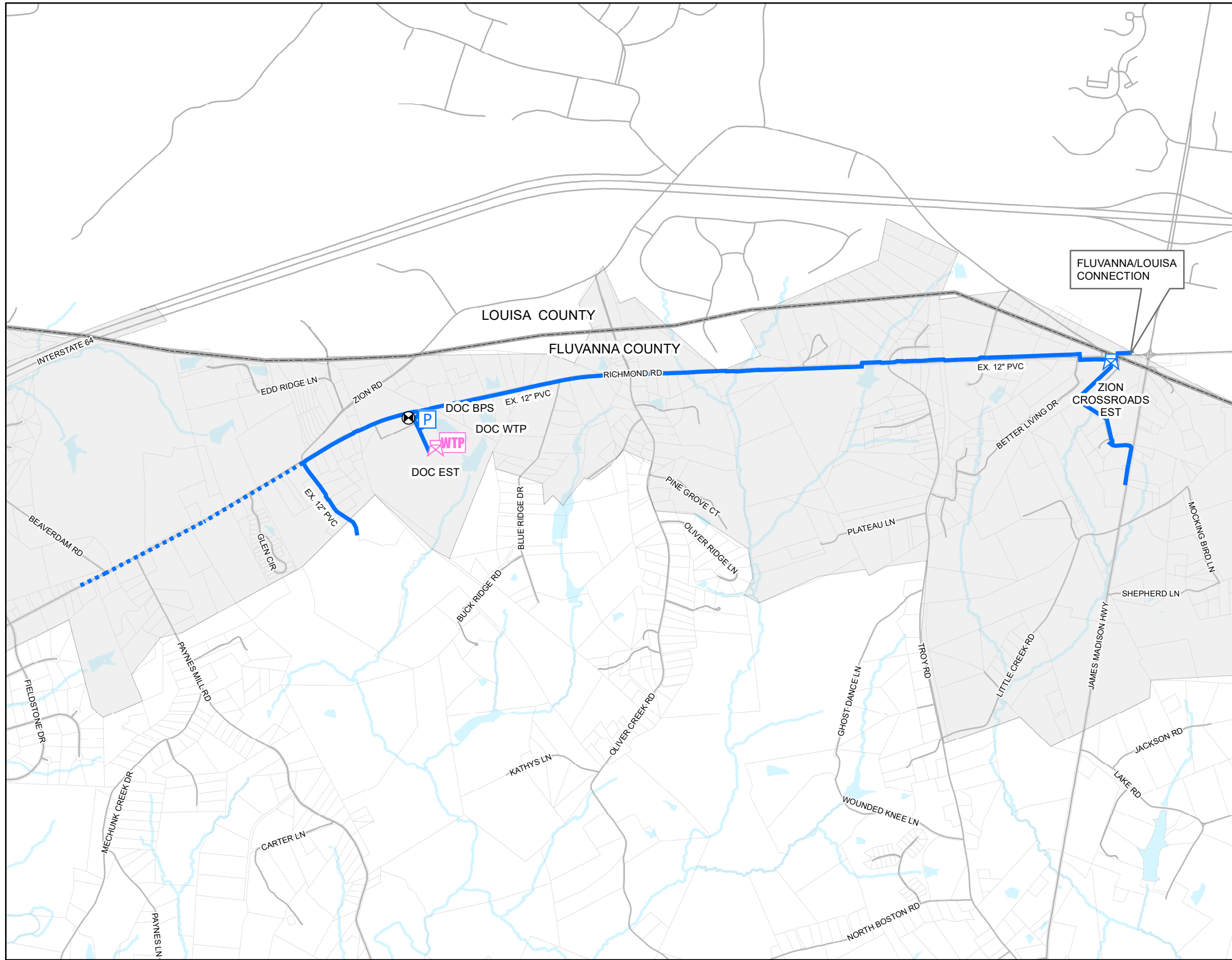
### Legend

-  Existing Water Line
-  Existing Well
-  Existing Water Treatment Plant
-  Existing Elevated Tank
-  School
-  FUSD Boundary
-  County Boundary
-  Community Planning Area
-  Roads
-  Waterbody



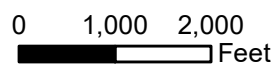
**Dewberry**  
 Dewberry Engineers Inc.  
 4805 LAKE BROOK DRIVE, SUITE 200  
 GLEN ALLEN, VIRGINIA 23060  
 PHONE: 804.290.7957  
 FAX: 804.290.7926

FIGURE NO.	DATE	SCALE	TITLE
	SEPT 2022	1 in = 5,000 feet	EXISTING FUSD/PALMYRA WATER INFRASTRUCTURE
3-3	PROJ. NO.	PROJECT	UTILITY MASTER PLAN
	50112292		FLUVANNA COUNTY, VA



**Legend**

- Existing Booster Pump Station
- Existing Elevated Tank
- PRV
- Existing Waterline
- In Design Waterline
- Private Water Treatment Plant
- Private Elevated Tank
- County Boundary
- Community Planning Area
- Parcel Boundary
- Roads
- Streams



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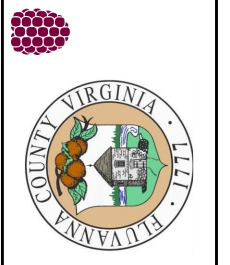
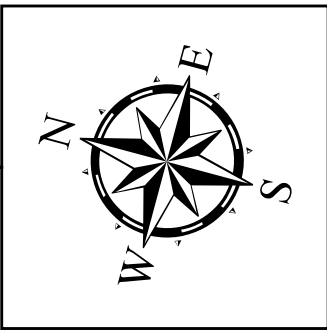
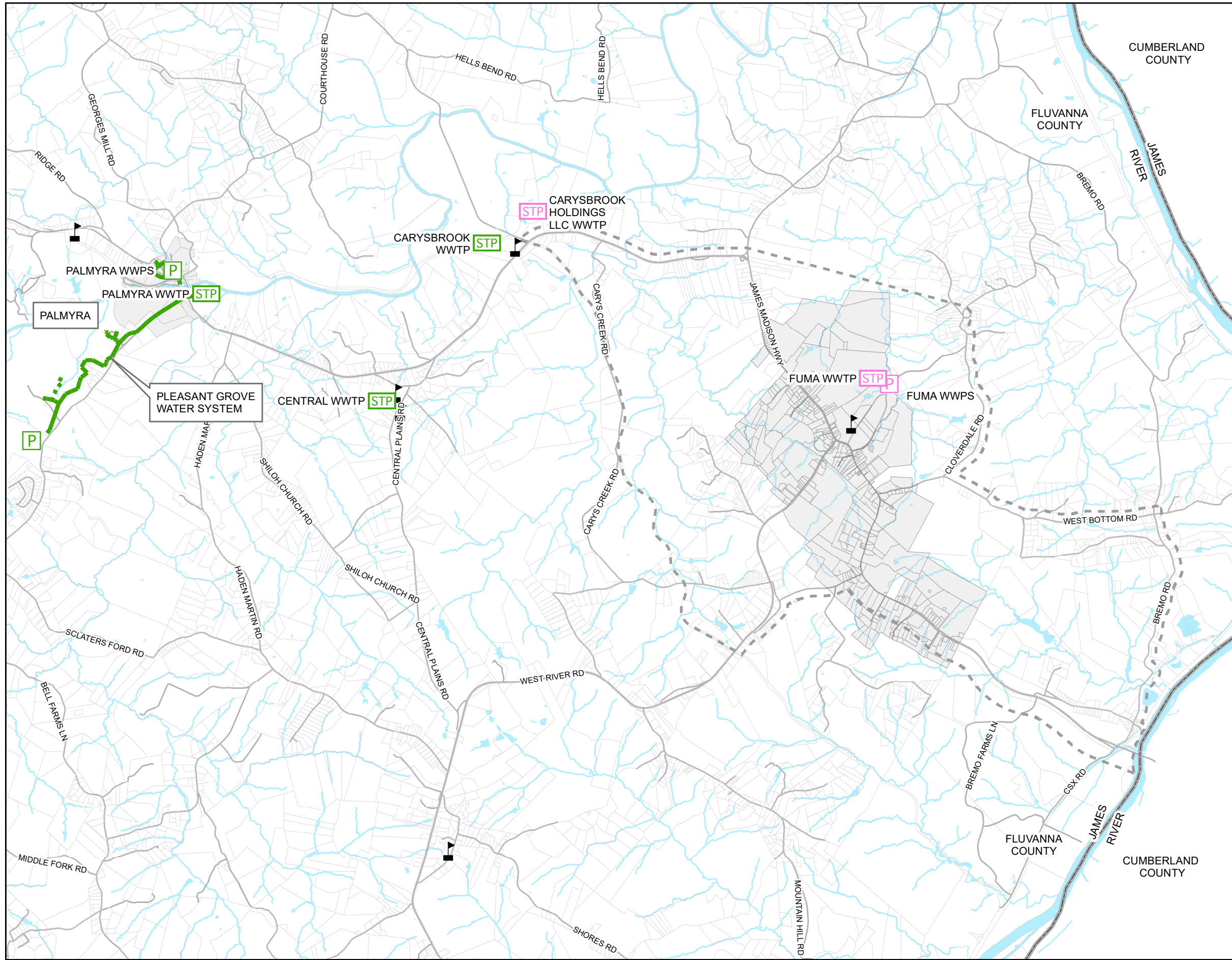


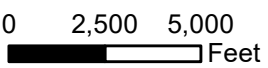
FIGURE NO.	DATE	TITLE
	SEPT 2022	EXISTING ZION CROSSROADS WATER INFRASTRUCTURE
3-4	PROJ. NO.	UTILITY MASTER PLAN
	50112292	FLUVANNA COUNTY, VA
	SCALE	
	1 in = 2,000 feet	





**Legend**

- STP Existing Sewer Treatment Plant
- P Existing Pump Station
- Existing Gravity Sewer
- Existing Force Main
- STP Private Sewer Treatment Plant
- P Private Pump Station
- School
- FUSD Boundary
- County Boundary
- Community Planning Area
- Roads
- Waterbody



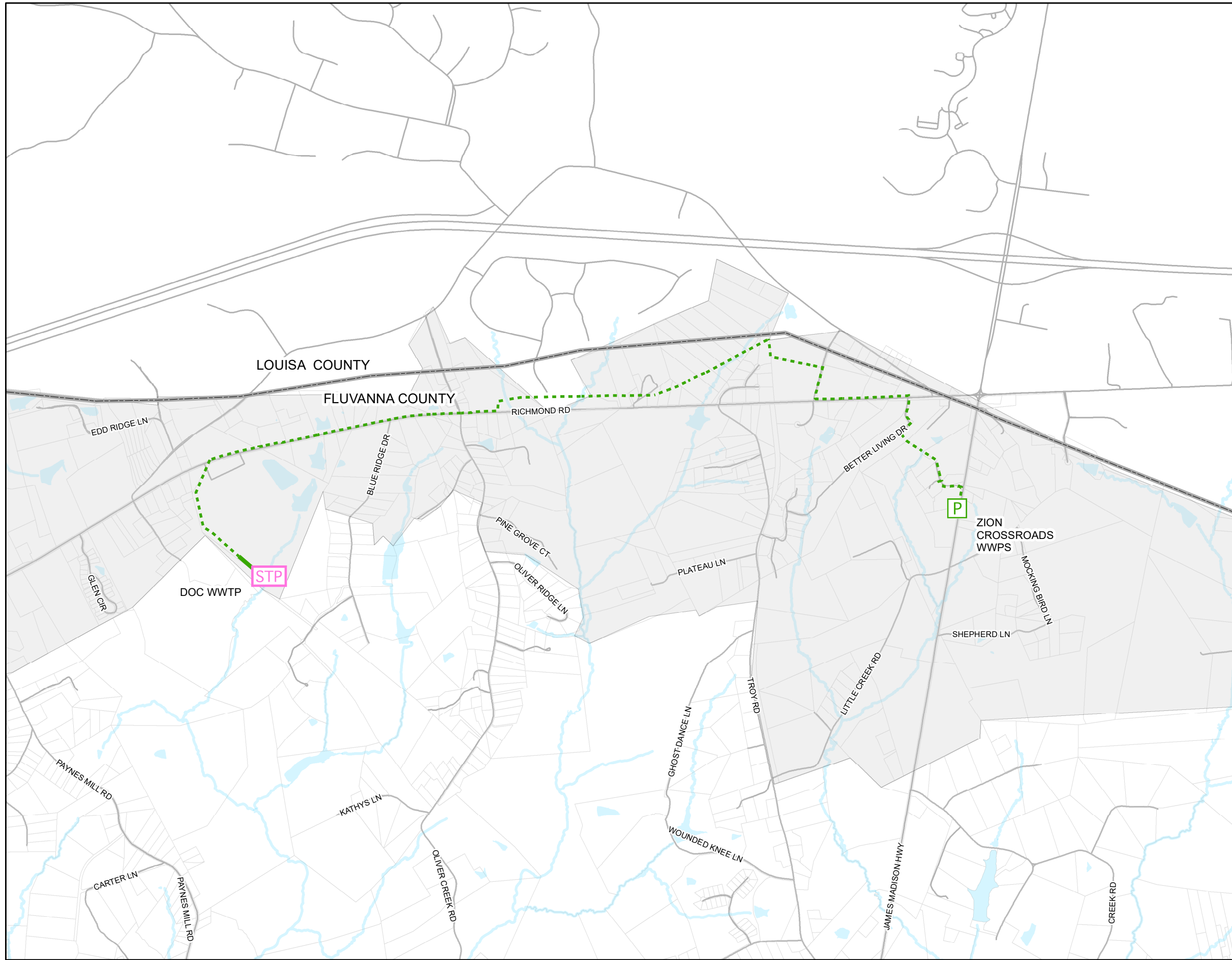
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TITLE EXISTING FUSD/PALMYRA  
 WASTEWATER INFRASTRUCTURE  
 PROJECT UTILITY MASTER PLAN  
 FLUVANNA COUNTY, VA

SCALE 1 inch = 5,000 feet

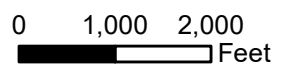
DATE SEPT 2022  
 PROJ. NO. 50112292

FIGURE NO. **3-5**



**Legend**

- P Existing Pump Station
- Existing Force Main
- Existing Gravity Sewer
- STP Private Wastewater Treatment Plant
- Zion Crossroads Sewersheds
- County Boundary
- Community Planning Area
- Parcel Boundary
- Roads
- Waterbody



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TITLE **EXISTING ZION CROSSROADS WASTEWATER INFRASTRUCTURE**

SCALE **1 inch = 2,000 feet**

PROJECT **UTILITY MASTER PLAN FLUVANNA COUNTY, VA**

DATE **SEPT 2022**

PROJ. NO. **50112292**

FIGURE NO. **3-6**

## **Chapter 4. Existing Demand and Future Demand Projections**

Future planned growth in Fluvanna County is evaluated and future demand projections developed to identify water and wastewater system improvements required to meet future needs associated with the projected growth within the ZXR, Fork Union, and Palmyra CPAs.

This UMP addresses future conditions and identifies required water and wastewater system improvements based on the development and geographic distribution of population, and demand projections within the growth areas for the planning period of 2020 through 2040. Note that data from January 2019 to December 2019 is used as the baseline year for demand projections for year 2020, since this time frame is the most recent full data set available at the time the population demand projections are developed. Anticipated demands for developments with plan approval are incorporated into the existing system demands.

Proposed projects are based on future demand projections. The timing of projects will need to be adjusted based on actual growth patterns within the growth areas. This is particularly true of projects more than 3 years in the future.

### **4.1 Existing Conditions**

In order to develop future demand projections, it is important to understand existing water demands, usage, and patterns. Baseline demands are estimated based on water meter data from the existing water customers including residents and commercial/industrial developments. Additional sources of system demand include manual flushing (which is conducted by the County periodically to improve water quality at dead end lines), line breaks, and tank maintenance.

#### **4.1.1 Existing Water Demands**

The estimated usage from metered connections and flushing is compared with water production and supply meter data to determine the amount of non-revenue water (NRW). NRW is the difference between net production and consumption. Sources of NRW include unrecorded flushing activities, water leakage in aging pipes, loose connections, aging meters, unmetered connections, line breaks, tank maintenance, and fire flows. The water model is developed to reflect the production data supplied by the County. Demand projections were created based on the production data, so NRW is not accounted for in the model.

Within Fluvanna County there is one large, private, central water system and several smaller systems. The largest water system serves the Lake Monticello community, where over 40 percent of Fluvanna's population resides. This private water system is owned by Aqua Virginia and draws from the Rivanna River.

Other systems in the County include the FUSD system, the Central Elementary system, the Pleasant Grove system, and privately-owned systems operating in Palmyra and Columbia. All these systems draw from groundwater wells. The County's other residents draw their water from private sources such as wells or springs. All publicly owned systems are included in this report.

#### *4.1.1.1 Existing Zion Crossroads Water System Demand*

A comprehensive water system serving the ZXR area does not exist therefore, no existing water usage data for the area exists.

#### *4.1.1.2 Existing Fork Union Sanitary District Water System Demand*

The FUSD provides water through twenty-six miles of pipe to roughly 435 customers, including residences, small businesses, Bremono Power Station, the Fork Union Military Academy, Carysbrook, and Fluvanna County Middle School. The District's service area includes Bremono Bluff, Fork Union, Thessalonia, Cloverdale, West Bottom, and portions of Carysbrook. In 2007, FUSD enhanced the storage volume and pressure by replacing two ground-level standpipe storage tanks with two ESTs. Despite these improvements, much of the remaining infrastructure in FUSD is aging.

#### *4.1.1.3 Existing Palmyra Water System Demand*

The County owns wells and a water distribution system that serves Pleasant Grove Park and the nearby high school. This system includes service for all municipal buildings and water fixtures in the park. Fluvanna County also owns a well which serves the Courts buildings with domestic water and fire control service. Another existing water system, owned by Aqua Virginia (formerly held by Sydnor), serves the Fluvanna government complex and surrounding areas in Palmyra.

### **4.1.2 Existing Sewer Loadings**

This section of the UMP evaluates the existing sewer flows of each wastewater system. Existing wastewater flows for the ZXR and Central Fluvanna (FUSD and Palmyra) systems are calculated using existing permits and capacity agreements between the County and the DOC. Based on the "Memorandum Agreement for Treatment of Wastewater" between the County and the DOC (October 2013), the County can discharge up to 100,000 GPD to the DOC's wastewater treatment facility (WWTF).

#### *4.1.2.1 Existing Zion Crossroads Sewer Loadings*

The ZXR area does not have a County-owned wastewater collection and treatment system; therefore, no data is available.

#### *4.1.2.2 Existing FUSD and Palmyra Sewer Loadings*

For the Central Fluvanna region, the existing wastewater demand is calculated from the listed average daily flows (ADF) on the Central Fluvanna WWTFs, including the Carysbrook Wastewater Treatment Plant (WWTP), the Central WWTP, the Fork Union Military Academy (FUMA) WWTP and the Palmyra WWTP. The Palmyra area is grouped with the FUSD system due to the low flows in both systems, geographical closeness, and potential for the systems to be connected in the future. These flows are listed in Table 4-1 below.

*Table 4-1: Existing Central/Southern Wastewater Average Daily Flows*

Wastewater treatment Facility	Average Daily Flow (GPD)
Palmyra Area WWTP	12,800
Carysbrook WWTP	2,200
Central WWTP	8,000
Fork Union Military Academy WWTP	23,000
Carysbrook Holdings, LLC WWTP	2,400
<b>Total</b>	<b>48,400</b>

Based on the existing wastewater discharge permits, the total existing wastewater ADF for the FUSD and Palmyra area, include from the Fork Union Military Academy is around 48,400 GPD.

## 4.2 Future Demand Projections

This section summarizes the future water demands for Fluvanna County over the planning period.

### 4.2.1 Water

Demand projections, based on input from Fluvanna County, are calculated for targeted growth areas based on parcel area, using three (3) levels of growth density, in units of equivalent persons per acre. These densities are listed in Table 4-2 below.

*Table 4-2: Growth Densities*

Density	Equivalent Persons Per Acre
High	15
Medium	10
Low	5

After calculating the total number of persons for each growth parcel, the number of persons is multiplied by the industry standard water usage per capita of 100 GPD per capita. This provided the total usage per parcel, in GPD.

Accounting for the changes in the nature and usage (residential, commercial, industrial) of the future customers in Fluvanna County over time, a dynamic approach is taken when applying growth densities to future buildout periods. For the 2022-30 buildout range, a low growth density is used. For the 2030-35 buildout range, a medium growth density is used. For the 2035-45 buildout range, a high growth density is used.

#### 4.2.1.1 Future Water Demand Projections

The following Tables 4-3, 4-4, 4-5 and 4-6 display the calculated demands projections for the ZXR, FUSD, and Palmyra areas of Fluvanna County as well as a table summarizing demand projections for the entire County. Each table includes the existing demands in the region; low, medium, and high projections; and the final calculated demand for each time step. In addition, in the FUSD projections, a static demand of 1 MGD is added in the 2022-30 timeframe as industrial growth is expected in the area in the near future. Based on the final calculated demands for each time step, the required water storage is calculated.

*Table 4-3: Palmyra CPA Water Demand Projections*

Buildout Range (Years)	Density:			Final Calculated Demand (GPD)	Required Storage (Gal)
	Low	Medium	High		
Existing	50,000	50,000	50,000	50,000	25,000
2022-30	73,711	97,422	121,133	73,711	36,856
2030-35	73,711	97,422	121,133	73,711	36,856
2035-45	73,711	97,422	121,133	73,711	36,856
<b>Total</b>	<b>73,711</b>	<b>97,422</b>	<b>121,133</b>	<b>73,711</b>	<b>36,856</b>

*Table 4-4: FUSD CPA Water Demand Projections*

Buildout Range (Years)	Density:			Final Calculated Demand (GPD)	Required Storage (Gal)
	Low	Medium	High		
Existing	135,759	135,759	135,759	135,759	67,879
2022-30	236,822	337,885	438,948	1,236,822	618,411
2030-35	253,337	370,915	488,493	1,269,852	634,926
2035-45	253,337	370,915	488,493	1,269,852	634,926
<b>Total</b>	<b>253,337</b>	<b>370,915</b>	<b>488,493</b>	<b>1,269,852</b>	<b>634,926</b>

*Table 4-5: Zion Crossroads CPA Water Demand Projections*

Buildout Range (Years)	Density:			Final Calculated Demand (GPD)	Required Storage (Gal)
	Low	Medium	High		
2022-30	187,647	375,294	562,941	187,647	93,823
2030-35	406,149	812,297	1,218,446	624,650	312,325
2035-45	994,629	1,989,258	2,983,888	2,390,092	1,195,046
<b>Total</b>	<b>994,629</b>	<b>1,989,258</b>	<b>2,983,888</b>	<b>2,390,092</b>	<b>1,195,046</b>

Table 4-6: Countywide Water Demand Projections

Buildout Range (Years)	Density:			Final Calculated Demand (GPD)	Required Storage (Gal)
	Low	Medium	High		
Existing	185,759	185,759	185,759	185,759	92,879
2022-30	498,180	810,600	1,123,021	498,180	249,090
2030-35	733,196	1,280,634	1,828,071	968,213	484,106
2035-45	1,321,677	2,457,595	3,593,513	2,733,655	1,366,827
<b>Total</b>	<b>1,321,677</b>	<b>2,457,595</b>	<b>3,593,513</b>	<b>2,733,655</b>	<b>1,366,827</b>

#### 4.2.1.2 Maximum Day Water Demand Calculations

Each water system will need to have enough supply to accommodate a maximum day demand (MDD) scenario. The MDD is calculated independently for the ZXR system and the FUSD/ Palmyra system for each planning period time step. The max day factor (MD factor) is defined as the multiplier applied to the ADD to calculate the MDD. The MD factor is high for smaller systems and decreases over time as more demand is added to the system. This is reflected in Table 4-7 and Table 4-8.

Table 4-7: Fork Union and Palmyra Max Day Water Demand Projections

Buildout Range (Years)	ADD (GPD)	MD Factor	MDD (GPD)
Existing	185,759	2.00	371,517
2022-30	310,533	2.00	621,065
2030-35	343,563	2.00	687,125
2035-45	343,563	2.00	687,125
<b>Total</b>	<b>343,563</b>	<b>2.00</b>	<b>687,125</b>

Table 4-8: Zion Crossroads Max Day Water Demand Projections

Buildout Range (Years)	ADD (GPD)	MD Factor	MDD (GPD)
Existing	0	-	0
2022-30	187,647	2.00	375,294
2030-35	624,650	1.75	1,093,138
2035-45	1,608,594	1.50	3,912,891
<b>Total</b>	<b>1,608,594</b>	<b>1.50</b>	<b>3,912,891</b>

## 4.3 Permitting

This section details the permitting requirements for different options for water supply and wastewater treatment in the various areas of Fluvanna County.

### 4.3.1 Water

Based on the County's existing water supply assets and projected future needs, the County will need to augment their water supply with another potable water source. This section describes the proposed alternative sources of water supply and what permitting will be involved for each supply.

### 4.3.1.1 Fork Union and Palmyra Area

This section provides a summary of the potential water treatment alternatives to serve the FUSD and Palmyra.

#### 4.3.1.1.1 Raw Water Supply

Prior to 2010, Fluvanna County held Virginia Water Protection (VWP) Individual Permit Number 04-0805, which allowed for a maximum water withdrawal of 5.7 million gallons per day (MGD). A letter to the Virginia Department of Environmental Quality (DEQ) titled “Minor Modification for Change in Ownership”, dated January 8, 2010, transferred ownership of this withdrawal allocation to James River Water Authority (JRWA). In September of 2014, the JRWA filed a reissuance application (Joint Permit Application (JPA) Number 14-0343), modifying the original individual permit number 04-0805 by proposing a new surface water intake, pump station, and pipeline just south of Columbia, Fluvanna. This application proposed a maximum withdrawal of 6.6 MGD and nullified the Bremo intake site as a viable withdrawal site.

Timmons Group completed a report titled “James River Water Supply Project Supplemental Information Package” (March 2020) outlining the ultimate design capacity of the James River Water Supply (JRWS) Project as well as the permitted capacity of the project to-date. This project would involve the construction of a surface water withdrawal from the James River near Columbia. The purpose of this project is to provide an additional water supply to the James River Water Authority (JRWA, consisting of Fluvanna and Louisa Counties) to accommodate future growth within Fluvanna and Louisa Counties. The design of the intake will allow for a maximum daily withdrawal of 12 MGD, allocating 6 MGD each for Louisa and Fluvanna Counties. An update to permit number 14-0343 described above (November 2015) revised the maximum allowable daily withdrawal into three (3) tiers, which are listed below in Table 4-9.

*Table 4-9: Maximum Withdrawal Tiers (Minor Modification No. 2)*

Tier	Maximum Daily Withdrawal (MGD)	Maximum Monthly Withdrawal (MG)	Maximum Annual Withdrawal (MG)
1	5.73	117.4	1,024.8
2	7.45	152.7	1,354.2
3	8.39	172.0	1,507.9

These withdrawal tiers are based on the ongoing completion of CIPs throughout Fluvanna and Louisa Counties that will extend service to developing regions of the counties. The JRWA will submit identified CIPs and associated schedules of completion to DEQ in order to justify the next withdrawal tier. Descriptions of the areas being served by each tier are described below:

1. **Tier 1** contains the withdrawal limits to meet the justified demands of the service areas of ZXR and Ferncliff in Louisa County and the Fluvanna ZXR Waterworks System in Fluvanna County and the economic development prospects as identified in the application for both Counties. CIPs were submitted to DEQ for review and approval for tier 1 withdrawals prior to January 1, 2018.
2. **Tier 2** contains the withdrawal limits to meet the justified demands of the service areas identified in Tier 1 and the service areas of Shannon Hill, Town of Louisa, Town of Mineral,



Louisa County Water Authority and Lake Anna in Louisa County. CIPs were submitted to DEQ for review and approval to justify tier 2 withdrawals prior to January 1, 2021.

3. **Tier 3** contains the withdrawal limits to meet the justified demands of the service areas identified in Tier 2 and the service areas of Gum Springs in Louisa County and the Fork Union, Columbia and Palmyra Central Water System in Fluvanna County. CIPs are to be submitted to DEQ for review and approval to justify tier 3 withdrawals prior to January 1, 2023.

The Fork Union and Palmyra regions are all listed under Tier 3 and based on the projected demands within these regions in the County and the County's desire to have a redundant water supply in case of well facility failure (low yield or primary maximum contaminant limits (PMCLs) violations), the County may consider applying for a revision to this permit to incorporate these regions into tier 1.

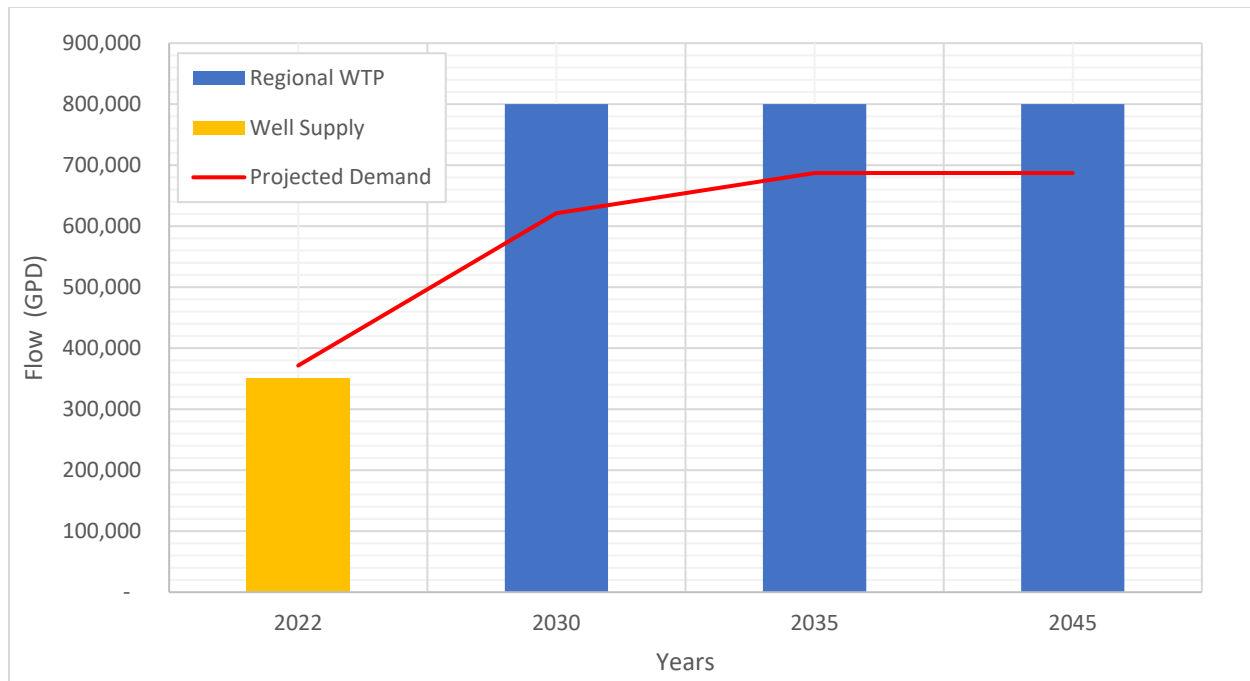
As of July 2021, the permitting process between DEQ, JRWA, the Corps of Engineers (USACE), and the Virginia Department of Historic Resources (DHR) is still ongoing. Prior to the issuance of the construction permit for the JRWS withdrawal project, the County will need to perform a PER, which will identify the location, capacity, and preliminary design of a regional water treatment that will receive raw water from the JRWS project and serve Central Fluvanna as a secondary potable water supply, supplementing their existing well system water supply. Eventually, as DEQ approves larger withdrawals from the JRWS, the WTP can be expanded, allowing for the well facilities to be taken offline. This will reduce the County's risk of being out of compliance with PMCLs and will simplify the operation of the County's central water system.

#### 4.3.1.1.2 Groundwater Supply

Fluvanna's FUSD and Palmyra well systems have a combined capacity of 350,000 GPD. In the past, one of the County's main well facilities, the Carysbrook well, had perchloroethene levels exceeding the PMCL. This well has been offline since 1995, but when it was active, the historical well logs show a yield up to 67,000 GPD. The County has also expressed that they have had gross alpha issues, and that some well facilities may require additional rehabilitation/treatment in order for the County to take advantage of their well system capacity.

Since the County already owns the withdrawal permits for its existing well facilities, the County's short-term water supply goal is recommended to focus on rehabilitating and maximizing the available capacity in their existing well facilities while the JRWS permitting process is still ongoing. A PER will be completed in order to identify the scope of work required to bring all County-owned well facilities online and fully operational, as well as the associated costs for this work.

In order meet the projected demands for the FUSD and Palmyra area listed in Section 4.2.1.2, the County will require an additional water supply. One option would be to construct a 0.8 MGD WTP in Central Fluvanna, which would be large enough to meet the projected max day demands in Central Fluvanna even with the County's well facilities offline. The Central Fluvanna WTP would be supplied from the JRWS 6 MGD raw water allocation and distribute finished water through an on-site BPS to Central Fluvanna. Figure 4-1 illustrates the available water supply and the projected MDD for the next 20-year planning period in Central Fluvanna.



*Figure 4-1: Water Supply vs. Projected Demand – Palmyra and FUSD*

As shown in Figure 4-1, when the 0.8 MGD WTP is brought online, the various well facilities throughout FUSD will not be necessary to supply water based on the demand projections through the end of the planning period.

According to SUP 21-03, parcels located within 1.5 miles of the Bremono Power Station will be served by a new WTP funded partially by Dominion. This will begin to remove the reliance on the County's existing well-based system.

#### *4.3.1.2 Zion Crossroads Area*

This section provides a summary of the potential water treatment alternatives to serve the ZXR area, including purchasing water from Louisa County or constructing a County-owned WTP in ZXR.

##### *4.3.1.2.1 Water Purchase Agreement*

The County has two standing water purchase agreements with the DOC and Louisa County Water Authority (LCWA). The County is allowed to pull a maximum of 75,000 GPD from the DOC water supply, and a maximum of 2,000,000 GPD from LCWA. The latter agreement is contingent upon the completion of the JRWS withdrawal project. For the purposes of this UMP, it is assumed that Louisa would have access to the raw water supply in the year 2022. This timeline, as well as ZXR water system's ability to sustain the projected level of growth/demand, may need to be reevaluated, as the permitting process between DEQ, JRWA, USACE, and the DHR is still ongoing.

##### *4.3.1.2.2 Water Treatment Options*

One option to meet the projected demands in the ZXR region is for the County to construct their own WTP facility in eastern ZXR, using the raw water supply from JRWS and providing treated

water to the ZXR region. The initial size of the WTP would be 4.0 MGD based on the projected demands in Section 4.2.1.2. The final buildout size of the WTP depends on how much of the JRWS 6.0 MGD allocation is used in Central Fluvanna. This project would require the construction of a 4.0 MGD raw water BPS at Fluvanna County's connection point to the JRWA raw waterline, which terminates in Louisa County just past Grace Johnson Road. A 7-mile stretch of 20" raw waterline would run from the BPS to the new WTP, located in the vicinity of eastern ZXR (the waterline was sized preliminarily based on head loss and velocity constraints; a PER will be completed to evaluate the required size of the raw waterline to the WTP).

Another option is expanding the existing DOC WTP, allowing for the County to potentially increase their allocation. The DOC has a daily withdrawal limit of 0.9 MG but can supplement their supply using water from the JRWS project and the 40 MG of surface water storage available in the on-site lagoon. This would require an additional 3 miles of 20" raw waterline in addition to the facilities listed above to get the raw water supply to the DOC facility. While upgrading the capacity of the DOC WTP is a possibility, the County will have no control over the quality of the treated water and will not be immune to potential rate increases once the agreements between the DOC and the County need to be renewed.

A third option is funding an upgrade to the LCWA water treatment facilities and purchase more than the current allocation. The County will not be immune to rate increases from LCWA and will potentially pay more in the long-term purchasing water from LCWA rather than constructing their own WTP.

It is recommended that Fluvanna County construct their own WTP. The construction of a County-owned WTP would provide several benefits, including but not limited to:

- 1) Protection from rate increases from both the DOC and LCWA
- 2) Autonomy in future planning
- 3) Ability to control finished water quality
- 4) Provides political flexibility and independence to the County

Figure 4-2 illustrates the available water supply and the projected demands for the next 20-year planning period in ZXR.

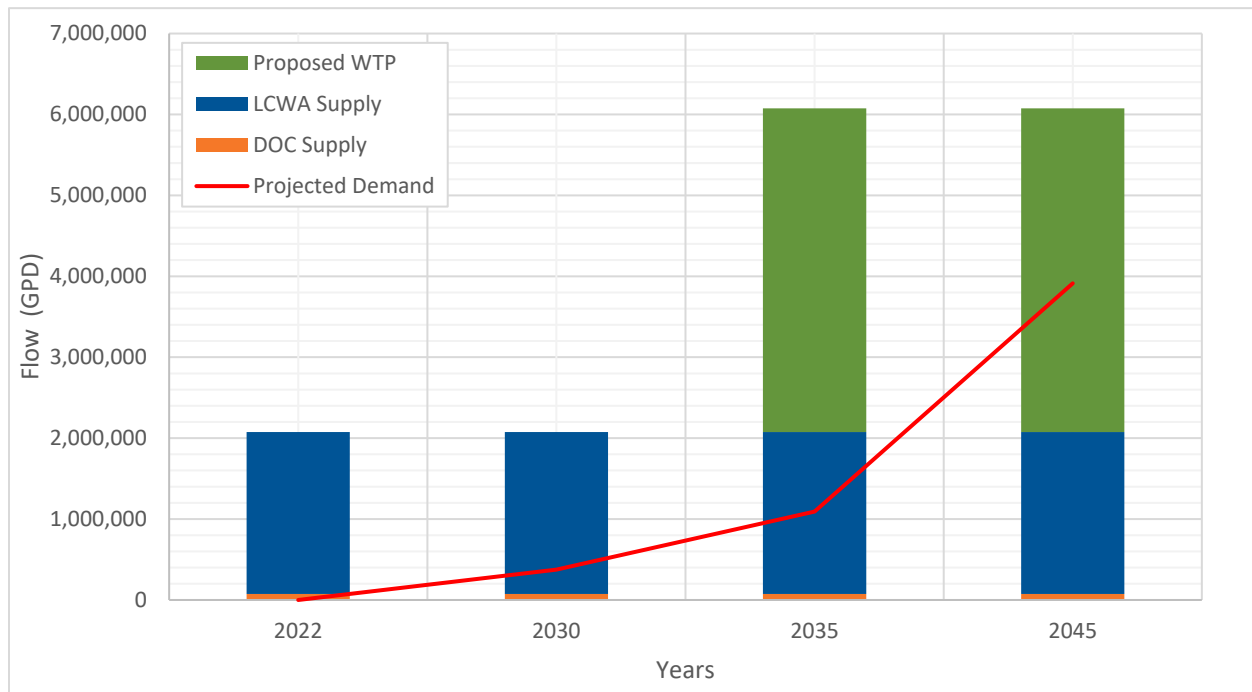


Figure 4-2: Water Supply vs. Projected Demand – Zion Crossroads

### 4.3.1.3 Water Supply Cost Estimates

Costs to construct a County-owned WTP versus a DOC-owned WTP (or County-owned WTP at the DOC site) are shown in Table 4-10 below. These costs include the treatment plant itself, as well as the costs required to transport water from the Fluvanna County Boundary with Louisa County.

Table 4-10: Raw Water Supply Facility Cost Comparison

Facility	County-Owned WTP	DOC-Owned WTP
<b>4 MGD WBS</b>	\$8,900,000	\$8,900,000
<b>20" Raw Waterline</b>	\$7,176,000	\$13,176,000
<b>4 MGD WTP</b>	\$57,000,000	\$57,000,000
<b>Total</b>	<b>\$73,076,000</b>	<b>\$79,076,000</b>

A new 4 MGD WTP would need to be constructed at the DOC, as the existing DOC WTP was not designed to be expandable. Therefore, the only cost difference between the two options is the cost to extend the raw waterline an additional 3 miles to the DOC site. Since there is no cost benefit to constructing the WTP at the DOC site, there is no apparent fiscal benefit to this alternative.

An approximate breakeven analysis was done comparing the capital cost of constructing the County-owned WTP versus paying for additional water from LCWA, considering different levels of growth in the ZXR Area (demand projections from Table 4-5). Figure 4-3 shows how many

years it would take at each growth level to reach the breakeven point of the cost of constructing the County-owned WTP. The analysis shows a high-density population growth rate will break even in 14 years, a medium density growth rate will break even in 18 years, and a low growth rate will break even in 28 years.

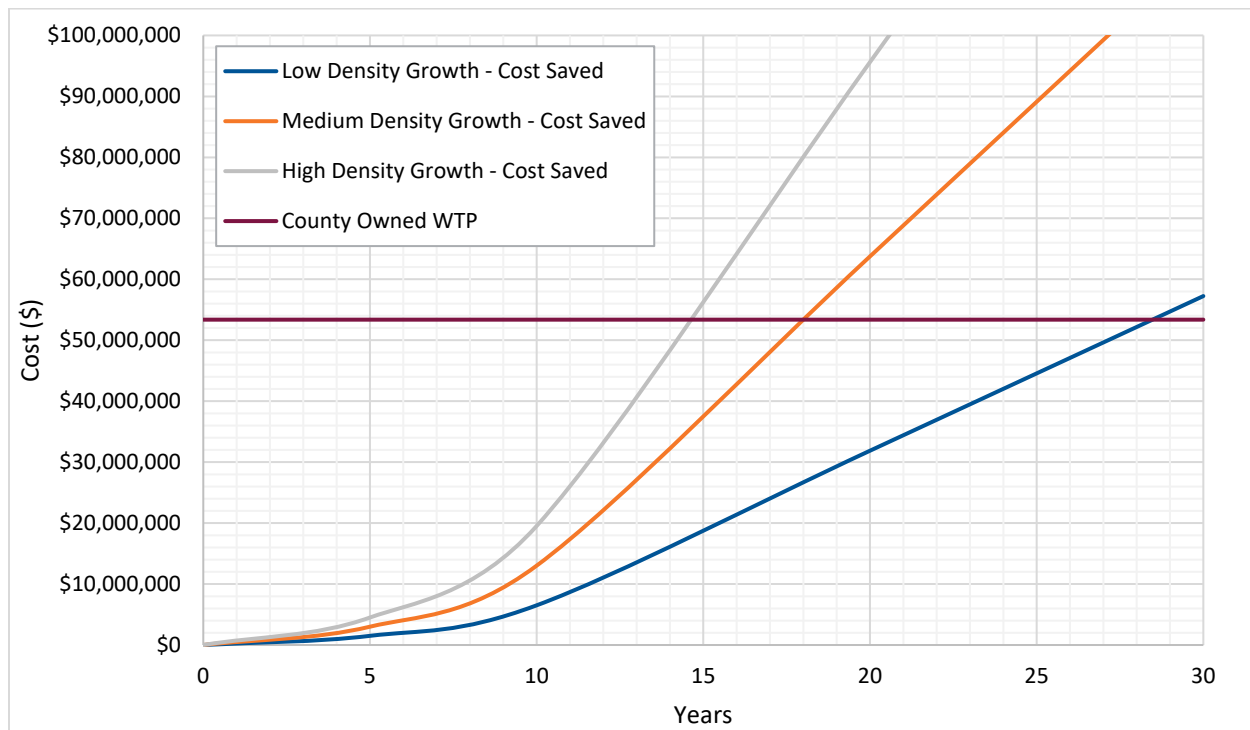


Figure 4-3: County-Owned WTP Breakeven Analysis

## 4.3.2 Wastewater

The County has a standing agreement with DOC to discharge up to 100,000 GPD to the DOC WWTP. Because all the WWTPs within the County discharge into the James basin, it is possible to combine, or “bubble”, the nutrient load allocations permitted for each WWTP. The sections below explore how bubbling permits can be used to serve the ZXR and FUSD/Palmyra regions in the future given the projected growth within the County.

### 4.3.2.1 Fork Union and Palmyra Area

As stated earlier, the Carysbrook WWTP, Central WWTP, and Palmyra Area WWTP are all located in the FUSD/Palmyra area and are County-owned. If the Central and Carysbrook WWTPs are decommissioned, the nutrient load allocations for both the WWTPs can be bubbled to allow for the construction of a single, larger FUSD WWTP. The Palmyra WWTP does not have any allocation to bubble. The nutrient allocation of the Central and Carysbrook WWTPs would allow for construction of a 0.23 MGD WWTP. Due to anticipated industrial development in the area, the County eventually will require approximately 1.0 MGD of treatment capacity, so this route would require additional nutrient load allocation to treat these flows. Should Fluvanna County opt to pursue this path, there are several methods in which the County can obtain additional nutrient allocation:

- Purchase nutrient allocation credit from another municipality.
- Obtain another WWTP with the required nutrient allocation
- Engage in wastewater reuse.

Table 4-11 provides the general permit information for the FUSD/Palmyra WWTPs. Table 4-12 lists the existing flows and allowable total nitrogen (TN) and total phosphorus (TP) discharge loadings for each WWTP. The table also shows the total theoretical flow capacity of the new WWTP, assuming that the new WWTP would be able to treat the influent wastewater to discharge levels of 3.0 mg/L TN and 0.1 mg/L TP.

*Table 4-11 FUSD/Palmyra WWTP Permit Information*

Wastewater Treatment Facility	VPDES Permit Number	Basin	Outfall Location	Flow Tier 1 (MGD)	Flow Tier 2 (MGD)	Flow Tier 3 (MGD)	Ultimate Flow Tier (MGD)
Carysbrook WWTP	VA0082228	James	Rivanna River	0.012	-	-	0.012
Central WWTP	VA0030767	James (Middle)	Raccoon Creek	0.025	0.05	-	0.05
Palmyra WWTP	VA0091146	James	Rivanna River	0.0399	0.1	0.15	0.15
<b>Total</b>				<b>0.131</b>	<b>0.15</b>	<b>0.15</b>	<b>0.21</b>

*Table 4-12 FUSD/Palmyra WWTP Nutrient Load Allocations and Calculations*

Wastewater Treatment Facility	Current ADF (MGD)	TN Discharge Allowance (lb/yr)	TP Discharge Allowance (lb/yr)	Treated Flow TN Conc (mg/L)	Treated Flow TP Conc (mg/L)	Flow Capacity - TN Limit (MGD)	Flow Capacity - TP Limit (MGD)
Carysbrook WWTP	0.0014	684	91	3	0.1	0.07	0.30
Central WWTP	0.011	1,424	190	3	0.1	0.16	0.62
Palmyra WWTP	0.0166	0	0	3	0.1	0.00	0.00
<b>Total</b>	<b>0.029</b>	<b>2,108</b>	<b>281</b>	-	-	<b>0.23</b>	<b>0.92</b>

The central FUSD WWTP would initially be constructed for 0.23 MGD and would be expandable to 1.0 MGD. Based on the locations and sizes of the County-owned parcels, the new WWTP would likely be constructed either centrally in FUSD, near the area where the highest loading is likely to occur or in the Carysbrook area near the Rivanna River outfall. The new WWTP would require roughly 10-15 acres of land and would cost approximately \$45 million when fully expanded. A formal PER will be completed evaluating the location, capacity, cost, and initial design of the new centralized WWTP. The PER will also examine if there are any known impairments at the discharge location into the Rivanna river, which is just north of the existing Carysbrook WWTP.

The total existing design capacity from the Carysbrook, Central, and Palmyra WWTPs is 0.137 MGD, shown in Figure 4-4.

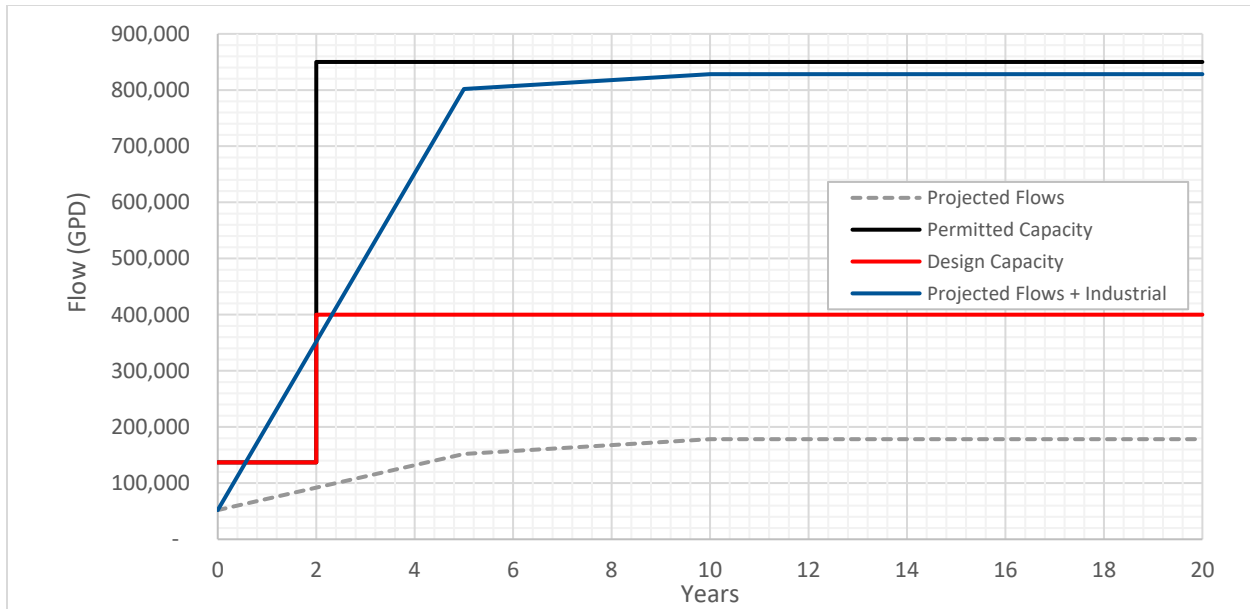


Figure 4-4: Treatment Capacity vs. Projected Flows – FUSD/Palmyra

#### 4.3.2.2 Zion Crossroads Area

This section provides a summary of the potential wastewater treatment alternatives in the ZXR area, including upgrading the DOC WWTP, pumping sewage to Louisa County, and constructing a countywide WWTP.

##### 4.3.2.2.1 DOC WWTP Expansion

The ZXR region is roughly 15 miles away from a regional central WWTP for the Palmyra and FUSD regions; therefore, the most feasible option is to utilize the existing DOC WWTP facility and nutrient load allocation separately from the rest of the County for treatment of the projected flows over the next 20-year planning period. As shown in Table 4-13:, the existing DOC WWTP capacity is 0.3 MGD, but it has the largest TN and TP discharge loadings of all of the other WWTPs combined, as shown in

Table 4-14: If the DOC is willing to transfer ownership of the discharge permit to the County, the County would be able to expand the existing DOC WWTP up to a buildout capacity of 1.87 MGD (assuming treated discharge levels of 3.0 mg/L TN and 0.1 mg/L TP). It is unlikely that the DOC would be willing to partner with the County in order to pay for an expansion of their WWTP, as their wastewater flows are not expected to increase in the future.

Table 4-13: DOC WWTP Permit Information

Wastewater Treatment Facility	VPDES Permit Number	Basin	Outfall Location	Flow Tier 1 (MGD)	Flow Tier 2 (MGD)	Flow Tier 3 (MGD)	Ultimate Flow Tier (MGD)
DOC	VA0023418	James (Middle)	Oliver Creek, Unnamed Tributary	0.3	-	-	0.3

Table 4-14: DOC WWTP Nutrient Load Allocations

Wastewater Treatment Facility	ADF (MGD)	TN Discharge Allowance (lb/yr)	TP Discharge Allowance (lb/yr)	Treated Flow TN Conc (mg/L)	Treated Flow TP Conc (mg/L)	Flow Capacity - TN Limit (MGD)	Flow Capacity - TP Limit (MGD)
DOC	0.17	17,085	2,284	3	0.1	<b>1.87</b>	<b>7.50</b>

As shown in Figure 4-5, the DOC WWTP’s first expansion is to 0.9 MGD, and upgraded to the full 1.87 MGD in 10 years. If this alternative is pursued, a formal PER evaluating the required land, capacity, cost, and initial design of the expanded DOC WWTP is recommended. The PER will also evaluate the ability of the small tributary (Oliver Creek) discharge location to handle the increased flow from the DOC WWTP.

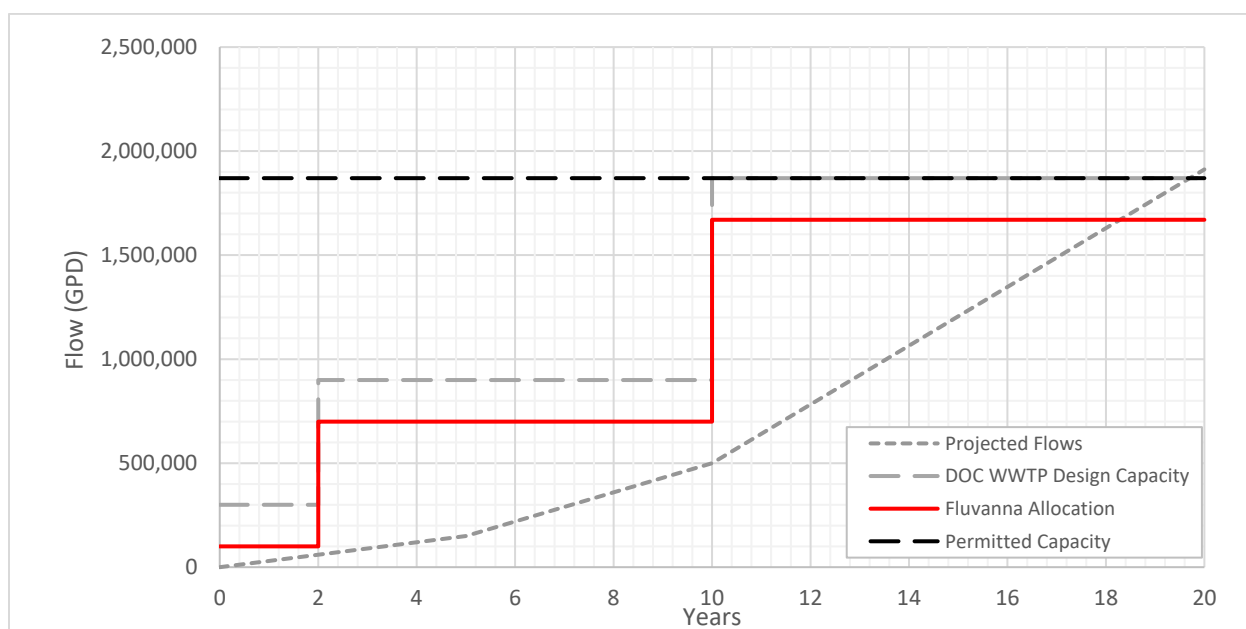


Figure 4-5: Treatment Capacity vs. Projected Flows – Zion Crossroads

#### 4.3.2.2.2 Pump Flow To LCWA

If it is not feasible to expand the DOC WWTP or the DOC is not willing to relinquish their ownership of the discharge permit, a second option is to manifold the force main running from the ZXR WWPS into the Louisa force main north of I-64, and pay LCWA to receive and treat flow at the Louisa ZXR WWTP. This will be an intermediate (not permanent) solution, as LCWA has sized their existing WWTP to account for their own projected growth and may not have additional capacity to accommodate additional flow from Fluvanna County. This option would need to be discussed with all of the relevant stakeholders, including Fluvanna PWD, LCWA, and DOC, to



verify the feasibility of this alternative; and would also likely involve each stakeholder's engineers, advisors, contractors, and other counsel.

#### 4.3.2.3 Countywide Alternative

A final option in lieu of treating the Central Fluvanna and ZXR wastewater flows separately would be to acquire and bubble all of the WWTPs (Carysbrook, Central, Palmyra, and DOC) and construct one single regional WWTP. Similar to the regional FUSD WWTP discussed earlier, this WWTP would still be located centrally in FUSD, and as Table 4-15 illustrates, will have a buildout capacity of 2.87 MGD. This option also has the issue of nutrient load allocation requirements, which only allow for 2.10 MGD, and will require additional allocation in the future, which can be acquired through purchasing nutrient credits, obtaining another WWTP with nutrient credits, or engaging in wastewater reuse.

Table 4-15: Countywide Combined Nutrient Load Allocations

Wastewater Treatment Facility	ADF (MGD)	TN Discharge Allowance (lb/yr)	TP Discharge Allowance (lb/yr)	Treated Flow TN Conc (mg/L)	Treated Flow TP Conc (mg/L)	Flow Capacity - TN Limit (MGD)	Flow Capacity - TP Limit (MGD)
All WWTPs Combined	0.199	19,193	2,565	3	0.1	<b>2.10</b>	<b>8.42</b>

This alternative will require a large initial capital investment, requiring the following:

- Purchase of the DOC WWTP site and discharge permit
- Acquisition of additional nutrient load allocation
- Construction of a new WWPS at the DOC WWTP site, reversing the direction of flow in the force main from east-west to west-east
- Construction of a new force main from the ZXR WWPS south along Route 15 to the new regional WWTP at Carysbrook (roughly 15 miles in length)
- Construction of a new regional 2.87 MGD WWTP

Figure 4-6 provides an illustration of how implementing a regional WWTP is phased, how much permitted capacity is available, and how this capacity compares to the total countywide projected flows.

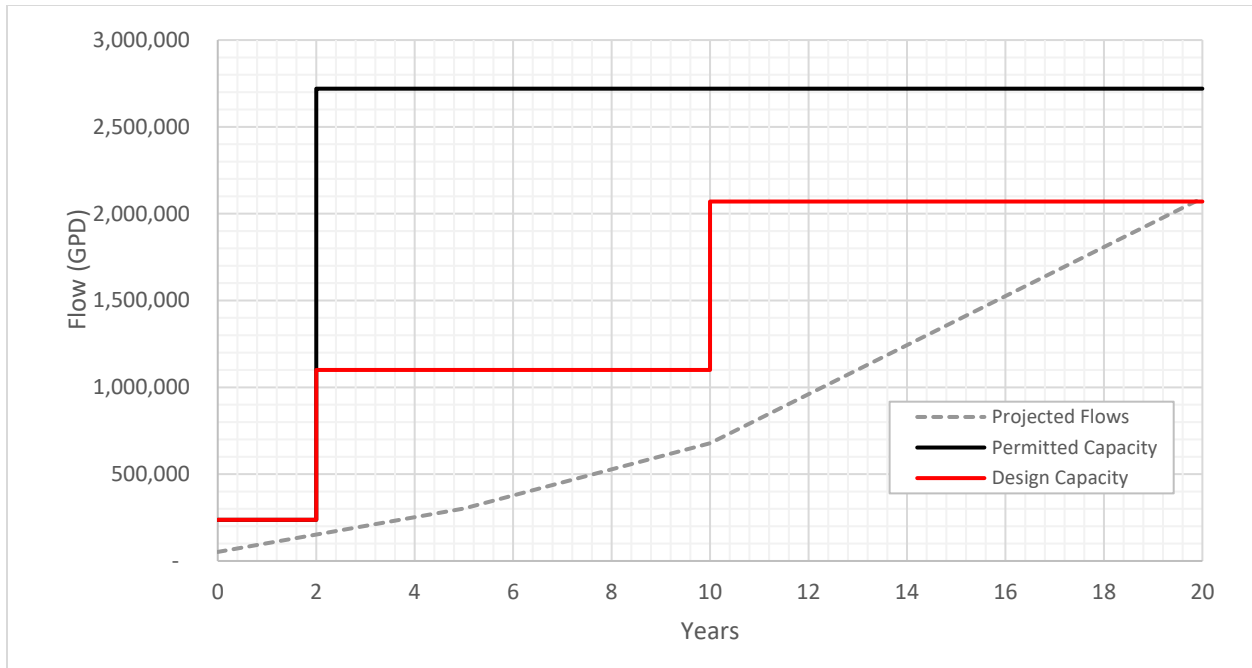


Figure 4-6: Total Treatment Capacity vs. Projected Flows (Zion Crossroads, Palmyra, and FUSD)

## Chapter 5. System Modeling

Fluvanna County's water and wastewater systems are modeled to predict and evaluate system conditions throughout the planning period and identify improvements required to meet future needs. Computer modeling software is used to develop the system models, which are loaded with water and wastewater demand projections that are developed as described in **Chapter 4**. The models are used to evaluate cost-effective, environmentally sensitive improvement scenarios required to address future conditions.

Brief summaries of the water and wastewater system modeling software packages, model development activities, system loading procedures, assumptions, calibration techniques, and modeling scenarios are provided in the following sections.

### 5.1 Water Model

Water system modeling activities are conducted utilizing the Bentley WaterGEMS Water Distribution Modeling Software. WaterGEMS is a hydraulic modeling application for water distribution systems with advanced interoperability, geospatial model building, optimization, and asset management tools. Its hydraulic analysis engine includes the capability to evaluate storage requirements, analyze water quality, approximate available fire flow, and calibrate large distribution networks, making it a useful tool for water system master planning activities.

#### 5.1.1 Model Update

The existing water system model is updated utilizing data from the County's GIS and supplemented using available record drawing information, field verification of above ground features, and approved plans. Elements that are included in the water system model consist of the following:

- Water distribution lines ranging in diameter from 4" to 12"
- Water storage tanks
- BPSs
- Water source connections (Louisa County for ZXR and a WTP for FUSD/Palmyra area)
- Pressure relief valves

Pipe modeling information is based on the updated GIS geodatabase provided by Fluvanna and updated by Dewberry. The GIS data provided by Fluvanna includes lengths and diameters for most of the water pipes, and pipe material for some of the pipes.

Junctions, or nodes, in the model are created at each change in pipe size, change in pipe direction, pipe intersections and any "break" in the GIS pipes, such as valves. Each junction is assigned an elevation in the model based on the 4-foot GIS topography contours provided by the County. These contours are converted to a raster image from which interpolated elevations are extracted and applied to each junction.

### 5.1.2 Model Demand Allocation

Two sets of steady state demands are included in the model to simulate system conditions under both average and maximum day demands. The demands for each service connection are assigned to the nearest node based on geo-coded service address for existing consumers or assumed connection points for future development. A detailed summary of system demands is provided in **Chapters 3 and 4**.

Diurnal demand patterns are incorporated into the model to simulate the hourly fluctuations of water usage throughout an average day and maximum day. American Water Works Association (AWWA) standard diurnal patterns are used for Residential and Commercial demands.

### 5.1.3 Model Assumptions and Evaluation Criteria

System operating parameters that are adjusted as part of this UMP include demands, pipe hydraulic roughness coefficients, pump performance, and interconnections to adjacent municipalities. All existing waterlines are modeled with a Hazen Williams roughness coefficient (C value) of 130. All future waterlines are also modeled with a C value of 130.

The following criteria are used in the water model to design and size waterlines:

- Maximum Velocity: 10.0 ft/s
- Minimum Velocity: 2.0 ft/s
- Maximum Pressure: 80 psi
- Minimum Pressure: 20 psi
- Minimum Pressure (fire flow): 20 psi

### 5.1.4 Model Scenarios

Steady-state and extended period simulations (EPS) are run for each of the time increments (2030, 2035 and 2045) within the planning period. The simulations evaluate required system improvements, to identify, and prioritize CIPs.

Steady-state fire flow analyses are performed to assess each system's ability to respond to a two (2) hour fire event during peak hour system demands, while maintaining the VDH-required minimum system wide pressure of 20 psi. Commercial and residential fire flows are simulated at strategic locations throughout each system to confirm system adequacy. In the ZXR area fire flows are modeled as 2-hour, 1,500 gpm events, as directed by the County. Due to smaller pipe sizes and lower flows, in FUSD and Palmyra fire flows are modeled as 2-hour, 500 gpm events.

Evaluating the adequacy of the system at each time increment through the planning period, the timing of individual CIP requirements is determined. Water modeling results are used to develop the water system improvement program that is described in detail in Chapter 6.

## 5.2 Wastewater Model

Wastewater system modeling activities are conducted utilizing the Bentley SewerGEMS Modeling Software. SewerGEMS is a sanitary modeling package that provides extensive scenario and facility management functionalities that make it a useful tool for analyzing existing and proposed sewer collection systems and their growth over time.

### 5.2.1 Model Update

The existing sewer system model is updated utilizing data from the County's GIS. The following elements are involved in the system model developed for this UMP:

- Gravity sewer lines 8-inches in diameter or greater
- Sanitary sewer pump stations
- Force main piping
- WWTPs
- Manholes

Information from the GIS database is used, where possible, to provide information on pipe lengths, slopes, ground elevations, and invert elevations and to establish continuity throughout the system. For portions of the system where GIS data is not available, invert and ground elevations are taken from record drawings or field surveyed.

### 5.2.2 Model Loading

Peak hour loadings are allocated to the model in order to accurately assess system capacity. In the model, meter readings for each service connection loadings are assigned to the nearest manhole based on geo-coded service address for existing consumers or assumed connection points for future development. A detailed summary of system demands is provided in Chapters 3 and 4.

### 5.2.3 Model Assumptions and Evaluation Criteria

System operating parameters that are adjusted as part of this UMP include demands, pipe hydraulic roughness coefficients, pump performance, and interconnections to adjacent municipalities. All existing gravity sewer mains and force mains are modeled with a Hazen Williams roughness coefficient (C value) of 120 simulate potential degradation of pipes. All future waterlines are modeled with a C value of 130.

The following criteria are used in the sewer model to design and size gravity sewer:

- Maximum Velocity: 10.0 ft/s
- Minimum Velocity: 2.0 ft/s
- Minimum Slope: 0.004 ft/ft

The following criteria are used in the sewer model to design and size force mains:

- Maximum Velocity: 10.0 ft/s
- Minimum Velocity: 2.0 ft/s

### 5.2.4 Model Scenarios

Simulations are performed for each of the time increments (2030, 2035, and 2045) within the planning period. The simulations evaluate required system improvement and identify CIPs.

A peak hour steady state analysis is used to evaluate system capacity during a peak hour event. Peaking factors for each sub-drainage basin are based on average day loading conditions and equivalent population data. To calculate peak hour demands, the Harmon equation is applied to each point load within the model.

Evaluating modeled system flows at each time increment, the timing of individual CIP requirements is determined. These analyses are used to develop the wastewater system improvements that are described in detail in Chapter 7.

## Chapter 6. Water System Improvements

This chapter of the UMP presents an overview of system improvements that are proposed to provide water service within the County's water service areas through the Year 2040. Fluvanna County constructs projects required to provide adequate water supply to general areas, and the private sector constructs the required water infrastructure to serve their projects.

The water system improvements program involves upgrades and/or expansions to water supply, water storage, and water distribution to ensure adequate supply and system pressures throughout the planning period during a max day demand and fire flow conditions.

An overview of recommended improvements based on modeling results is provided in the following section. The necessity of each project is conditional on the development of the area which it will serve. The years provided for each project are only for guidance purposes, and projects should be prioritized based on the actual development of the areas mentioned in the project descriptions below. The locations of each project are shown on labeled maps in **Appendix 1**. The improvements in the following list are named with regards their system (W-water, SS-sanitary sewer), their geographical location (ZXR-Zion Crossroads, FUSD-Fork Union Sanitary District, PMR-Palmyra), a planning level project number, and their rough year of completion (2025, 2030, 2040).

### 6.1 Fork Union Sanitary District Projects

The following list includes all water system improvements in the FUSD region of the County. **Appendix 1** shows the water project locations on a map of the FUSD/Palmyra region.

#### **WFUSD-0001-2030 (Treatment Plant)**

2.0 MGD WTP is shown along James Madison Hwy. near the intersection with Saylor Ln as a conceptual location. This location was selected in order to collocate the proposed WTP and EST where the largest development in the area is expected. Alternatively, this treatment plant may be located generally in the Carysbrook area. Upon the completion of a formal PER, the precise location of this treatment plant will be determined. This WTP will replace the smaller treatment plants and groundwater wells throughout the FUSD region and will serve the entire area.

#### **WFUSD-0002-2030 (Raw Waterline)**

20,300 LF of 20" raw waterline running from the JRWA raw waterline to the WFUSD-0001-2030 WTP in central FUSD. This waterline will provide all water for the WTP and will allow for the wells to be abandoned.

#### **WFUSD-0003-2030 (Booster Pump Station and Ground Storage Tank)**

2.0 MGD raw water BPS and 1.0 MG GST located at the intersection of Gale Hill Rd. and Route 656. The GST will receive flows from the JRWA RWL and the BPS will pump raw water through the WFUSD-0002-2030 raw waterline to the WFUSD-0001-2025 WTP.

#### **WFUSD-0004-2030 (Water Main)**

10,100 LF of 6" water main running along Bremono Rd. from the intersection at Bremono Bluff Rd. to the intersection with Spring Rd. This water main ties into the existing 6" water mains at both ends. This will serve existing users of well-based system and those identified as within 1.5 miles of the Bremono Power Station site in SUP 21-03.

#### **WFUSD-0005-2035 (Storage Tank)**

0.4 MG EST located at the same site as treatment plant WFUSD-0001-2030. This tank will store potable water from the treatment plant and distribute it throughout the FUSD area. See Figure 6-2 for the hydraulic grade of this tank in relation to the existing Weber City Tank in FUSD.

#### **WFUSD-0006-2035 (Water Main)**

3,300 LF of 8" water main running east along East River Rd. from the intersection with Red Bank Ln. and Gravel Hill Rd. to the intersection with Gravel Hill Rd. and Holmhead Circle. This water main will provide redundancy for the existing water main on Gravel Hill Rd.

#### **WFUSD-0007-2045 (Water Main)**

Upsize 22,800 LF of existing water main from the intersection of W River Rd. through the border of FUSD at Carysbrook to 12" to serve future needs of FUSD. This water main will provide additional capacity for water service to be extended to Palmyra.

## **6.2 Palmyra Projects**

The following list includes all water system improvements in the Palmyra area of the County. **Appendix 1** shows the project locations on a map of the FUSD/Palmyra region.

#### **WPMR-0001-2045 (Water Main)**

25,200 LF of 12" water main that runs north along James Madison Hwy. starting at the end of the existing water main in FUSD that runs along James Madison Hwy. then turns northeast along Thomas Jefferson Pkwy and continuing until Commons Blvd. This water main will allow for water service to be extended to Palmyra and the area along James Madison Hwy.

#### **WPMR-0002-2045 (Water Main)**

1,200 LF of 8" water main branching off to the east from water main WPMR-0001-2045 at the intersection of James Madison Hwy. and Central Plains Rd. and connecting to the middle school.

#### **WPMR-0003-2045 (Water Main)**

1,100 LF of 8" water main continuing along James Madison Hwy. into Palmyra where WPMR-0001-2045 bends along Thomas Jefferson Pkwy. This water main will serve the government complex and surrounding areas in Palmyra.

## **6.3 Zion Crossroads Projects**

The following list includes all water system improvements in the ZXR region of the County. **Appendix 1** shows the project locations on a map of the ZXR region.



**WZXR-0001-2030 (Water Main)**

6,700 LF of 12" water main starting at the end of the existing Route 250 water main near the DOC BPS and extending west along Richmond Rd just past the intersection with Beaverdam Rd. Also included is a PRV located at the DOC BPS. At the time of writing, this water main is under design. This project is partially funded through an agreement with DEQ.

**WZXR-0002-2030 (Booster Pump Station and Storage Tank)**

4 MGD raw water BPS located at the end of the JRWS raw waterline, near border with Louisa County near the intersection of Three Notch Rd. and James Madison Hwy. There is room on the site of the existing Fluvanna EST for this BPS. This booster station will pump raw water from the JRWA Raw Waterline to the DOC WTP. It will be designed to reverse flow in the case of an emergency. Additionally, a 1 MGD ground storage tank will be needed for raw water storage at this location.

**WZXR-0003-2030 (Water Main)**

2,600 LF of 12" water main starting at the intersection of Richmond Rd. and Troy Rd. running south along Troy Rd. until the intersection with Industrial Way. The waterline will later be expanded in WZXR-0005-2035. This water main will serve an area of future development south of Richmond Rd.

**WZXR-0004-2035 (Water Main)**

6,000 LF of 12" water main starting at the southern end of the existing water main along James Madison Hwy. running south then west to Troy Rd. connecting to WZXR-0005-2035. This waterline will serve an area of future development south of Richmond Rd and west of James Madison Hwy. This water main, in conjunction with WZXR-0005-2035 will create a loop to provide redundancy in western ZXR.

**WZXR-0005-2035 (Water Main)**

2,800 LF of 12" water main continuing at the end of WZXR-0004-2035 and running south along Troy Rd. until just south of the intersection with Ghost Dance Ln. where the waterline connects with water main WZXR-0003-2030. This water main, in conjunction with WZXR-0004-2035 will create a loop to provide redundancy in western ZXR.

**WZXR-0006-2045 (Raw Waterline)**

37,400 LF of raw waterline running from the end of the JRWA raw waterline through Louisa County to the ZXR area. This waterline will supply raw water for the future WTP in ZXR.

**WZXR-0007-2045 (Treatment Plant – Alternative 1)**

A 4 MGD treatment facility at the existing DOC facility is required to serve the future development of the ZXR area. If the DOC WTP is upgraded, 15,900 LF of 20" raw waterline must be constructed as an extension of the JRWA RWL.

**WZXR-0008-2045 (Treatment Plant – Alternative 2)**

Rather than significantly upgrading the existing DOC WTP (WZXR-0007-2045) and building a raw waterline along Richmond Rd. to the DOC to transport raw water to the WTP, a WTP may be constructed closer to the Louisa County border, near the existing Fluvanna EST that is closer to the discharge point of the James River Raw Waterline extension. Upon the completion of a formal PER, the precise location of this treatment plant can be determined.

**WZXR-0009-2045 (Water Main)**

15,000 LF of 12" water main installed parallel to the existing 12" water main that runs alongside Richmond Rd. from the existing Fluvanna EST to the DOC. This water main is needed to provide redundancy for the existing 12" water main.

**WZXR-00010-2045 (Booster Pump Station)**

An upgrade to the BPS at the DOC to increase the flow of the DOC BPS to 2 MGD. This upgrade will provide additional flow to serve the new development in the ZXR area.

**WZXR-0011-2045 (Water Main)**

7,200 LF of 12" water main parallel to the water main running from the DOC to Beaverdam Rd. along Richmond Rd. This water main will provide redundancy for the existing 12" water main and will serve to fill the new EST, WZXR-0012-2045.

**WZXR-0012-2045 (Storage Tank)**

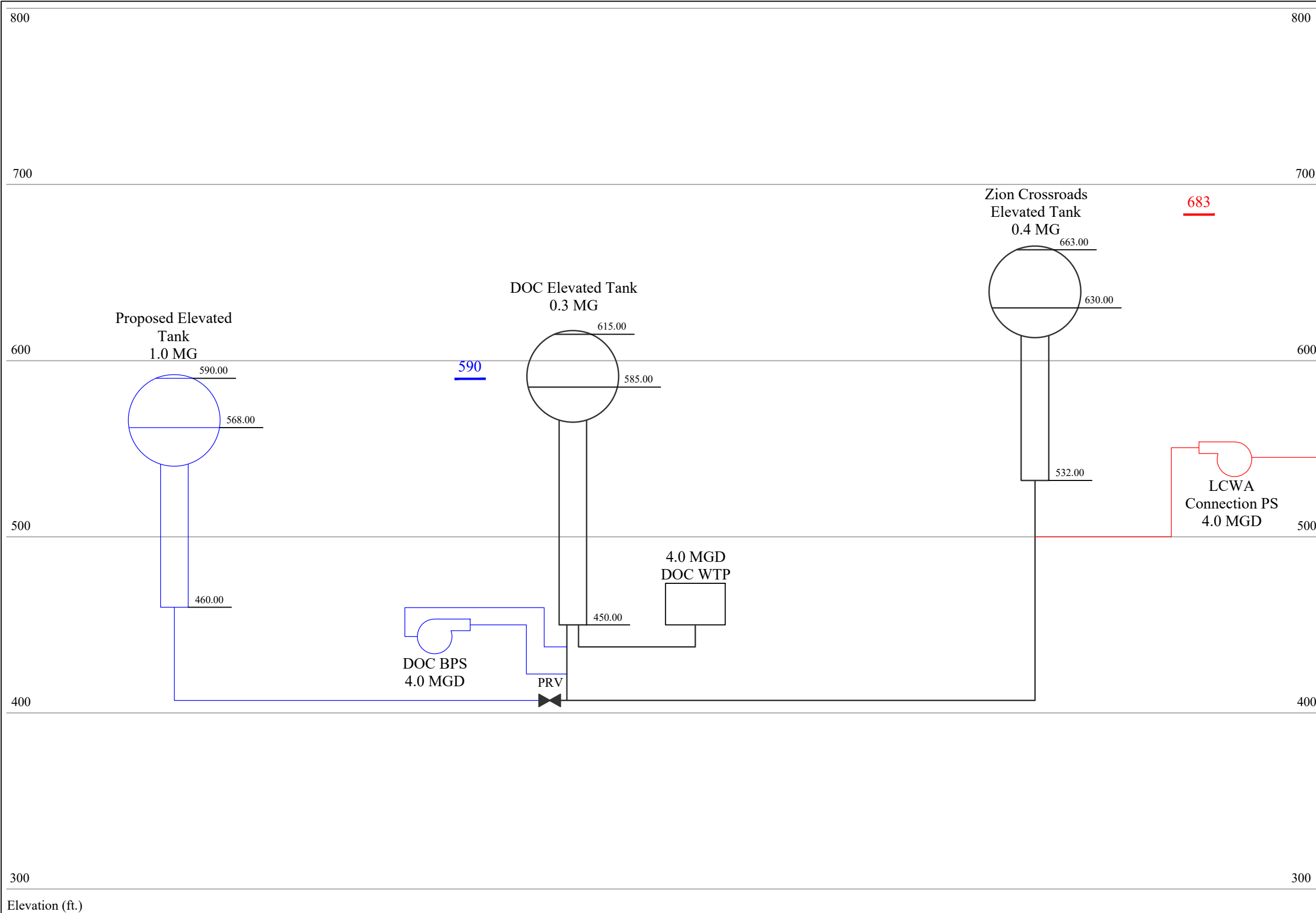
1 MG EST located near the intersection of Richmond Rd. and Beaverdam Rd., connected to the Rt 250 water main that is in design and water main WZXR-0011-2045. The tank is placed on a regional high point and will prove water to the western portion of the ZXR area. See Figure 6-1 for the hydraulic grade of this tank in relation to the existing tanks in the ZXR area.

**WZXR-0013-2045 (Water Main)**




4,100 LF of 12" water main running along Beaverdam Rd. from Richmond Rd. to just north of Westview Ln. This water main will serve the area of potential development along Beaverdam Rd.

**WZXR-0014-2045 (Water Main)**



4,300 LF of 12" water main running along Richmond Rd. from the intersection with Beaverdam Rd. to the edge of the parcels of potential development near the western border of the County. This waterline will serve the area of potential development near the western end of the County.



**SYMBOL LEGEND**

-  TREATMENT PLANT
-  ELEVATED TANK WITH OVERFLOW ELEVATION
-  BOOSTER STATION

**COLOR LEGEND**

-  EXISTING
-  0-5 YEARS
-  10-20 YEARS
-  10-20 YEARS

Elevation (ft.)

**Dewberry**  
 Dewberry Engineers Inc.  
 4180 INNSLAKE DRIVE  
 GLEN ALLEN, VIRGINIA 23060  
 PHONE: 804.290.7957  
 FAX: 804.290.7928



TITLE  
**ZION CROSSROADS  
 WATER SCHEMATIC**

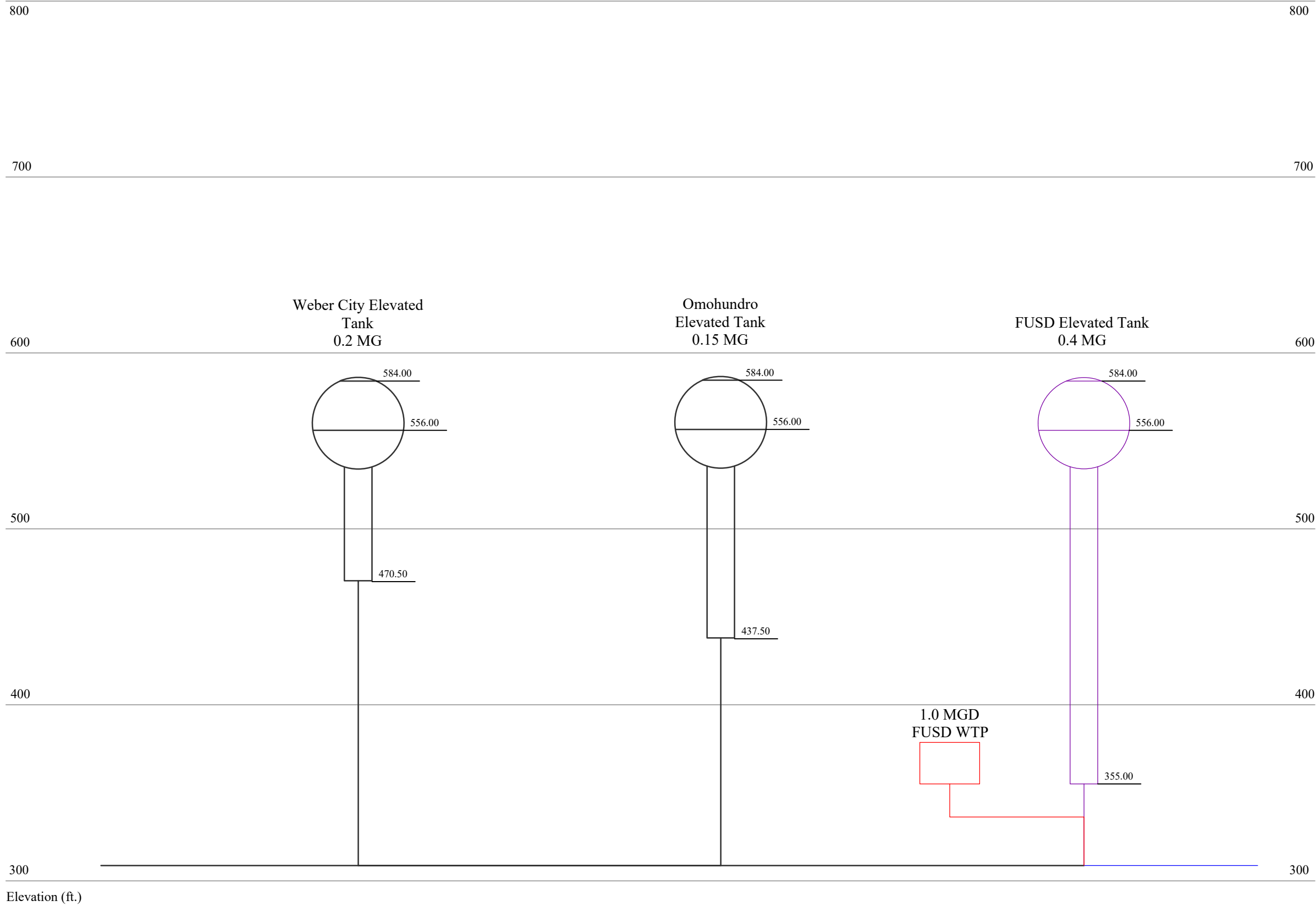
SCALE

DATE  
**SEPT 2022**




FIGURE NO.  
**6-1**

PROJECT  
**UTILITY MASTER PLAN  
 FLUVANNA COUNTY, VA**



PROJ. NO.  
**50112292**



**SYMBOL LEGEND**

-  TREATMENT PLANT
-  ELEVATED TANK WITH OVERFLOW ELEVATION
-  BOOSTER STATION

**COLOR LEGEND**

-  EXISTING
-  0-5 YEARS
-  10-20 YEARS
-  10-20 YEARS

Elevation (ft.)

**Dewberry**  
 Dewberry Engineers Inc.  
 4180 INNSLAKE DRIVE  
 GLEN ALLEN, VIRGINIA 23060  
 PHONE: 804.290.7957  
 FAX: 804.290.7928



FIGURE NO.	6-2	
	DATE	SEPT 2022
SCALE	FUSD/PALMYRA HYDRAULIC GRADE	
PROJECT	UTILITY MASTER PLAN FLUVANNA COUNTY, VA	
PROJ. NO.	50112292	

## Chapter 7. Wastewater System Improvements

This chapter of the UMP presents an overview of system improvements that are proposed to provide water service within the County's sewer service areas through the Year 2040. Fluvanna County constructs projects required to provide adequate wastewater collection to developing areas, and the private sector constructs the required water infrastructure to serve their developments.

The wastewater system improvements program involves upgrades and/or expansions to wastewater collection through gravity sewer, pump stations, and force mains; and wastewater treatment to ensure adequate handling of wastewater throughout the planning period.

An overview of recommended improvements based on modeling results is provided in the following section. The necessity of each project is conditional on the development of the area which it will serve. The years provided for each project are only for guidance purposes, and projects should be prioritized based on the actual development of the areas mentioned in the project descriptions below. The locations of each project are shown on labeled maps in **Appendix 2**. The improvements in the following list are named with regards their system (W-water, SS-sanitary sewer), their geographical location (ZXR-Zion Crossroads, FUSD-Fork Union Sanitary District, PMR-Palmyra), a planning level project number, and their rough year of completion (2025, 2030, 2040).

### 7.1 Fork Union Sanitary District Projects

The following list includes all wastewater system improvements in the FUSD. **Appendix 2** shows the project locations on a map of the ZXR region.

#### **SSFUSD-0001-2030 (Treatment Plant – Alternative 2)**

1 MGD central treatment plant located near the site of potential industrial development, where the highest loads will occur. This treatment plant would serve the entire FUSD area and require decommissioning the Carysbrook and Central WWTPs for nutrient load allocation. Also included in this project is an effluent force main routed from the station to the discharge location in the Rivanna River. The force main runs along James Madison Hwy. then through Carysbrook to the Rivanna River.

#### **SSFUSD-0002-2030 (Pump Station – Alternative 1)**

1 MGD pump station located on Judy Creek at the northern edge of the area of new development with a 20,000 LF 8" force main running southeast straight to James Madison Hwy., then turning northeast running along James Madison Hwy. and continuing along James Madison Hwy. as the road turns north. The force main runs to the edge of the FUSD, where it continues towards Palmyra as SSPMR-0001-2030. This is an alternative to treatment plant SSFUSD-0001-2025, where sewage would be pumped to the Palmyra WWTP, rather than being treated in FUSD.

#### **SSFUSD-0003-2030 (Gravity Sewer)**

4,200 LF of 15" gravity sewer starting near James Madison Hwy. in the area identified for development running northwest, then north to treatment plant SSFUSD-0001-2030 or pump

station SSFUSD-0002-2030. This gravity sewer will serve the area in FUSD where industrial development is anticipated to occur.

## 7.2 Palmyra Projects

The following list includes all wastewater system improvements in the Palmyra region of the County. **Appendix 2** shows the project locations on a map of the ZXR region.

### SSPMR-0001-2030 (Force Main – Alternative 1)

20,300 LF 8" force main continuing from SSFUSD-0001-2030. The line runs along James Madison Hwy. towards Palmyra and discharges into the existing Palmyra Area WWTP. This force main will only be necessary should the County choose to pump flow to the existing Palmyra WWTP rather than build a central FUSD WWTP.

### SSPMR-0002-2030 (Treatment Plant – Alternative 1)

If the County opts to pump flow to Palmyra rather than constructing a new WTP in FUSD, the existing 0.04 MGD Palmyra WWTP will need to be upgraded to 0.84 MGD to account for the new flows from FUSD.

## 7.3 Zion Crossroads Projects

The following list includes all wastewater system improvements in the ZXR region of the County. **Appendix 2** shows the project locations on a map of the ZXR region.

### SSZXR-0001-2030 (Pump Station)

4.32 MGD pump station to collect flows from ZXR-0002-2030 and a 3,400 LF 12" force main running northeast starting at the pump station and discharging to the DOC WWTP.

### SSZXR-0002-2030 (Gravity Sewer)

3,000 LF of 18" gravity sewer starting east of the subdivision on Glen Cir. and running southeast to the SSZXR-0001-2030 pump station. This gravity sewer will serve areas of potential development west of the DOC WWTP.

### SSZXR-0003-2030 (Gravity Sewer)

2,300 LF of 8" gravity sewer that begins north of Richmond Rd. and flows southwest then transitioning to 12" that runs for 1,900 LF to the DOC WWTP. This gravity sewer will serve areas of potential development north of the DOC WWTP.

### SSZXR-0004-2030 (Gravity Sewer)

1,600 LF of 12" gravity main starting where SSZXR-0010-2030 leaves off, running southeast to the existing pump station on James Madison Hwy. This gravity sewer will collect flows from SSZXR-0010-2030 and the force main from pump station SSZXR-0008-2030.

**SSZXR-0005-2030 (Pump Station)**

1.00 MGD pump station located south of Pine Grove Ct. and east of Oliver Ridge Ln. to collect flows from SSZXR-0006-20230 and SSZXR-0007-2030. The associated force main includes 5,000 LF of 8" pipe running northwest along Pine Grove Ct. and bending northeast to run along Oliver Ridge Rd. The force main continues along Pine Grove Rd. where it manifolds into the existing force main running along Richmond Rd.

**SSZXR-0006-2030 (Gravity Sewer)**

4,200 LF of 8" gravity sewer starting north of Richmond Rd., running southwest along Oliver Creek and discharging into the SSZXR-0005-2030 pump station. This gravity sewer will serve the area of potential development north of SSZXR-0005-2030.

**SSZXR-0007-2030 (Gravity Sewer)**

7,900 LF of 8" gravity sewer starting to the north of Zion Station Ct., running southwest and discharging into pump station SSZXR-0005-2030. This gravity sewer will serve the area northwest of SSZXR-0005-2030, include potential development north of Richmond Rd.

**SSZXR-0008-2030 (Pump Station)**

0.54 MGD pump station located behind the building to the southeast of Industrial Way served by gravity sewer SSZXR-0009-2030. The force main includes 2,700 LF of 8" pipe that runs behind the building to the south of Better Living Dr. and north of the fields on Palmer Farm Ln., discharging into gravity sewer SSZXR-0010-2030.

**SSZXR-0009-2030 (Gravity Sewer)**

4,900 LF of 8" gravity sewer beginning just east of the intersection of Zion Rd. and Edgecomb Rd. and runs southwest, crossing Richmond Rd., going through the recycling center, continuing behind the buildings on Industrial Way and discharging into pump station SSZXR-0008-2030. This gravity sewer will serve existing industrial areas and areas of potential development to the north.

**SSZXR-0010-2030 (Gravity Sewer)**

1,200 LF of 8" gravity sewer starting near Commonwealth Building Materials and ending before reaching the fields on Palmer Farm Ln. where force main SSZXR-0008-2030 discharges and gravity sewer SSZXR-0004-2030 begins. This sewer will serve areas north of the existing pump station on James Madison Hwy.

**SSZXR-0011-2035 (Treatment Plant)**

Upgrade to the DOC WWTP to increase the ultimate capacity to 1.87 MGD. The facility will initially upgrade to handle 0.9 MGD. Within ten years upgrade to the full 1.87 MGD capacity. This facility will be served by the existing gravity sewer and by the proposed force main and gravity sewer in SSZXR-0001-2030 and SSZXR-0003-2030, respectively. This upgrade will be necessary if ZXR develops further industrial and residential customers. The County should consider upgrading this facility before 2030 if development occurs sooner than expected.

**SSZX-0012-2035 (Gravity Sewer)**

1,700 LF of 8" gravity sewer starting approximately 400 ft south of Willow Creek Lawn & Garden, across from a private residence and running south along James Madison Hwy. towards the existing pump station on James Madison Hwy. This gravity sewer will serve areas across James Madison Hwy from the existing pump station.

**SSZX-0013-2035 (Gravity Sewer)**

4,000 LF of 8" gravity sewer starting north of Richmond Rd. and south of Zion Rd. and running southwest towards the subdivision on Glen Cir. then tying into SSZX-0002-2030. This gravity sewer will serve areas of potential development along Richmond Rd.

**SSZX-0014-2045 (Pump Station)**

A 1.44 MGD pump station located south of Richmond Rd. near Mechunk Creek, behind several private residences with a 7,800 LF 12" force main routed north to Richmond Rd. continuing east along Richmond Rd. and discharging at the end of gravity sewer SSZX-0024-2045.

**SSZX-0015-2045 (Gravity Sewer)**

5,000 LF of 12" Gravity Sewer starting just east of Redskins Ln. and north of Richmond Rd. running roughly west to Mechunk Creek and turns south along Mechunk Creek towards pump station SSZX-0013-2045. This gravity sewer will serve the area of potential development north of Richmond Rd., between White Hall Rd. and Beaverdam Rd.

**SSZX-0016-2045 (Pump Station)**

0.25 MGD pump station that collects flows from SSZX-0016-2045 located near Beaverdam Creek and pumping south through 2,900 LF of 8" force main towards Richmond Rd. where the force main manifolds into SSZX-0013-2045.

**SSZX-0017-2045 (Gravity Sewer)**

5,600 LF of 8" gravity sewer that starts near Beaverdam Rd. north of the intersection with Richmond Rd. and runs northeast and discharges into pump station SSZX-0015-2045. This gravity sewer will serve the area of potential development north of Richmond Rd., between White Hall Rd. and Beaverdam Rd.

**SSZX-0018-2045 (Pump Station)**

1.87 MGD pump station located near Buck Branch that collects flow from SSZX-0018-2045 and SSZX-0019-2045 and pumps south through 4,700 LF of 12" force main towards Richmond Rd. where it manifolds with SSZX-0013-2045.

**SSZX-0019-2045 (Gravity Sewer)**

2,100 LF of 8" gravity sewer starting to the east of the private residences on Westview Ln. running north to discharge into pump station SSZX-0017-2045. This gravity sewer will serve the area of potential development far north of Richmond Rd., and west of Beaverdam Rd.



**SSZXR-0020-2045 (Gravity Sewer)**

6,700 LF of 8" gravity sewer starting north of Richmond Rd. running roughly north to discharge into pump station SSZXR-0017-2045 with a branch of 2,200 LF of 8" gravity sewer starting south of Edd Ridge Rd. running west. This gravity sewer will serve the area of potential development far north of Richmond Rd., and east of Edd Ridge Rd; and the area south of Edd Ridge Rd.

**SSZXR-0021-2045 (Gravity Sewer)**

1,500 LF of 8" gravity sewer starting west of Troy Rd. and south of Arkquage Ln. running west then tying into SSZXR-0007-2030. This gravity sewer will serve the area of potential development near intersection of Troy Rd. and Richmond Rd.

**SSZXR-0022-2045 (Pump Station)**

0.25 MGD pump station that collects flow from gravity sewer SSZXR-0022-2045 located off the end of Prospect Rd. with an 1,800 LF 8" force main running northwest, crossing Blue Ridge Dr. and discharging into gravity sewer SSZXR-0003-2030.

**SSZXR-0023-2045 (Gravity Sewer)**

2,500 LF of 8" gravity sewer starting just west of the intersection of Richmond Rd. running south to pump station SSZXR-0021-2045. This gravity sewer will serve the area of potential development around Richmond Rd.

**SSZXR-0024-2045 (Gravity Sewer)**

4,300 LF of 15" gravity sewer starting north of the intersection between Richmond Rd. and Paynes Mill Rd. running southwest to connect to gravity sewer SSZXR-0002-2030. This gravity sewer will transport flow from force main SSZXR-0013-2045 to gravity sewer SSZXR-0002-2030.

**SSZXR-0025-2045 (Gravity Sewer)**

800 LF of 12" gravity sewer starting at Glen Cir. running southeast and tying into SSZXR-0002-2045. This gravity sewer will serve the subdivision on Glen Cir.

**SSZXR-0026-2045 (Gravity Sewer)**

3,600 LF of 8" gravity sewer starting north of Richmond Rd. and west of Diamond Rd. running south across Richmond Rd. then tying into gravity sewer SSZXR-0006-2030. This gravity sewer will serve the area of potential development around Richmond Rd.

## Chapter 8. Implementation

The implementation plan outlined in this Chapter of the UMP establishes the steps associated with the design and construction of water and wastewater improvements that are projected during the planning period. Timing of the proposed projects will depend on the actual rate of development.

Table 8-1 provides a summary of the total costs of the CIP projects countywide. Table 8-2 and Table 8-3 summarize the totals costs of CIP projects by service area. Table 8-4 and Table 8-5 outline the projected water and wastewater system improvements by service area, summarizing the following information:

- Name of system improvement.
- Budgetary cost estimate in 2022 dollars (the most recent complete fiscal year).
- Year of project completion. For the purpose of this UMP, projects are listed in the range of either 2022-2030, 2030-2035 years, or 2035-2045 years.

*Table 8-1: Countywide CIP Costs*

CIP Project Type	Fiscal Year		
	2022 - 2030	2030 - 2035	2035 - 2045
Water	\$30,876,000	\$13,386,000	\$85,786,000
Wastewater	\$56,772,000	\$42,500,000	\$21,693,000
<b>Grand Total</b>	<b>\$87,648,000</b>	<b>\$55,886,000</b>	<b>\$107,479,000</b>

*Table 8-2: FUSD/Palmyra CIP Costs*

CIP Project Type	Fiscal Year		
	2022 - 2030	2030 - 2035	2035 - 2045
Water	\$20,310,000	\$8,480,000	\$3,240,000
Wastewater	\$35,241,000	\$0	\$0
<b>Grand Total</b>	<b>\$55,551,000</b>	<b>\$8,480,000</b>	<b>\$3,240,000</b>

*Table 8-3: Zion Crossroads CIP Costs*

CIP Project Type	Fiscal Year		
	2022 - 2030	2030 - 2035	2035 - 2045
Water	\$10,566,000	\$4,906,000	\$82,546,000
Wastewater	\$21,531,000	\$42,500,000	\$21,693,000
<b>Grand Total</b>	<b>\$32,097,000</b>	<b>\$47,406,000</b>	<b>\$104,239,000</b>

All costs presented in the above and following tables are intended to be used for planning purposes only. The County is by no means obligated to the dollar amounts presented. These costs are provided for budgetary and planning purposes only and should be expected to change due to market volatility and shifting project timelines. Actual construction costs should be determined at the time of design and construction of each project.

Table 8-4 and Table 8-5 provide a breakdown of the cost estimates per project for the water system and the wastewater system, respectively, with tables subdivided into ZXR, FUSD, and Palmyra. Unit costs used as the basis for developing the construction cost estimates are aggregated from projects in the central Virginia area that have either been constructed, are under construction, or have been bid on in the past 10 years (2010-2020). This bid tab data is adjusted for inflation to 2021 dollars and categorized by project type and the size of the project. A cost per linear foot or per gallon is calculated for each project and averaged together with other projects of the same size and type.

Costs for Engineering are assumed to be 15 percent of the total estimated construction cost and no less than 100,000 per project. Additionally, a construction contingency of 35 percent is added for each project. This assumes each project is constructed in one phase, unless otherwise indicated. Cost estimates do not consider potential funding from third party sources. Potential funding sources include both federal and state grants, or private funding for certain projects.

Cost estimates are total estimates not considering potential funding from third-party sources for certain CIPs. Note that pursuant to an agreement with DEQ, the County may receive partial funding of that CIP described herein as: WZXR-0014-2045. In addition, the County may receive partial funding from Dominion Energy pursuant to SUP 21-03 and related re-zoning for CIP WFUSD-0002-2025 (described in Chapter 6) and related projects as more specifically described in such SUP 21-03 and related documentation, including specifically, but without limitation, the Statement of Proffers.



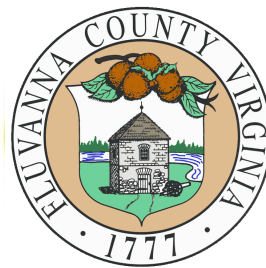
Table 8-4 - Water System Improvements Project Costs

Water System Improvements	Year of Completion	Pipeline 1 Quantity (LF)	Pipeline 1 Size (in)	Pipeline 2 Quantity (LF)	Pipeline 2 Size (in)	Capacity (MG or MGD)	Engineering	Land Acquisition	Construction Cost	Total Project Cost	Anticipated Private Developer Costs	Anticipated County Costs
<b>Universal Projects</b>												
<b>Zion Crossroads</b>												
Water Main												
WZXR-0001-2030	22-30	6,700	12				\$ 150,750.00	\$ 100,500.00	\$ 1,256,250.00	\$ 1,508,000	\$ -	\$ 1,508,000
WXZR-0003-2030	22-30	2,600	12				\$ 100,000.00	\$ 39,000.00	\$ 487,500.00	\$ 627,000	\$ 469,000	\$ 158,000
WXZR-0004-2035	30-35	3,900	12				\$ 100,000.00	\$ 58,500.00	\$ 731,250.00	\$ 890,000	\$ 654,000	\$ 236,000
WXZR-0005-2035	30-35	2,800	12				\$ 100,000.00	\$ 42,000.00	\$ 525,000.00	\$ 667,000	\$ 497,000	\$ 170,000
WXZR-0006-2045	35-45	37,400	20				\$ 1,346,400.00	\$ 500,000.00	\$ 11,220,000.00	\$ 13,067,000	\$ 5,891,000	\$ 7,176,000
WXZR-0007-2045	35-45	15,000	12				\$ 337,500.00	\$ 225,000.00	\$ 2,812,500.00	\$ 3,375,000	\$ 2,363,000	\$ 1,012,000
WXZR-0008-2045	35-45	7,200	12				\$ 162,000.00	\$ 108,000.00	\$ 1,350,000.00	\$ 1,620,000	\$ 1,134,000	\$ 486,000
WXZR-0013-2045	35-45	4,100	12				\$ 100,000.00	\$ 61,500.00	\$ 768,750.00	\$ 931,000	\$ 682,000	\$ 249,000
WXZR-0014-2045	35-45	4,300	12				\$ 100,000.00	\$ 64,500.00	\$ 806,250.00	\$ 971,000	\$ 711,000	\$ 260,000
Booster Pump Station												
WZXR-0002-2030	22-30					4.00	\$ 900,000.00	\$ 500,000.00	\$ 7,500,000.00	\$ 8,900,000	\$ -	\$ 8,900,000
WZXR-0010-2045	35-45	200	12			2.00	\$ 454,500.00	\$ 303,000.00	\$ 3,787,500.00	\$ 4,545,000	\$ -	\$ 4,545,000
Storage Tanks												
WZXR-0002-2030	22-30					1.00	\$ 450,000.00	\$ 300,000.00	\$ 3,750,000.00	\$ 4,500,000	\$ -	\$ 4,500,000
WZXR-0012-2045	35-45	300	12			1.00	\$ 681,750.00	\$ 454,500.00	\$ 5,681,250.00	\$ 6,818,000	\$ -	\$ 6,818,000
<b>Fork Union</b>												
Water Main												
WFUSD-0002-2030	22-30	20,300	20				\$ 730,800.00	\$ 487,200.00	\$ 6,090,000.00	\$ 7,308,000	\$ 3,198,000	\$ 4,110,000
WFUSD-0005-2035	30-35	3,300	8				\$ 100,000.00	\$ 34,700.00	\$ 433,750.00	\$ 569,000	\$ 569,000	\$ -
WFUSD-0006-2045	35-45	22,800	12				\$ 513,000.00	\$ 342,000.00	\$ 4,275,000.00	\$ 5,130,000	\$ 3,591,000	\$ 1,539,000
WFUSD-0007-2045	35-45	13,400	8				\$ 211,050.00	\$ 140,700.00	\$ 1,758,750.00	\$ 2,111,000	\$ 2,111,000	\$ -
Booster Pump Station												
WFUSD-0003-2030	22-30					2.00	\$ 450,000.00	\$ 300,000.00	\$ 3,750,000.00	\$ 4,500,000	\$ -	\$ 4,500,000
Treatment Facilities												
WFUSD-0001-2030	22-30					0.80	\$ 1,200,000.00	\$ 500,000.00	\$ 10,000,000.00	\$ 11,700,000	\$ -	\$ 11,700,000
Storage Tanks												
WFUSD-0003-2030	22-30					1.00	\$ 450,000.00	\$ 300,000.00	\$ 3,750,000.00	\$ 4,500,000	\$ -	\$ 4,500,000
WFUSD-0004-2035	30-35	500	8			0.40	\$ 397,950.00	\$ 265,300.00	\$ 3,316,250.00	\$ 3,980,000	\$ -	\$ 3,980,000
<b>Palmyra</b>												
Water Main												
WPMR-0001-2045	35-45	25,200	12				\$ 567,000.00	\$ 378,000.00	\$ 4,725,000.00	\$ 5,670,000	\$ 3,969,000	\$ 1,701,000
WPMR-0002-2045	35-45	1,200	8				\$ 100,000.00	\$ 12,600.00	\$ 250,000.00	\$ 363,000	\$ 363,000	\$ -
WPMR-0003-2045	35-45	1,100	8				\$ 100,000.00	\$ 11,600.00	\$ 250,000.00	\$ 362,000	\$ 362,000	\$ -
<b>Total Cost:</b>											<b>\$ 68,048,000</b>	
<b>Alternative 1 Projects</b>												
<b>Zion Crossroads</b>												
Treatment Facilities												
WZXR-0006-2045	35-45	15,900	20			4.00	\$ 6,572,400.00	\$ 500,000.00	\$ 54,770,000.00	\$ 62,000,000	\$ -	\$ 62,000,000
<b>Total Cost:</b>											<b>\$ 62,000,000</b>	
<b>Alternative 2 Projects</b>												
<b>Zion Crossroads</b>												
Treatment Facilities												
WZXR-0007-2045	35-45					4.00	\$ 6,000,000.00	\$ 500,000.00	\$ 50,000,000.00	\$ 57,000,000	\$ -	\$ 57,000,000
<b>Total Cost:</b>											<b>\$ 57,000,000</b>	

Table 8-5 - Wastewater System Improvements Project Costs

Wastewater System Improvements	Year of Completion	Pipeline 1 Quantity (LF)	Pipeline 1 Size (in)	Pipeline 2 Quantity (LF)	Pipeline 2 Size (in)	Capacity (MG or MGD)	Engineering	Land Acquisition	Construction Cost	Total Project Cost	Anticipated Private Developer Costs	Anticipated County Costs
<b>Universal Projects</b>												
<b>Zion Crossroads</b>												
Gravity Sewer												
SSZXR-0002-2030	22-30	3,000	15				\$ 121,500.00	\$ 81,000.00	\$ 1,012,500.00	\$ 1,215,000	\$ 708,000	\$ 507,000
SSZXR-0003-2030	22-30	1,900	12	2,300	8		\$ 115,950.00	\$ 77,300.00	\$ 966,250.00	\$ 1,160,000	\$ 951,000	\$ 209,000
SSZXR-0004-2030	22-30	1,600	12				\$ 100,000.00	\$ 36,000.00	\$ 450,000.00	\$ 586,000	\$ 424,000	\$ 162,000
SSZXR-0006-2030	22-30	4,200	8				\$ 100,000.00	\$ 63,000.00	\$ 787,500.00	\$ 951,000	\$ 951,000	\$ -
SSZXR-0007-2030	22-30	7,900	8				\$ 177,750.00	\$ 118,500.00	\$ 1,481,250.00	\$ 1,778,000	\$ 1,778,000	\$ -
SSZXR-0009-2030	22-30	4,900	8				\$ 110,250.00	\$ 73,500.00	\$ 918,750.00	\$ 1,103,000	\$ 1,103,000	\$ -
SSZXR-0035-4530	22-30	1,200	8				\$ 100,000.00	\$ 18,000.00	\$ 250,000.00	\$ 368,000	\$ 368,000	\$ -
SSZXR-0012-2035	30-35	1,700	8				\$ 100,000.00	\$ 25,500.00	\$ 318,750.00	\$ 445,000	\$ 445,000	\$ -
SSZXR-0013-2035	30-35	4,000	8				\$ 100,000.00	\$ 60,000.00	\$ 750,000.00	\$ 910,000	\$ 910,000	\$ -
SSZXR-0015-2045	35-45	5,000	12				\$ 168,750.00	\$ 112,500.00	\$ 1,406,250.00	\$ 1,688,000	\$ 1,125,000	\$ 563,000
SSZXR-0017-2045	35-45	5,600	8				\$ 126,000.00	\$ 84,000.00	\$ 1,050,000.00	\$ 1,260,000	\$ 1,260,000	\$ -
SSZXR-0019-2045	35-45	2,100	8				\$ 100,000.00	\$ 31,500.00	\$ 393,750.00	\$ 526,000	\$ 526,000	\$ -
SSZXR-0020-2045	35-45	8,900	8				\$ 200,250.00	\$ 133,500.00	\$ 1,668,750.00	\$ 2,003,000	\$ 2,003,000	\$ -
SSZXR-0021-2045	35-45	1,500	8				\$ 100,000.00	\$ 22,500.00	\$ 281,250.00	\$ 404,000	\$ 404,000	\$ -
SSZXR-0023-2045	35-45	2,500	8				\$ 100,000.00	\$ 37,500.00	\$ 468,750.00	\$ 607,000	\$ 607,000	\$ -
SSZXR-0024-2045	35-45	4,300	15				\$ 174,150.00	\$ 116,100.00	\$ 1,451,250.00	\$ 1,742,000	\$ 971,000	\$ 771,000
SSZXR-0025-2045	35-45	800	8				\$ 100,000.00	\$ 12,000.00	\$ 250,000.00	\$ 362,000	\$ 362,000	\$ -
SSZXR-0026-2045	35-45	3,600	8				\$ 100,000.00	\$ 54,000.00	\$ 675,000.00	\$ 829,000	\$ 829,000	\$ -
Pump Station & Force Main												
SSZXR-0001-2030	22-30	3,400	12			4.50	\$ 1,426,500.00	\$ 500,000.00	\$ 11,887,500.00	\$ 13,814,000	\$ -	\$ 13,814,000
SSZXR-0005-2030	22-30	5,000	8			1.00	\$ 453,750.00	\$ 302,500.00	\$ 3,781,250.00	\$ 4,538,000	\$ -	\$ 4,538,000
SSZXR-0008-2030	22-30	2,700	8			0.50	\$ 230,100.00	\$ 153,400.00	\$ 1,917,500.00	\$ 2,301,000	\$ -	\$ 2,301,000
SSZXR-0014-2045	35-45	7,800	12			1.50	\$ 738,000.00	\$ 492,000.00	\$ 6,150,000.00	\$ 7,380,000	\$ -	\$ 7,380,000
SSZXR-0016-2045	35-45	2,900	8			0.50	\$ 233,250.00	\$ 155,500.00	\$ 1,943,750.00	\$ 2,333,000	\$ -	\$ 2,333,000
SSZXR-0018-2045	35-45	4,700	12			2.00	\$ 855,750.00	\$ 500,000.00	\$ 7,131,250.00	\$ 8,487,000	\$ -	\$ 8,487,000
SSZXR-0022-2045	35-45	1,800	8			0.50	\$ 215,850.00	\$ 143,900.00	\$ 1,798,750.00	\$ 2,159,000	\$ -	\$ 2,159,000
Treatment Facility												
SSZXR-0011-2035	30-35					2.00	\$ 4,500,000.00	\$ 500,000.00	\$ 37,500,000.00	\$ 42,500,000	\$ -	\$ 42,500,000
<b>Fork Union</b>												
Gravity Sewer												
SSFUSD-0003-2030	22-30	4,200	15				\$ 170,100.00	\$ 113,400.00	\$ 1,417,500.00	\$ 1,701,000	\$ -	\$ 1,701,000
<b>Total Cost:</b>											<b>\$</b>	<b>87,425,000</b>
<b>Alternative 1 Projects</b>												
<b>Fork Union</b>												
Pump Station & Force Main												
SSFUSD-0002-2030	22-30	20,000	8			3.00	\$ 1,215,000.00	\$ 500,000.00	\$ 10,125,000.00	\$ 11,840,000	\$ -	\$ 11,840,000
<b>Palmyra</b>												
Pump Station & Force Main												
SSPMR-0001-2030	22-30	20,300	8				\$ 319,800.00	\$ 213,200.00	\$ 2,665,000.00	\$ 3,198,000	\$ -	\$ 3,198,000
Treatment Facility												
SSPMR-0002-2030	22-30					1.00	\$ 2,250,000.00	\$ 500,000.00	\$ 18,750,000.00	\$ 21,500,000	\$ -	\$ 21,500,000
<b>Total Cost:</b>											<b>\$</b>	<b>36,538,000</b>
<b>Alternative 2 Projects</b>												
<b>Fork Union</b>												
Treatment Facility												
SSFUSD-0001-2030	22-30	24,000	12			1.00	\$ 3,540,000.00	\$ 500,000.00	\$ 29,500,000.00	\$ 33,540,000	\$ -	\$ 33,540,000
<b>Total Cost:</b>											<b>\$</b>	<b>33,540,000</b>

**APPENDIX 1  
Proposed Water  
Improvements Maps**

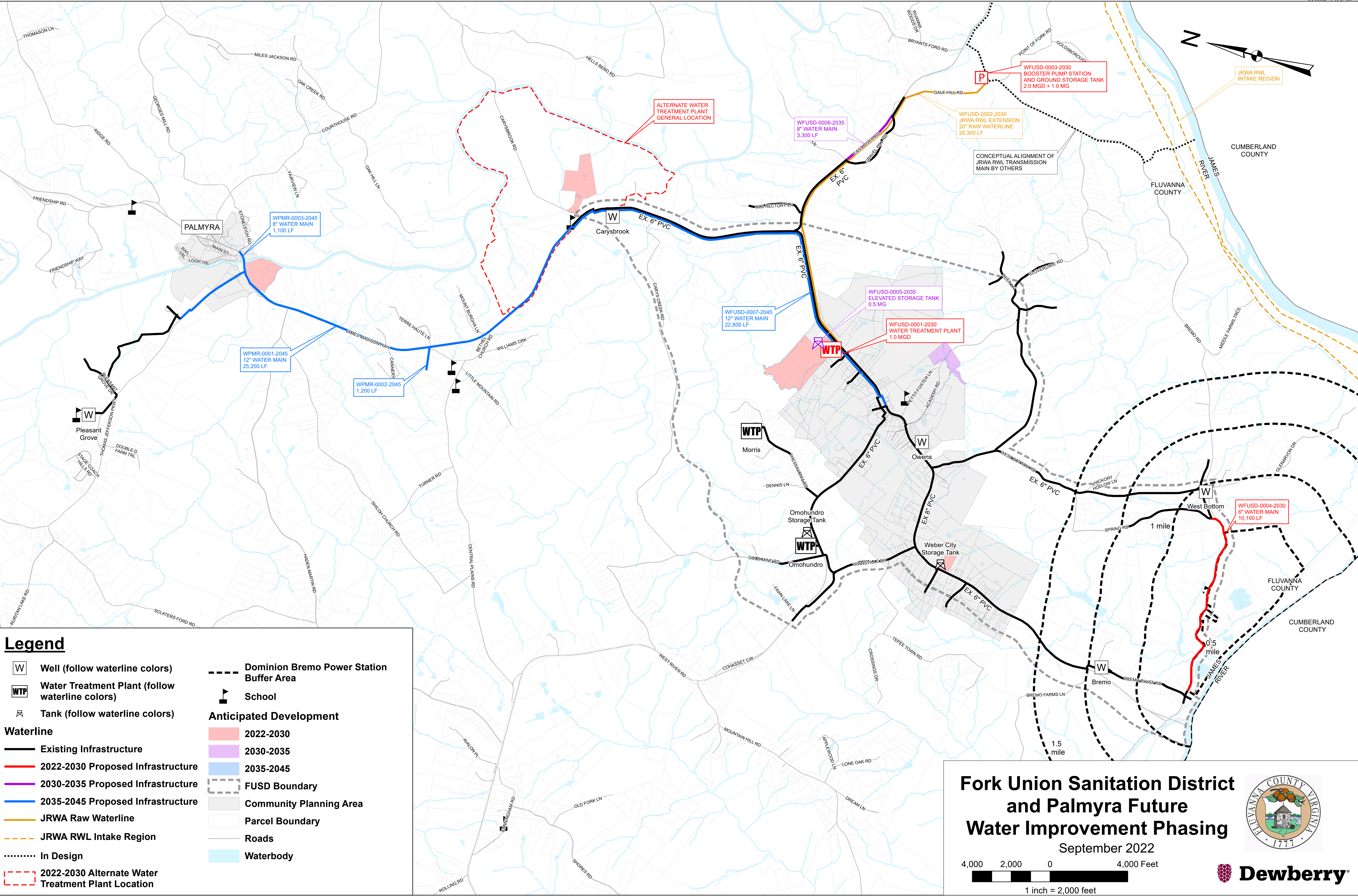


**Water and Wastewater  
Utilities Master Plan  
Fluvanna County, Virginia**









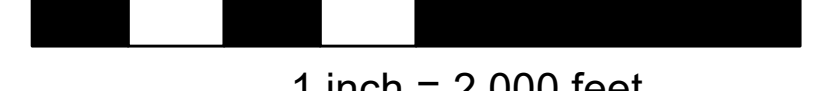
### Legend

- W Well (follow waterline colors)
- WTP Water Treatment Plant (follow waterline colors)
- T Tank (follow waterline colors)
- Waterline**
- Existing Infrastructure
- 2022-2030 Proposed Infrastructure
- 2030-2035 Proposed Infrastructure
- 2035-2045 Proposed Infrastructure
- JRWA Raw Waterline
- JRWA RWL Intake Region
- ..... In Design
- - - 2022-2030 Alternate Water Treatment Plant Location
- - - - - Dominion BreMO Power Station Buffer Area
- ▲ School
- Anticipated Development**
- 2022-2030
- 2030-2035
- 2035-2045
- - - - - FUSD Boundary
- Community Planning Area
- Parcel Boundary
- Roads
- Waterbody

## Fork Union Sanitation District and Palmyra Future Water Improvement Phasing

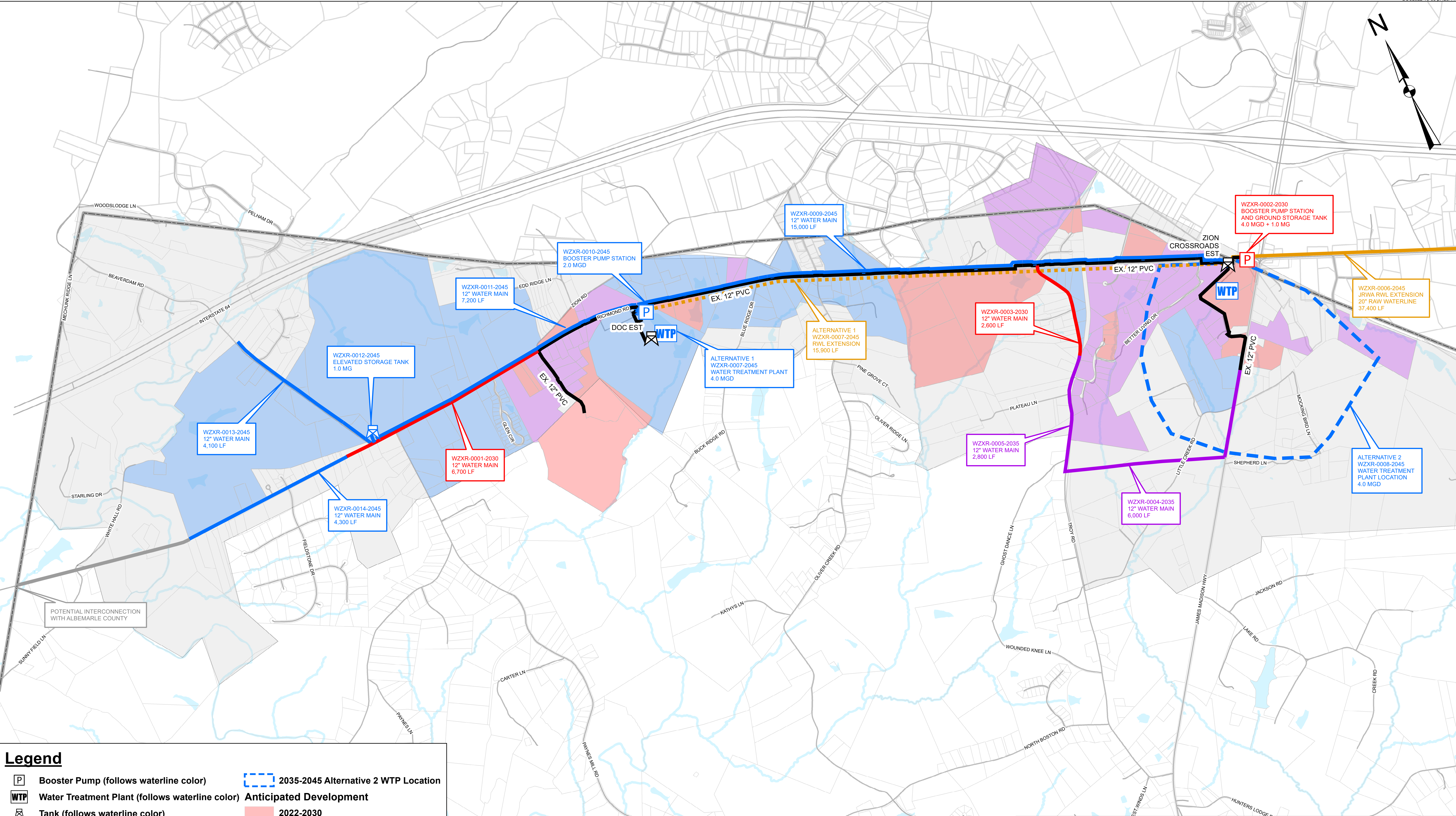
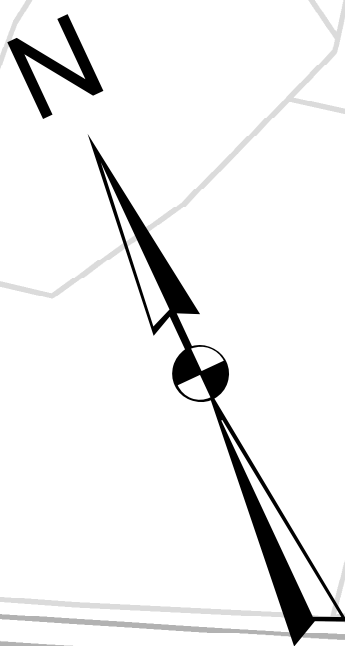
September 2022

4,000 2,000 0 4,000 Feet



1 inch = 2,000 feet





**Legend**

Booster Pump (follows waterline color)	2035-2045 Alternative 2 WTP Location
Water Treatment Plant (follows waterline color)	<b>Anticipated Development</b>
Tank (follows waterline color)	2022-2030
<b>Waterline</b>	2030-2035
Unknown Time Frame	2035-2045
2022-2030 Proposed Infrastructure	Roads
2030-2035 Proposed Infrastructure	Streams
2035-2045 Proposed Infrastructure	Parcel Boundary
Existing Infrastructure	Waterbody
JRWA Raw Waterline	County Boundary
DOC RWL Extension	Community Planning Area

**Zion Crossroads Future Water Improvement Phasing**

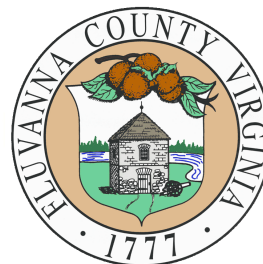
September 2022

2,000 1,000 0 2,000 Feet

1 inch = 1,000 feet



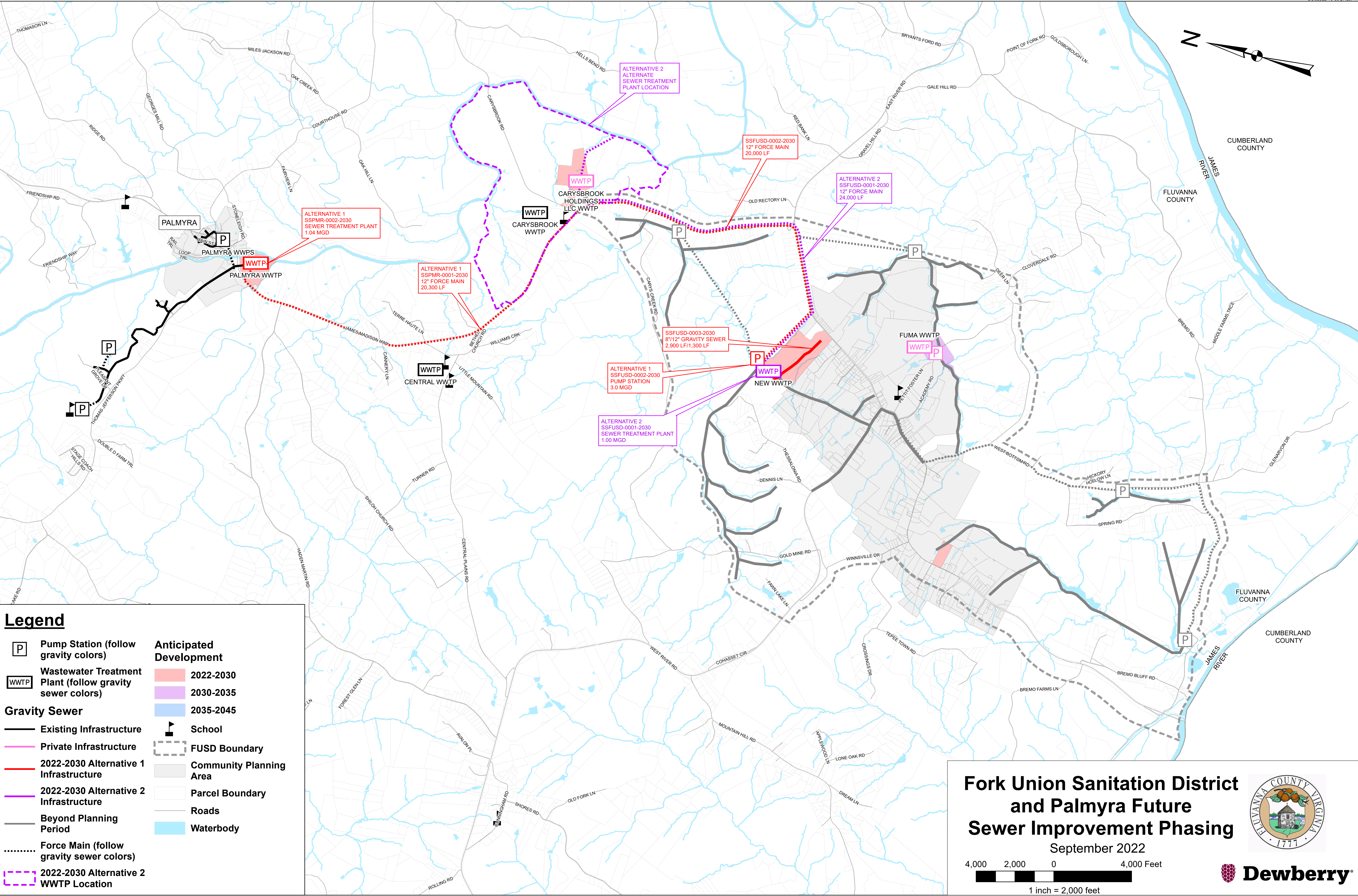

**APPENDIX 2  
Proposed Sewer  
Improvements Maps**



**Water and Wastewater  
Utilities Master Plan  
Fluvanna County, Virginia**





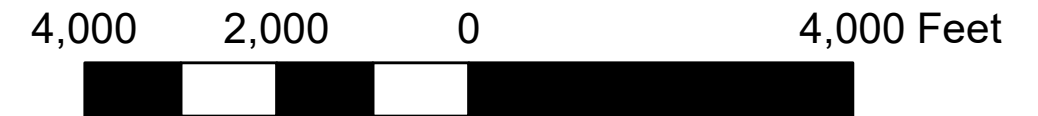


### Legend

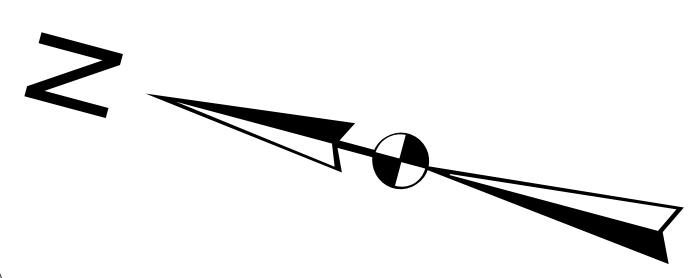
- P Pump Station (follow gravity colors)
- WWTP Wastewater Treatment Plant (follow gravity sewer colors)
- Gravity Sewer**
- Existing Infrastructure
- Private Infrastructure
- 2022-2030 Alternative 1 Infrastructure
- 2022-2030 Alternative 2 Infrastructure
- Beyond Planning Period
- ..... Force Main (follow gravity sewer colors)
- - - - - 2022-2030 Alternative 2 WWTP Location
- Anticipated Development**
- 2022-2030
- 2030-2035
- 2035-2045
- School
- FUSD Boundary
- Community Planning Area
- Parcel Boundary
- Roads
- Waterbody

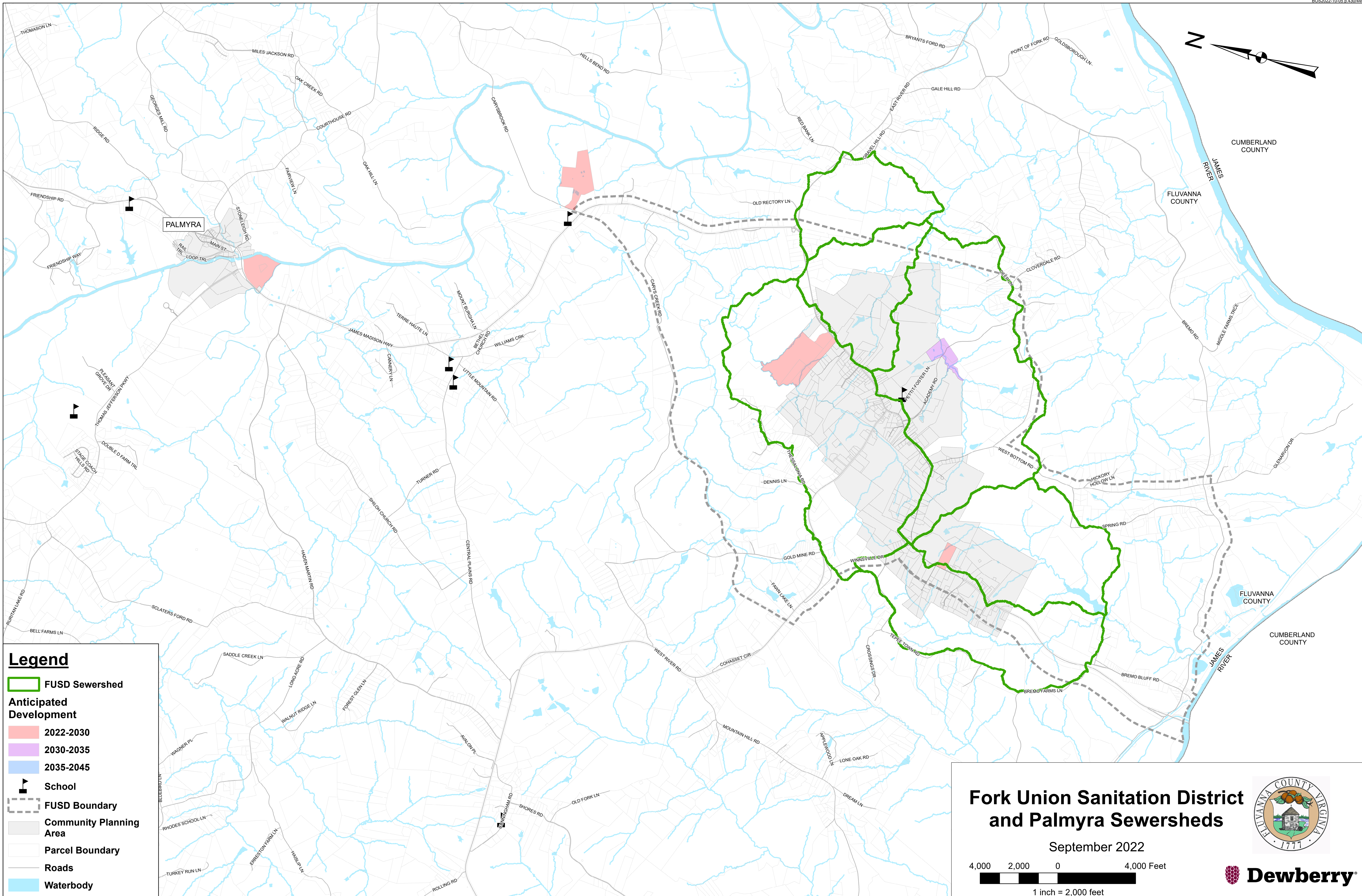
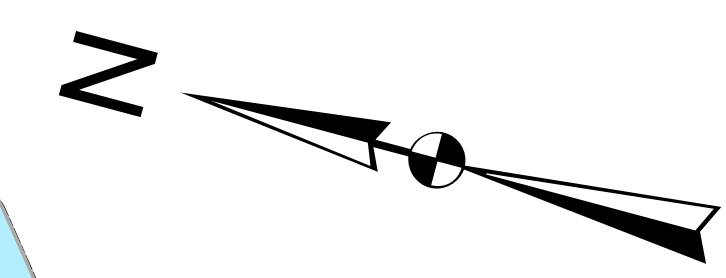
## Fork Union Sanitation District and Palmyra Future Sewer Improvement Phasing

September 2022




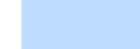


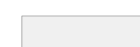





1 inch = 2,000 feet



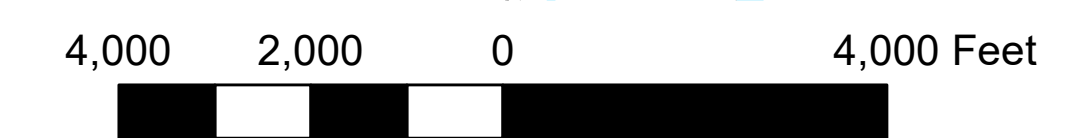


**Legend**

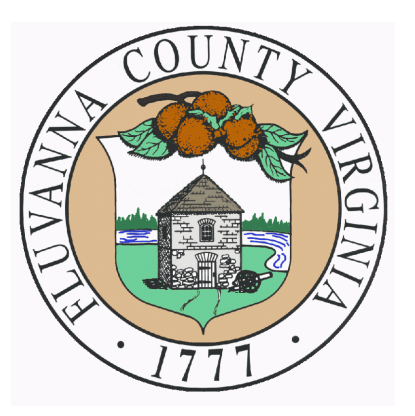
-  FUSD Sewershed
- Anticipated Development**
-  2022-2030
-  2030-2035
-  2035-2045
-  School
-  FUSD Boundary
-  Community Planning Area
-  Parcel Boundary
-  Roads
-  Waterbody

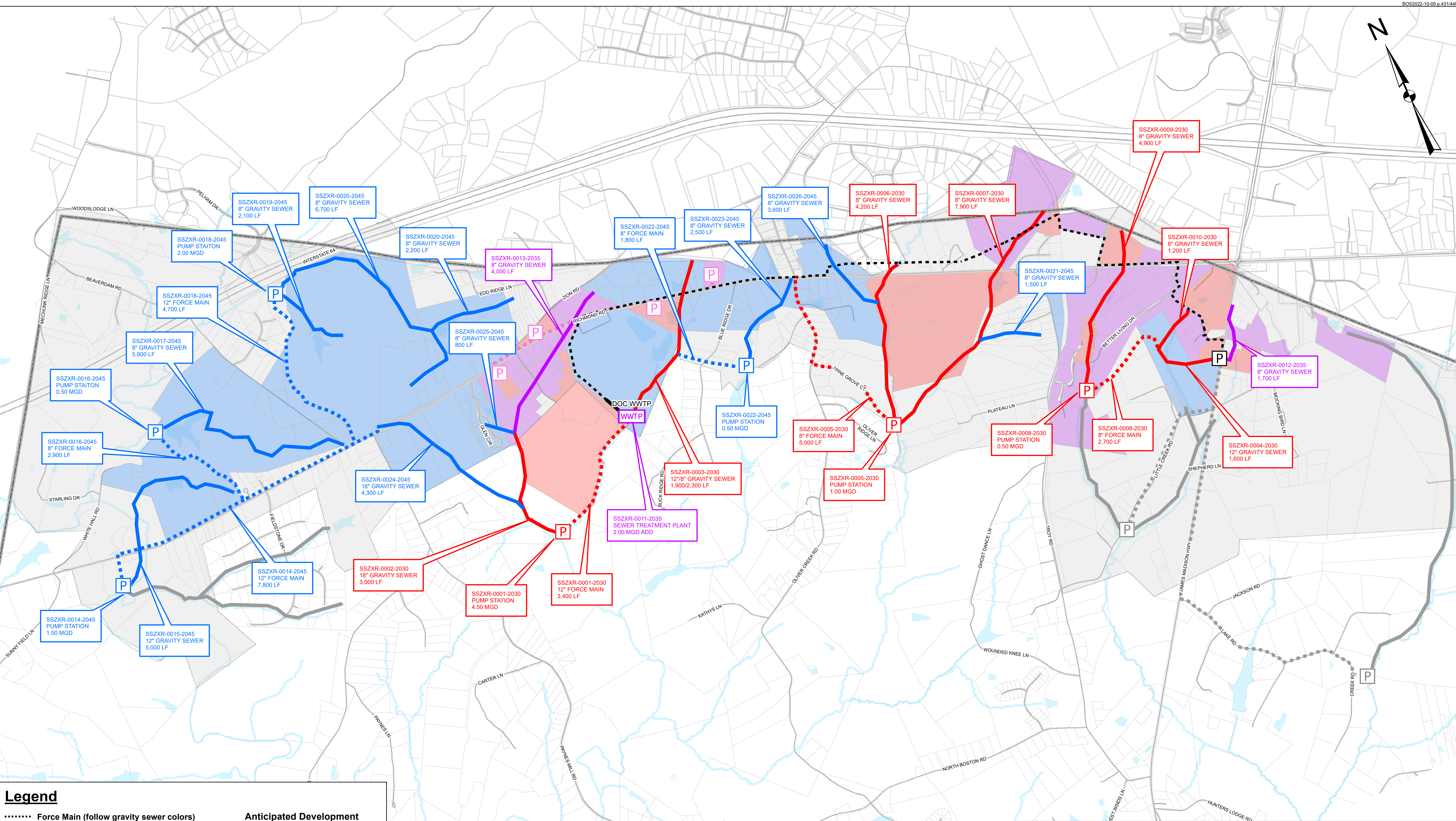
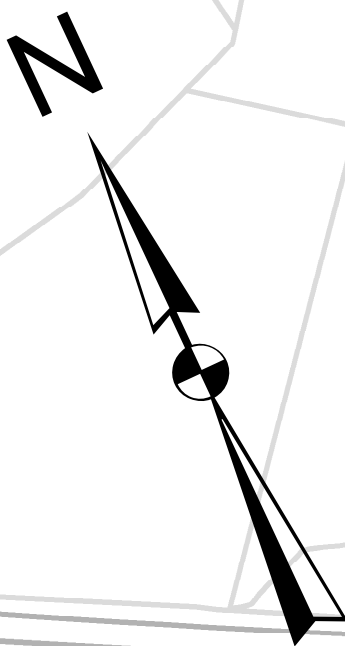
# Fork Union Sanitation District and Palmyra Sewersheds

September 2022



1 inch = 2,000 feet





**Legend**

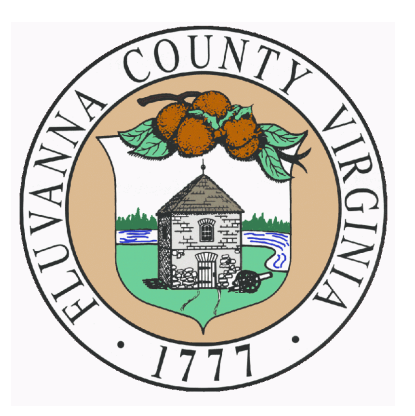
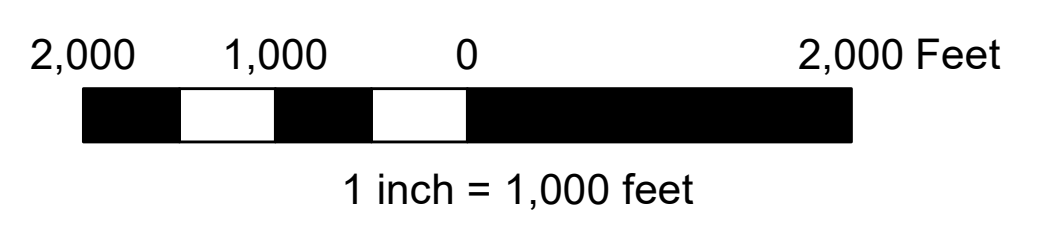
- ..... Force Main (follow gravity sewer colors)
- [P] Pump Station (follow gravity sewer colors)
- [WWTP] Sewer Treatment Plant (follow gravity sewer colors)
- Gravity Sewer**
- Existing Infrastructure
- 2022-2030 Proposed Infrastructure
- 2030-2035 Proposed Infrastructure
- 2035-2045 Infrastructure
- Beyond Planning Period
- Future Private Infrastructure

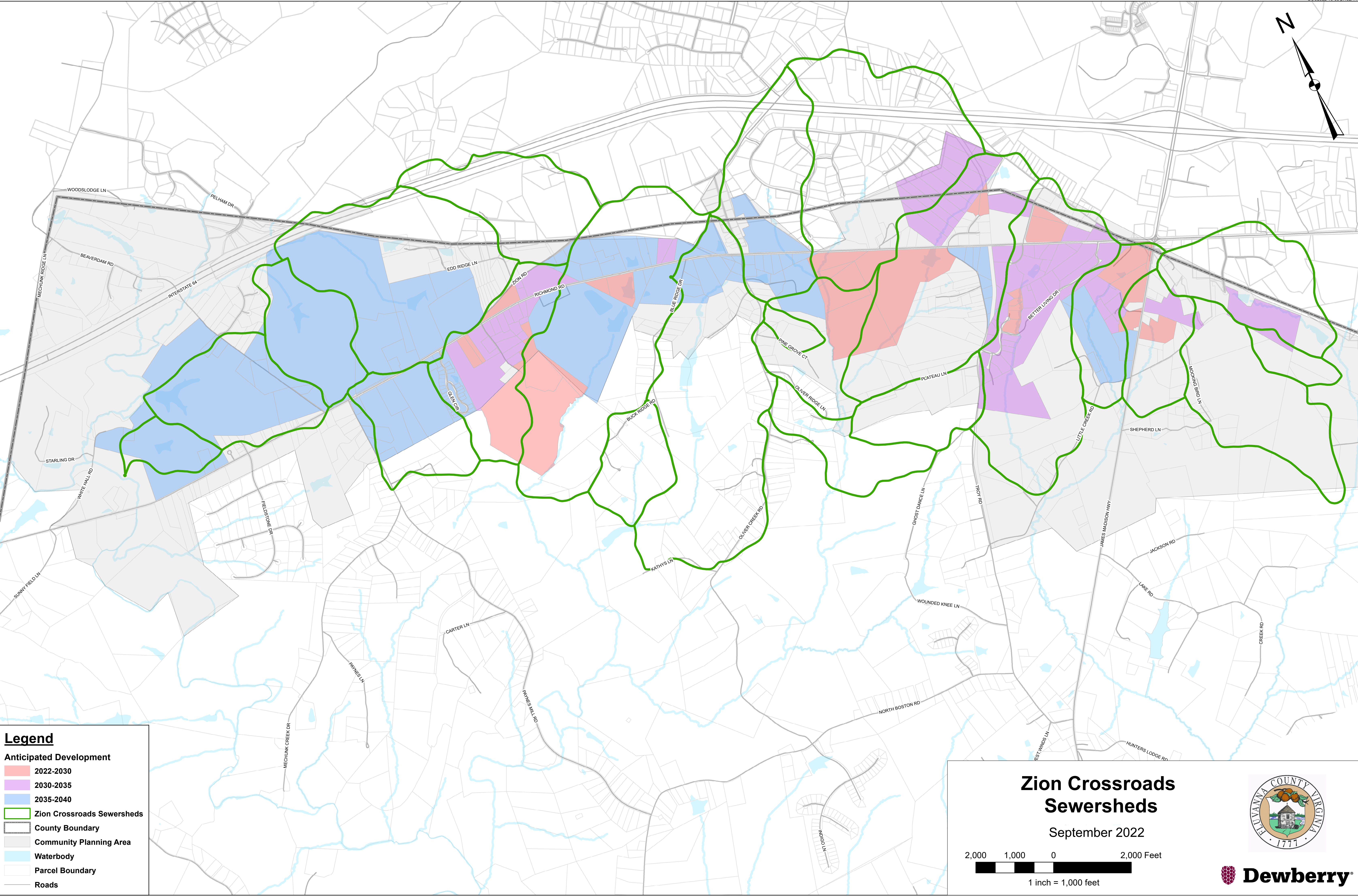
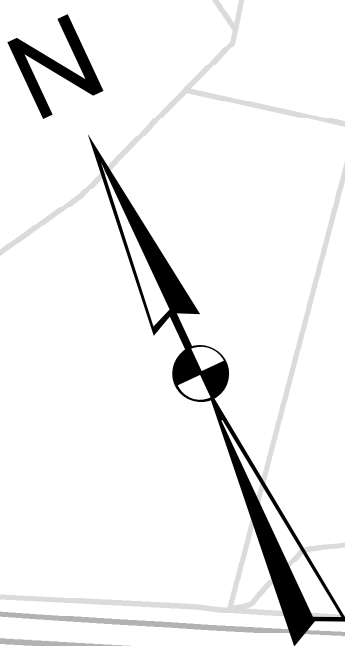
**Anticipated Development**

- 2022-2030
- 2030-2035
- 2035-2045
- County Boundary
- Community Planning Area
- Waterbody
- Parcel Boundary
- Roads

# Zion Crossroads Future Sewer Improvement Phasing

September 2022



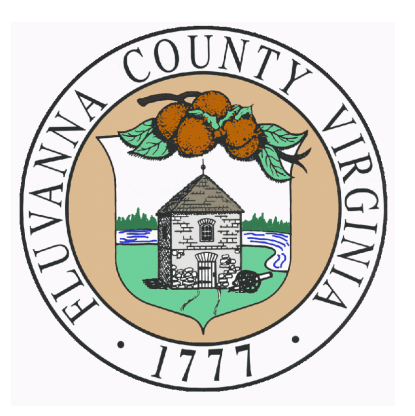
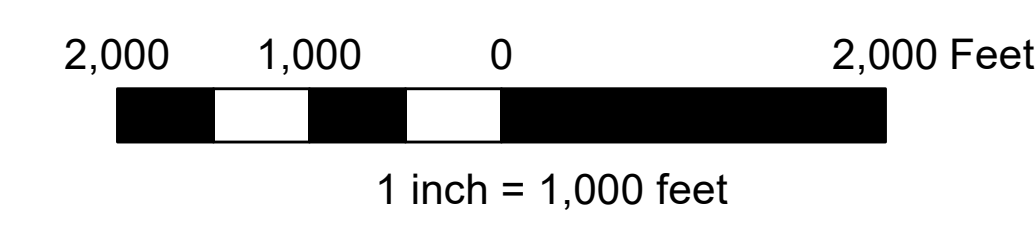


**Legend**

- 2022-2030
- 2030-2035
- 2035-2040
- Zion Crossroads Sewersheds
- County Boundary
- Community Planning Area
- Waterbody
- Parcel Boundary
- Roads

## Zion Crossroads Sewersheds

September 2022

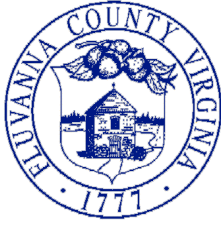




**FLUVANNA COUNTY BOARD OF SUPERVISORS  
MEETING PACKAGE ATTACHMENTS**

Incl?	Item
<input checked="" type="checkbox"/>	BOS Contingency Balance Report
<input type="checkbox"/>	Building Inspections Report
<input checked="" type="checkbox"/>	Capital Reserve Balances Memo
<input type="checkbox"/>	Fluvanna County Bank Balance and Investment Report
<input checked="" type="checkbox"/>	Unassigned Fund Balance Report
<input type="checkbox"/>	VDOT Monthly Report & 2020 Resurfacing List
<input type="checkbox"/>	ARPA Fund Balance Memo
<input type="checkbox"/>	





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# COUNTY OF FLUVANNA

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*"Responsive & Responsible Government"*

BOS2022-10-05 p.435/440  
P.O. Box 540  
Palmyra, VA 22963  
(434) 591-1910  
Fax (434) 591-1911  
www.fluvannacounty.org

## MEMORANDUM

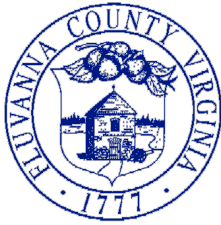
**Date:** October 05, 2022  
**From:** Tori Melton – Director of Finance  
**To:** Board of Supervisors  
**Subject:** FY23 BOS Contingency Balance

---

The FY23 BOS Contingency line balance is as follows:

<b>Beginning Original Budget:</b>	<b>\$162,000</b>
Less: Career Development Circuit Court Clear & Commissioner of Revenue	-15,393
Less: Comprehensive Safety Action Plan Grant – Safe Streets - TJPDC	-30,000
Less: Comprehensive Economic Development Strategy (CEDS) - TJPDC	-2,097.04
Less: 2022 Board of Supervisors Planning Retreat	-5,000
<b>Available:</b>	<b>\$109,509.96</b>





# COUNTY OF FLUVANNA

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www.fluvannacounty.org

## MEMORANDUM

**Date:** October 05, 2022  
**From:** Tori Melton – Director of Finance  
**To:** Board of Supervisors  
**Subject:** FY23 Capital Reserve Balances

The FY23 Capital Reserve account balances are as follows:

### County Capital Reserve:

FY22 Carryover	\$512,518
<b>FY23 Budget Allocation:</b>	<b>\$250,000</b>
Less: Fluvanna County District Court Microphone System Replacement	-5,963
Less: Ground Water Well Monitoring at Convenience Center	-27,050
Less: Public Safety Building 5 ton heat pump	-6,408
Less: Generator at Carysbrook Fuel Pumps	-30,000
Less: 4 ton heat pump at Fluvanna County Community Center	-8,522.36
<b>FY23 Available:</b>	<b>\$684,574.64</b>

**Schools Capital Reserve:**

FY22 Carryover	\$387,600
<b>FY23 Budget Allocation:</b>	<b>\$200,000</b>
Less: FCHS Tennis Court Repair	-63,100
Less: Emergency Radios for FCPS School and Departments	-23,910
Add: Closed CRM Project – 08/27/2022	4,884
Less: Central Elementary purchase of 3 HVAC chiller fans	-10,560
Less: Central Elementary HVAC Chiller replacing failed parts	-11,090
Less: FCHS main chiller	-6,740
Less: Fluvanna Middles School HVAC Chiller	-9,178
Add: Insurance recovery from VACORP for vandalism at FMS	38,498.27
Less: Repair and updating equipment at FMS due to vandalism	-38,498.27
<b>FY23 Available:</b>	<b>\$467,906</b>



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# COUNTY OF FLUVANNA

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(434) 591-1910  
Fax (434) 591-1911  
[www.fluvannacounty.org](http://www.fluvannacounty.org)

## MEMORANDUM

**Date:** October 05, 2022  
**From:** Tori Melton – Director of Finance  
**To:** Board of Supervisors  
**Subject:** Unassigned Fund Balance

---

<b>*FY22 Year End (Unaudited) Unassigned Fund Balance:</b>	<b>\$13,835,655</b>
<b>Current (Unaudited) Unassigned Fund Balance:</b>	<b>\$13,835,655</b>

\*Audited FY22 Year End Unassigned Fund Balance will be available upon Completion of the FY22 Comprehensive Annual Financial Report

