3. WATER

Board of Supervisors Environmental Vision:

"Fairfax County considers the protection, restoration and enhancement of environmental quality through the sustainable management of its water resources to be one of its highest priorities. Through its policies, regulations, and outreach to the community, the county will implement the best available technology, including advanced and innovative practices to protect and restore streams, wetlands and associated aquatic resources, promote water conservation and ensure the most effective stormwater management, advanced wastewater treatment, and the safest, most reliable drinking water supply for future generations."

INTRODUCTION

The following statement can be found in the Introduction to the Water section of the Board of Supervisors Environmental Vision. It captures well the concept of "One Water."

"Water is the essence of life – without it, life on our planet would not exist. The availability of clean water and presence of functioning aquatic systems are fundamental to sustaining viable ecosystems and human societies. Fairfax County's natural aquatic resources are vast; its 30 watersheds encompass myriad wetlands, tidal marshes, lakes, ponds and reservoirs – and include well over 1,000 miles of streams and associated riparian corridors. Fairfax County highly values water as an essential part of our ecosystem through protecting and restoring the natural environment, helping provide safe drinking water, and preserving the aesthetic and recreational opportunities these natural resources provide for county residents."

This "one water" concept envisions water as a resource regardless of its location or condition in any one system. This is the lens through which water is viewed in this chapter of the Annual Report on the Environment.

The concept of "one water" is illustrated in how we fit into the larger water ecosystem. [Figure II-1 NEAR HERE] The largest watershed in the county is Difficult Run (58 square miles), with ten smaller streams that drain into its main stream. Difficult Run, in turn, drains into the Potomac River. The Potomac River watershed is a sub-watershed of an even larger watershed, the Chesapeake Bay watershed, which has an area of 64,000 square miles and includes portions of the states of New York, Pennsylvania, Delaware, West Virginia, Maryland and Virginia as well as the District of Columbia. All of Fairfax County ultimately drains to the Potomac River, which drains to Chesapeake Bay.

The concept of One Fairfax when applied to the water resources of the county would mean that all citizens, neighborhoods and water resources would receive equitable treatment by the Fairfax County government.

While the natural world does not draw distinct lines for water movement throughout the ecosystem, human management of water does fall into three separate management systems:

1. **Drinking water** – We obtain water from surface waters and groundwater, and then treat the raw water to drinking water standards.
2. **Wastewater management** – The collection and treatment in closed systems of sewage from homes and business to return it to surface waters or groundwater.
3. **Protecting and restoring streams, ponds and lakes, and tidal and freshwater wetlands** – Stormwater management includes the maintenance/restoration of those resources to ecologically healthier systems. Stormwater management also involves protecting homes and infrastructure from flooding.

Ultimately the health and condition of our drinking water, our rivers, streams and ponds is a reflection of how we have managed our drinking water needs, and our wastewater and stormwater management.

There are five areas of significant concerns addressed in this chapter that merit recommendations or comments.

1) New modeling and monitoring for the Occoquan Reservoir. The present models and monitoring do not presently address management and understanding of new and emerging threats such as PFAS and salt.

2) Support for and expansion of policies and ordinances that protect the drinking water supplies and natural resources of the county. These become even more important in light of climate change and added flooding.

3) Support for maintenance and staffing of our wastewater conveyance and treatment systems.

4) The need for aggressive public education and monitoring concerning alternative private wastewater treatment facilities.

5) Adequate monies through rate increases to address expanding stormwater needs for flood control and other emerging requirements for maintenance, and for increases in salaries for attracting and retaining personal within the Department of Public Works and Environmental Services (DPWES).

I - DRINKING WATER

The majority of the county's drinking is provided by Fairfax Water. About two-thirds comes from the Potomac River and one-third from Occoquan Reservoir. For a small number of residents, community wells and private wells provide drinking water.

An overview of drinking water in must include a discussion of water treatment facilities and the depth of monitoring and modeling within the system. It must also include a discussion of emerging contaminants; regional and local policies for land use/source water protection; and water allocation agreements, especially during droughts.

CURRENT CONCERNS

EQAC believe that, overall, Fairfax County has an adequate supply of good quality drinking water. Like everyone in the U.S., we need to keep a wary eye on new and emerging contaminants that may need further treatment. The more local Occoquan supply also bears watching because of threats to its quality and quantity.

Fairfax Water – Potomac River and Occoquan Reservoir Supply

Fairfax Water withdraws water from the Potomac River near the James J. Corbalis Water Treatment Plant and from the Occoquan Reservoir at the Frederick F. Griffith Water Treatment Plant. Fairfax Water provides about 167 million gallons per day (mgd) of drinking water to nearly two million people in Northern Virginia, including most residents of Fairfax County. Fairfax Water also provides drinking water to the Prince William County Service Authority, Loudoun Water, Virginia America Water Company (City of Alexandria and Dale City), Town of Herndon, Town of Vienna, Fort Belvoir and Dulles Airport. As of 2014, both the City of Fairfax and the City of Falls Church systems were incorporated into Fairfax Water's system.

In addition, Fairfax Water purchases treated water from the U.S. Army Corps of Engineers, Washington Aqueduct Division, treated at the Dalecarlia and McMillan water treatment plants in Washington, D.C.

Fairfax Water meets all state and federal regulatory requirements. In addition, analyses are performed to monitor the quality of Fairfax Water's raw water sources, water within the treatment process and water within the distribution system. Water undergoing the treatment process is continuously monitored for pH, turbidity, coagulation efficiency and disinfectant residuals using technically advanced online monitoring systems. Chlorine, pH and temperature testing also is performed at sample sites throughout the system using portable instrumentation.

Fairfax Water provides highly advanced treatment for the water served to its customers. A study conducted by the Water Research Foundation concluded that using a combination of ozone and biological activated carbon is very effective in removing broad categories of pharmaceuticals and personal care products (PPCP's) and endocrine-disrupting chemicals. Fairfax Water uses both ozone and biological activated carbon at both of its treatment plants as part of its multi-barrier water treatment approach that also includes coagulation, sedimentation, filtration and

disinfection. Additional information about Fairfax Water's treatment process and water quality is available on its website.

Monitoring Treated Drinking Water Supplies and Reports

Federal regulations require water suppliers to provide annual reports on the quality of the drinking water to their customers through the Consumer Confidence Report Rule. Fairfax Water's current Water Quality Report is available for review on its website.

Although Fairfax Water produces safe and high-quality drinking water that meets all current standards, some water-quality concerns are appearing at the National level. For example, the U.S. Environmental Protection Agency (EPA) recently released four drinking water health advisories for per- and polyfluoroalkyl substances (PFAS). While these advisories do not carry the force of regulations, they nevertheless indicate a need for watchfulness over possible future monitoring or treatment requirements. Any additional water treatment for PFAS (i.e., beyond the current ozone and activated carbon systems) will be extremely expensive.

Potomac River Water Quality Monitoring

The Metropolitan Washington Council of Governments (COG) coordinates with state and local government officials, scientists from local universities and other experts from around the region who collect and analyze water quality monitoring data from local waters. COG, in turn, shares this body of knowledge, which is useful for evaluating the effectiveness of management actions, with its members through fact sheets and periodic workshops. The most recent of these, "New Data on Nutrient Dynamics and SAV in the Potomac Estuary," held in winter 2017, explored the insights derived from new monitoring data on the timetable for achievement of water quality standards in the Potomac estuary.

The Interstate Commission on the Potomac River Basin (ICPRB) also digitized data collected by the Washington Aqueduct at their intakes over many years. Entitled "Potomac River Water Quality at Great Falls: 1940-2019," ICPRB Staff also created a short video that tells the story of the changing composition of the river.

Occoquan Reservoir policy, Monitoring, and Modeling

The Occoquan Watershed covers about 590 square miles and includes the Occoquan Reservoir, which serves as the boundary between Fairfax and Prince William counties. [FIGURE 3-2? NEAR HERE] Unlike the vastly larger Potomac Watershed, the Occoquan water supply is very susceptible to pollutants introduced in local jurisdictions.

During the latter part of the 1960s, the Occoquan Reservoir exhibited signs of advanced eutrophication, such as frequent and intense algal blooms (including cyanobacteria), periodic fish kills and taste and odor problems. All these issues threatened the health of the reservoir as a water supply source. Although the reservoir is only partially drained by Fairfax County streams (about 17 percent of the watershed is located in Fairfax County), the county has provided leadership in the region for land use modifications to protect water quality:

- Occoquan Policy (1971) and Upper Occoquan Service Authority (1978).
- Fairfax County's "Downzoning" Action and Best Management Practice Requirement (Initially 1982).
- Fairfax Water Shoreline Easement Policy (2004).
- Fairfax County New Millennium Occoquan Watershed Task Force Report (2003).

The Occoquan Watershed Monitoring Laboratory (OWML) has consistently monitored for nitrogen, phosphorus and sediment since the inception of monitoring in in the Occoquan Basin. In addition, synthetic organic compounds (SOCs) have been monitored quarterly in the Occoquan Watershed since 1982. Water samples at stream and reservoir stations and sediment samples at reservoir stations are monitored quarterly. Fish samples are taken at three reservoir stations semi-annually. General monitored water quality in the Occoquan Reservoir has also remained stable over the years. While the reservoir continues to be enriched with nutrients (eutrophic), the water quality has not deteriorated from what it has been for some time now. continue to access near-real-time field data at various stream sites. l Overall, results of the SOC monitoring in 2016 show that the watershed conditions with regard to SOCs continues to be excellent. A large portion of the lab's newer resources now are focused on chloride and sodium, with additional funding requests to increase monitoring salinization in the watershed.

While salt concentrations are rising in freshwaters nationally, the trend is particularly acute in the Occoquan Reservoir. According to Dr. Stanley Grand, Director of the OWML (Email to Stella Koch, EQAC, May 23, 2023), sodium ion concentration in drinking water from the Griffith Plant is now higher than 93% of all Virginia Public Water Systems that rely on surface water for water supply. At the present time the EPA guidance level for sodium in drinking water is 20 mg/L. This value was developed for those individuals restricted to a total sodium intake of 500 mg/day and should not be extrapolated to the entire population. More than 90% of samples collected in the past 5 years from Griffith's finished drinking water exceed 20 mg/L sodium.

The purpose of the Northern Virginia Regional Commission's (NVRC) Occoquan Basin Nonpoint Pollution Management Program is to help localities maintain acceptable water quality in the reservoir through control of nonpoint source pollutant loadings. NVRC maintains the Occoquan Basin Computer Model, which during the early 1980s served as the basis for down zoning the Fairfax County portion of the watershed to protect drinking water from pollution caused by urban development.

Every five years, NVRC performs an assessment of land use changes in the watershed to update the model. This helps localities determine whether additional land management efforts are necessary. Over time, more accurate data and updated technology have become available and NVRC's land use tracking methodology has changed along with it.

For the 2015 Land Use Update, NVRC developed a new land use tracking methodology that focuses on impervious and pervious surface area. The detailed methodology for this update is discussed in the White Paper: Updating the 2015 Land Use for the Occoquan Watershed. NVRC will continue to update the land use for the Occoquan Watershed every five years, now using the updated methodology discussed in the contents of this paper.

Wells and Groundwater Monitoring

As the County continues to urbanize, groundwater supplies will come under increasing stress. There is no indication of any regional problem so far, but continuing monitoring efforts are prudent.

There are approximately 15,000 family residences and businesses that are served by individual well water supplies in Fairfax County. The Fairfax County Health Department offers private well evaluations, and the application can be accessed on the county's website.

The Virginia State Health Department Office of Drinking Water regulates the 44 public well water supplies in Fairfax County. The operators of these systems are required to conduct quarterly water sampling and analysis. On January 1, 2014, the Eastern Virginia Groundwater Management Area was expanded to include the areas of Fairfax County located east of Interstate 95.

There is one United States Geological Survey (USGS) groundwater monitoring well in Fairfax County that is part of a larger USGS monitoring system of 174 wells found throughout Virginia.

RECOMMENDATIONS – DRINKING WATER

The Scorecard for this ARE contains the following recommendations pertaining to this subchapter. Please see the Scorecard for details.

1. *Recommendation: 3A-W-2021.1* ***Continue and enhance the protection of the Occoquan Reservoir, as needed.***
2. *Recommendation: 3A-W-2021.2* ***Fund monitoring and modeling of emerging contaminants such as PFAS and of the rising sodium levels in the Occoquan Reservoir***

II - WASTEWATER

Nearly all wastewater in Fairfax County is collected from homes and commercial sites and carried through the County maintained sanitary sewer pipe system to one of five advanced regional treatment facilities (County's own Noman M. Cole Jr., Pollution Control Plant, Upper Occoquan Service Authority, DC Water's Blue Plains Advanced Wastewater Treatment Plant, Alexandria Renew Enterprises, and Arlington Water Pollution Control Plant) that release the treated waters into local waterways. A small amount (about 20,000 gallons per day) of the county's wastewater is treated at the Prince William County Service Authority's plant. The only small treatment plant remaining in the county serves the Harborview subdivision of Mason Neck. About 5% of homes are served by septic systems.

CURRENT CONCERNS

EQAC recognizes Fairfax County is served by an excellent wastewater conveyance and treatment infrastructure. However, we must not rest on our laurels. Facilities will require continued maintenance and upgrades as they age, and hiring qualified staff remains a continuing challenge.

The treatment of sewage is a complex and shared responsibility among neighboring jurisdictions. Of the 100 million gallons per day (mgd) collected daily through the sanitary sewer system, approximately 40 percent is treated by the county-owned Noman M. Cole, Jr. Pollution Control Plant (NMCPCP) in Lorton, Virginia. The remaining 60 percent of the wastewater is conveyed for treatment, under inter-jurisdictional agreements with DC Water (approximately 30 percent), the Upper Occoquan Service Authority (UOSA—13 percent), Alexandria Renew Enterprises (15 percent), and Arlington Water Pollution Control Plant (two percent). The combined Fairfax County allocated capacity of these five treatment plants is 157 mgd (which includes one mgd reserved capacity with Loudoun Water's Broad Run Treatment Plant). Fairfax County pays a pro rate share of the cost of these facilities. Fairfax County has representatives on UOSA, DC Water, and Alexandria Renew Enterprises governing boards.

Wastewater produced within the County's Approved Sewer Service Area, which covers approximately 290 square miles of the County's total of 400 square miles, is conveyed by the County's 3,380-mile-long collection system to the above mentioned five plants for advanced wastewater treatment including nutrient removal. Two of the five treatment facilities are located in Fairfax County: the County's NMCPCP and the independent UOSA. An overview can be found here.

The Wastewater Management Program within the county is managed as an enterprise fund which means the fees collected for hookups and for service fund the system. The Board of Supervisors sets the fee rate.

For approximately 5% of Fairfax County residents, wastewater is treated on-site via septic systems through which the water infiltrates into the ground and ultimately reaches groundwater.

Fairfax County Noman M. Cole Jr. Pollution Control Plant (NMCPCP)

The NMCPCP, located in Lorton, Virginia, is a 67 mgd advanced wastewater treatment facility that incorporates preliminary, primary, secondary, and tertiary treatment processes to remove pollutants from wastewater. The plant is owned by the County and operated by the Fairfax County Department of Public Works and Environmental Services - Wastewater Management Program. The original plant, which began operation in 1970 at a treatment capacity of 18 mgd, has undergone three capacity and process upgrades to meet more stringent water quality standards. After treatment, the wastewater is discharged into Pohick Creek, a tributary of Gunston Cove and the Potomac River.

The NMCPCP continues to more than meet the performance standards for the limits of parameters monitored. Additional information is available on the Fairfax County website. This advanced treatment facility for wastewater in Fairfax County should be commended for its leadership in producing treated water for reuse. The facility's YouTube video does an excellent job of explaining the process. This water can be safely used to water lawns, in commercial car washing businesses, in construction and for other industrial uses.

The Water Reuse Project uses cleaned wastewater from the NMCPCP for irrigation and industrial purposes. Reusing the treated water reduces 1 mgd of water demand on the County's drinking water system. In addition, 0.25 mgd is reused on the plant site. This equals to a total of 2 billion gallons of reused water annually. A pipeline supplies reuse water to Covanta Fairfax, Inc. Resource Recovery Plant, the Laurel Hill Golf Course, and the South County ballfields.

In a conversation in July 2022 with the Director of DPWES, Chris Herrington, it was stated that there was a 38% vacancy rate in positions within wastewater. The county needs to have industry competitive salaries to attract and retain personnel. Recent market rate adjustment, performance increase, compression study and hiring bonuses should help with attracting and retaining skilled employees in the wastewater program. These incentives need to be repeated annually to maintain competitiveness with neighboring jurisdictions who are hiring similar skilled employees.

Wastewater Treatment and Gunston Cove Recovery

The improved water quality of Gunston Cove (which receives effluent from NMCPCP), the Occoquan Reservoir (which receives effluent from UOSA) and the Potomac River (which receives effluent from Blue Plains) are testament to the high standards of treatment in the last decades by these facilities.

Since 1984, Fairfax County, with assistance from George Mason University, has been monitoring water quality and aquatic life in the Gunston Cove area. As a major discharger of treated wastewater into the tidal Potomac River from the Noman M. Cole Jr., Pollution Control Plant, Fairfax County has been proactive in decreasing nutrients, a major cause of water quality impairment, since the late 1970s. Due to the county's commitment to advanced wastewater treatment at the Noman M. Cole Jr., Pollution Control Plant, nitrogen and phosphorus loadings in Gunston Cove have reduced dramatically over the study period. Chlorine and solids in treated water have also been reduced or eliminated. The reduction in loadings has been achieved even as

flow through the plant has remained high. Fairfax County has demonstrated how effective wastewater management can improve water quality, and thereby restore the aquatic ecosystem. The Gunston Cove study has proven to be an extremely valuable case study in ecosystem recovery for the Chesapeake Bay region and internationally.

Maintenance of the Wastewater Conveyance System

The Wastewater Collection Division (WCD) of the Department of Public Works and Environmental Services is responsible for: the operation, maintenance, and overall management of the gravity sewers, force mains, pump stations and metering stations; leading the asset management program; and overseeing the planning, design, and construction of collection system's Capital Improvement Program (CIP) projects.

Fairfax County gravity sewers consistently have fewer occurrences of backups and overflows than the median level, established in a study conducted by the American Water Works Association and Water Environment Foundation. This is due to WCD's aggressive maintenance and rehabilitation program. As part of the collection system's asset management program, CCTV inspection of the gravity system identifies defects in the sewer system for repair and maintenance recommendations. These recommendations are incorporated into WCD's maintenance programs as well as the Capital Improvement Program (CIP). An imperative highlight from the CIP is the use of trenchless technologies to rehabilitate pipes throughout the system. This technology provides significant cost savings over traditional open cut repairs, and reduced disruption to residents, the surrounding environment and traffic.

The sewage pump stations' supervisory control and data acquisition (SCADA) system provides remote monitoring, alarm management, and limited control capabilities for the pump stations' operations. To ensure continued operation of pumping stations during power outages, 60 backup power generators, located at pumping stations throughout the county service area are maintained. WCD is currently implementing a new geographic information system (GIS) centric computerized maintenance management system (CMMS) to replace and modernize its current system. In addition, WCD is monitoring and investing into new technology such as artificial intelligence to introduce efficiencies, improve effectiveness and service delivery to the residents of Fairfax County.

The collection system which includes 63 wastewater pumping stations, two stormwater pumping facilities, one water reuse system, 57 permanent flow metering stations, 11 rain gauge stations and 135 grinder pump and associated pressure sewer systems is aging. The costs for replacement of older infrastructure and increased maintenance have risen. In February of 2014, the Wastewater Management Program (WWM) Asset Management Team was formed to develop a dynamic asset management program for prioritizing and optimizing the operation, maintenance, and capital asset reinvestment of the linear assets. Several phases of the Asset Management program have been completed. Funding of the wastewater program by increasing sewer fees is essential to successful operation and maintenance of the sewer system.

Fairfax County's Pretreatment Program

Fairfax County has an effective and enforceable pretreatment program to protect the county's wastewater collection, conveyance, and treatment infrastructure, and to prevent certain pollutants from passing through the wastewater treatment facilities to receiving waters. The Pretreatment Program is in full compliance with all applicable requirements.

Septic Systems and On-site Disposal

Over 21,000 homes and businesses are served by onsite sewage disposal systems in Fairfax County. About 5% of these systems are alternative sewage disposal systems, which require more extensive maintenance than conventional systems. All septic systems are required to be pumped out every five years. The operation and maintenance of all onsite sewage disposal facilities is regulated by the county's Health Department. Permits are issued for residents to utilize pump and haul because of a failing onsite sewage disposal system. About 195 homes in the Town of Clifton and the Gunston and Wiley communities are on community pump and haul systems. This is because these locations are outside of the ASSA and the County's central sewer system cannot be extended to these locations.

Areas of the county that have been deemed unbuildable in the past (due to the inability of the property to support a conventional septic system) are now being considered for development using alternative onsite sewage disposal technology. Developers, because of the need to maximize land development potential, are using alternative systems as one tool to achieve this goal. Unlike conventional systems, alternative systems require advanced, prescribed, and regular maintenance to ensure systems adequately handle wastewater. Key to ensuring these systems work properly, is homeowner knowledge of how they generally operate and considerable involvement in ensuring maintenance is performed. All alternative systems require an annual maintenance inspection to ensure proper function of the system and homeowners may not be aware of their critical role for maintaining these systems through these inspections. To ensure these complex systems are functional for a long time, educational outreach to homeowners is critical. Outreach can be provided by both the private and public sectors, to include Fairfax County Health Department and Department of Public Works and Environmental Services.

Upper Occoquan Service Authority (USOA)

UOSA is an independent authority that operates an advanced water reclamation facility in Centreville, Virginia and serves the western portions of Fairfax and Prince William counties, as well as the cities of Manassas and Manassas Park. UOSA's *Drinking the Water* video on Vimeo shows individuals comfortably drinking the treated water from the plant and showcases the high degree of treatment. This system was one of the early pioneers of indirect potable reuse in the country. UOSA discharges upstream of the Occoquan Reservoir. UOSA continues to meet its performance criteria. Additional information can be found on the USOA website. The Director of the Wastewater Planning and Monitoring Division at Fairfax County serves as the chair of UOSA Board.

Monitoring the Success of Improved Treatment

The Occoquan Watershed Monitoring Laboratory (OWML) has administered a comprehensive hydrologic and water quality monitoring program in the Occoquan Watershed since 1972. The program is jointly funded by Fairfax Water and the six jurisdictions within the watershed. OWML operates automated stream monitoring and flow gauging stations located on the major tributary streams of the watershed. These stations record stream flow and automatically collect flow-weighted composite water samples during storm events. There are concerns with emerging contaminants and increased sodium and chloride in the Occoquan Reservoir.

RECOMMENDATIONS – WASTEWATER

The Scorecard for this ARE contains the following recommendations pertaining to this subchapter. Please see the Scorecard for details.

3. Recommendation: 3B-W-2021.1 **Set the fee rate collected for wastewater treatment to meet the documented needs of the necessary upgrades and maintenance requirements for all the plants that serve the county and their respective wastewater collection system. This may include the necessary increases to hire and retain adequate wastewater personnel.**

4. *Recommendation: 3B-W-2021.2* ***Continue aggressive public education and monitoring of the new alternate septic systems performance***

III - PROTECTING AND RESTORING STREAMS, PONDS & LAKES

INTRODUCTION

Stormwater management is the art and science of managing the potential damaging effects of polluted and excessive runoff on our natural environment (streams, ponds, lakes, and rivers) and on our built environment (bridges, roads, and buildings). This is achieved by attempting to manage both the quality, quantity, and timing of runoff.

The dispersed and intermittent nature of rainfall makes runoff pollution difficult to control. Excessive nutrients, including nitrogen and phosphorus (organic matter, fertilizer) can stimulate excessive algal growth in ponds, streams, and rivers. Other runoff pollutants are sediment (from erosion, construction sites, eroded stream banks and road sand), salts from winter deicing of impervious surfaces, toxics (from oil, paint, pesticides, chemicals, and metals), pathogens including bacteria (such as animal waste, failing septic systems and leaking sewer systems) and litter. In areas with buildings, roads and parking lots, the water flows over these surfaces into storm drains directly to streams.

As development and redevelopment occur, natural areas that once had vegetative cover capable of absorbing water and filtering pollutants are replaced by **impervious surfaces** such as roads, driveways, parking lots, and buildings. With no chance to infiltrate into the ground, and with surfaces often designed to minimize water retention, increased runoff flows into streams more quickly. This “flashier” runoff results in scouring, downcutting and loss of streamside vegetation. When stream channels become incised from downcutting, they become disconnected from their floodplains. Water cannot overflow banks onto the adjacent floodplain where flows can be dissipated and drop their sediment loads. Silt and sediment from erosion smother the stream bottom and destroy in-stream habitat for sensitive benthic macroinvertebrates. Loss of shade results in increased water temperatures. During summer storms, runoff from heated impervious surfaces also raises water temperatures further stressing aquatic life. Over time, increased erosion, flooding, and sediment deposition lead to habitat loss, water quality problems and damage to homes, utilities, and infrastructure. Collectively, this phenomenon is known as “urban stream syndrome” and is typical of many Fairfax County streams.

[FIGURE 3-3 NEAR HERE

The purpose of stormwater management is to manage both the quality and quantity of water coming off sites because of increased impervious surfaces. Stormwater runoff is treated by constructing facilities that capture the rainfall on site and infiltrate it into the ground or by conveyances and facilities such as detention ponds that treat and release the water more slowly into streams or lakes. “Best Management Practices” for stormwater reduce pollutants and control volume to reduce flooding and the erosive quality of increased water flow on stream banks and bottoms.

Stormwater management requires a complex integration of public and private facilities, differing choices for restoration and protection of streams, ongoing inspections and maintenance for all facilities and public education and involvement in handling runoff. Enforcement and

enhancement of regulations based on current science to reflect future conditions to minimize impacts on our streams and ecosystems should be pursued. It requires inspections of development sites for adequate stormwater protections. Imperative in all this is monitoring not only the receiving streams but also the effectiveness of stormwater facilities and treatment practices in protecting natural and built conveyance systems and improving water quality.

The results of these combined efforts should lead to healthier, protected, and restored streams, and increased resilience from the more frequent intense storm events accompanying climate change. These efforts result in cleaner local streams, a healthier Occoquan Reservoir and Potomac River, and ultimately, an improved Chesapeake Bay ecosystem.

CURRENT CONCERNS

Monitoring Streams and Lakes

Several stream monitoring programs are ongoing within Fairfax County and County streams have been the subject of several studies. EQAC believes current stream monitoring efforts present an accurate picture of stream conditions within Fairfax County, and recommends these efforts be continued. Stream quality, as noted below, bears watching but does not call for expanded monitoring at this time.

The Fairfax County Department of Public Works and Environmental Services (DPWES), Fairfax County Park Authority (FCPA), Virginia Department of Environmental Quality (VDEQ), U.S. Geological Survey (USGS), Fairfax Water, and local water treatment plants and other organizations regularly conduct water quality monitoring and testing. The Northern Virginia Soil and Water Conservation District (NVSWCD) also collects monitoring information through its citizen volunteer water quality monitoring programs. Fairfax County's GIS (See Chapter 9) provides extensive online geospatial data to help analyze watersheds. All of these data help provide a comprehensive understanding of the condition and health of Fairfax County's water resources.

The county collects extensively both system-wide and specific watershed data; the county also collects data that focuses on some specific stormwater treatment methods to monitor their effectiveness.

DPWES Stream Quality Assessment Program

Born from the 2001 Stream Protection Strategy Baseline, this program has been assessing conditions in the streams of Fairfax County annually. This comprehensive monitoring program uses a statistically valid methodology called probabilistic monitoring to annually evaluate the physical, chemical, and biological conditions of streams on a county wide basis. The Stream Quality Index (SQI) is based on annual data collected on resident populations of stream benthic macroinvertebrates. As benthic macroinvertebrates are excellent indicators of water quality, the SQI is used to evaluate long-term trends in the overall health of streams. The index rates the composite conditions of stream sampled each year on a 1-5 numerical scale, with an index of 1

indicating “very poor” average stream health, and a score of 5 indicating “excellent” stream health countywide.

[FIGURE 3-4 NEAR HERE.]

For almost two decades, this biological monitoring effort continues to indicate that approximately 80% of the county’s waterways are considered to be in “Fair”, “Poor”, or “Very Poor” condition. However, Fairfax County streams have shown a slight amount of improvement since 2004, when the current monitoring program began. Although the changes have been relatively minor, it is important to note that they have occurred against a backdrop of continued urbanization and population growth. In 2022, the index dipped from 2.5 to 2.2. This dip was also seen in the high-quality, “best condition” reference sites located outside of the County – suggesting a common influence (such as weather). Annual fluctuations in the SQI are expected due to annual climatic variability and the nature of the randomized sampling framework. It remains to be seen whether the 2022 dip was an abberation or a warning of some trend.

[FIGURE 3-5 NEAR HERE]

DPWES Bacteria monitoring program

This annual probabilistic monitoring provides information on the general levels of bacteria in streams and is used as a screening tool that can identify areas of concern for further, more intensive investigations of potential sources (e.g., sewer leaks). In addition, the potential human health risk associated with wading or swimming in streams is assessed based on analyses of E. coli bacteria found in streams. Based on these results, recreational direct contact with surface waters is discouraged and additional information can be viewed online.

DPWES Stream Protection Strategy Baseline Study

Published in 2001, this study provides a holistic initial ecological baseline assessment of county streams and management recommendations.

DPWES 2005 Stream Physical Assessment

This study provided countywide baseline field reconnaissance data including information on habitat conditions, impacts on streams, general stream characteristics and geomorphic classification of stream type. This information was used as the basis for the development of countywide Watershed Management Plans. The county has recently developed an updated stream physical assessment program.

USGS Watershed Study Partnership

This partnership was established in 2007 as a collaborative, long-term trend study to evaluate watershed scale changes in water quality and quantity in response to the large-scale implementation of watershed capital improvement projects (e.g., stream restorations, stormwater management retrofits, green infrastructure, etc.). This is accomplished through a network of

jointly operated stream gages that collect high-density monitoring data throughout the county. To date, three USGS extensive scientific reports have been published from this work, including a recent 2023 publication. These findings will inform the County's Stormwater Management Program and promote strategies for watershed restoration.

Ponds and Lakes

Since 2014, four large, county-managed water control impoundments in the Pohick Creek watershed have been monitored by DPWES. These lakes (i.e., Barton, Huntsman, Woodglen and Royal) were built in the 70s and 80s by NVSWCD and Fairfax County as flood and sediment control facilities. By monitoring the lakes over time, it has been shown that dissolved oxygen concentrations strongly stratify during the growing season, and that dredging can lower nutrient, chlorophyll, and suspended solid concentrations (in the water column) but that these concentrations tend to trend back up over time, post dredge.

The Reston Association, the homeowner's association for the planned community of Reston, has an active watershed and lake management program. Four lakes, Audubon, Anne, Thoreau, and Newport, as well as two ponds, Bright and Butler, are monitored. This report and other information about Reston's lakes can be obtained from: www.reston.org/lake-report.

Watershed Management and Restoration

Protecting environmental assets is an essential part of resiliency planning in the face of climate change. EQAC urges that where possible environmental policies and ordinances should be enhanced.

The county has evolved a series of policies and ordinances to protect receiving waters, stream valley lands and other environmental assets - the Floodplain Regulations of the Zoning Ordinance, the EQC policy of the Comprehensive Plan, the Chesapeake Bay Preservation Ordinance, the Occoquan Reservoir protections, and the Stormwater Management Ordinance.

The county has added and proposed additional programs that integrate green infrastructure and nature-based solutions. These practices provide multiple benefits to reduce flooding, heat island effect and greenhouse gas emissions, improve water and air quality, and provide human health and ecological benefits. Resilient Fairfax recommended strategies include:

- Develop a Consolidated Natural Resources Management Plan
- Pursue Green Infrastructure Projects That Provide Climate Resilience Benefits
- Pursue Updates to the Comprehensive Plan to Enhance Resilience
- Expand Targeted Tree Plantings
- Pursue and Implement a Flood-Risk Reduction Plan for The Fairfax County Community
- Encourage Heat-Resilient Design, Development, Upgrades, and Practices
- Update Capital Improvement Program Process to Include Climate Resilience.

These regulations and policies have supported the creation of stream valley parks and stream valley trails and support the attainment of goals established within the county's watershed management plans. These protections should remain in place.

Watershed Management Plans

Between 2003 and 2011, a total of 13 watershed management plans, which cover all 30 county watersheds, were developed and adopted by the Fairfax County Board of Supervisors. From this planning effort, more than 1,700 structural and non-structural projects were identified as opportunities to help restore and protect our vital natural resources.

Fairfax County Watershed Projects and Stream Restorations

Data show that the most cost-effective means of achieving nutrient (total nitrogen and total phosphorous) and sediment reduction goals (total suspended solids) is through stream restorations using natural channel design (NCD). techniques. The county has completed 231 stormwater projects treating about 61,504 acres and restored over 119,261 linear feet (22.58 miles) of degraded streams since July 2009. The county often leverages resources and has obtained over $40 million in grant funding from the Virginia Department of Environmental Quality through the Stormwater Local Assistance Fund (SLAF) for 32 projects.

Clean Water Act designated impaired streams and Total Maximum Daily Loads (TMDLs)

As required by the federal Clean Water Act, every two years the VA Department of Environmental Quality (DEQ) prepares a list of water bodies in the commonwealth that have been listed as "impaired" for specific designated uses such as swimming, fishing, recreational contact, aquatic life use, and others. Many bodies of water in Fairfax County have been designated as being "impaired" under the federal Clean Water Act. For most of these bodies of water, a "Total Maximum Daily Load" (TMDL) must be prepared in order to identify pollutant load reductions that would be needed to remedy the impairment. To date, several TMDLs have been established for streams and embayments in the county. Impairments identified include bacteria (fecal coliform and/or E. coli); sediment (benthics); polychlorinated biphenyls (PCBs) and chloride. Through the requirements of the County's Municipal Separate Stormwater System (MS4) discharge these TMDL streams must have action plans developed which outline the measures the County will take to improve the conditions. The a list of current TMDL action plans, which include the impaired waters associated with each pollutant, is online.

For more information on impaired waters and the TMDL program, including an interactive map of TMDL and impaired waters in the County, please visit the VA Department of Environmental Quality's water quality web page.

Salt (Chloride) TMDL

There is growing regional and local concern about the amount of salt accumulating in our soils and entering our waterways and negatively impacting our water ecosystems. Data collected by DPWES Stormwater Planning along with other partners in the region, show increasing salinity in

County streams and water supplies. In 2018, Fairfax County, other Northern Virginia localities, organizations, and community groups assisted VDEQ with the development of the Salt Management Strategy to reduce the amount of salt entering our waterways. The county is working with the Metropolitan Washington Council of Governments (MWCOG) and Northern Virginia Regional Commission (NVRC) to distribute educational materials regarding salt application and management. The Salt Management Strategy will help Fairfax County to develop a chloride TMDL action plan for Accotink Creek as part of the county's next MS4 permit renewal (expected in 2023). For additional information on salt, please visit the Metropolitan Washington Council of Governments webpage on Winter Salt Smart.

Reston Stream Mitigation Bank

Beginning in 2008, over 11 miles of streams in Reston have been restored as part of a private stream mitigation bank. This is an ongoing project independent of county efforts. Additional information can be viewed online .

Flood Remediation/Reduction Programs in Belle Haven and Huntington

The New Alexandria, Belle View, and Riverview neighborhoods are susceptible to tidal flooding. Notably, tidal surges from Hurricane Isabel in 2003 caused extensive damage to the communities and posed a significant risk to the residents' safety. In 2022, the United States Army Corps of Engineers (USACE) completed the Metropolitan Washington Coastal Storm Risk Management Study and identified flood mitigation measures to protect the region. The Tentatively Selected Plan (TSP) included a levee and floodwall to reduce flood risk in the Belle Haven community. The USACE TSP completed a public and agency comment period. Due to the lack of community support the USACE will not be moving forward with TSP for the Belle Haven Community. The Climate and Energy chapter of this Annual Report on the Environment addresses these concerns from the perspective of climate resiliency and adaptation.

Flood Risk Reduction Program

The County has several active flood risk reduction activities and an ongoing interdepartmental effort to develop a comprehensive countywide flood risk reduction plan. DPWES currently manages 16 active flood mitigation projects, is modeling and mapping approximately 813 stream miles with County-regulated floodplains of 70 acres or more and is working with the Federal Emergency Management Agency to provide outreach on the updated Flood Insurance Rate Maps. Land Development Services developed a localized flooding mitigation policy for infill lot development and supported the creation and enhancement of GIS-based tools to help identify flood prone properties during the plan review process. DPD continues to encourage stormwater management practices above the regulatory requirements on properties going through the zoning application and development review process that are located upstream of known drainage issues. LDS issued a letter to industry about residential infill. Detention is now being required on single residential lots that are generating certain levels of runoff.

In July 2022, County departments presented to the Board of Supervisors Environmental Committee on recommended options to reduce flooding risks for existing and future

development. In that presentation it was noted that the county's flooding and drainage service requests indicate that urban flooding outside of the County's floodplains is a concern across many of the areas of the county; 97% of the service requests were urban flooding requests (located outside of floodplains). It is essential to consider both the delineation and protection of floodplains along with the flood mitigation efforts addressing urban flooding. The strategies in the Resilient Fairfax plan addres the issues of both floodplains and urban flooding.

The County often leverages resources and has obtained $15.4 million in funding for four flood mitigation projects from the VA Department of Conservation and Recreation through the Community Flood Preparedness Grant Program.

Stormwater Management Facilities and Infrastructure Maintenance and Repair

There are approximately 8,200 public and private stormwater management facilities in Fairfax County's inventory. Much of the inventory consists of ponds, manufactured (proprietary) devices, infiltration trenches, underground and rooftop detention facilities and sand filters. Other practices like bioretention gardens, swales, tree filters, permeable pavement and green roofs are referred to as green stormwater infrastructure (GSI). GSI requires a greater level of maintenance to ensure functionality. The county inspects county-owned structures biannually and public ones every five years. These inspection rates are consistent with the Municipal Separate Storm Sewer System (MS4) program requirements.

The Maintenance and Stormwater Management Division (MSMD) performs preventative maintenance on county-maintained stormwater facilities and inspections of 20 state regulated dams that are operated by DPWES. Critical items such as the stability of the dam embankment and the function of the water control structures are addressed on a priority basis. Routine items such as mowing are scheduled up to seven times per year. More information can be found at the DPWES website.

The county's storm drainage systems, valued at more than $1 billion, includes over 1,400 miles of pipes, 200 miles of constructed open conveyance channels, and almost 68,000 storm structures, some up to 80 years old. Approximately 7,000 county stormwater outfalls are regulated under the MS4 permit. MSMD continued implementation of its storm drainage condition assessment program consistent with the MS4 program requirement to inspect 100 percent of the county's storm drainage system once every five years and at least 15 percent annually. Restoration and rehabilitation of the system is ongoing. Information pertaining to the MS4 Program Plan and annual reports are online.

EQAC commends the Board of Supervisors for its actions in past years, initially authorizing one penny of the real estate tax to be dedicated to the stormwater management program in FY 2006 and establishing a Stormwater Service District in FY 2010 that is currently funded at 3.25 cents per $100 of assessed real estate value. Stormwater funding has increased from the original amount of $17.9 million for FY 2006 to $1,100.5 million for FY 2024.

The Board of Supervisors' actions to provide for annual quarter cent increases in the Stormwater Service District Tax rate have allowed the county's stormwater program to increase stormwater

infrastructure replacement, create a more comprehensive low impact development maintenance program and rehabilitate a number of older stormwater management dams as well as other critical components. The last rate increase from 3.00 cents to 3.25 per $100 of assessed real estate value occurred in FY 2019. The inventory of stormwater infrastructure continues to grow by approximately 500 stormwater management facilities and eight miles of pipe per year. In addition, much of the stormwater infrastructure in Fairfax County is reaching the end of its life cycle, and as the system ages it remains critical to maintain adequate inspection and rehabilitation programs to avoid infrastructure failures and ensure the functionality of stormwater treatment systems. and sustain current levels of service. It is also critical for the stormwater program to implement cost effective solutions such as trenchless pipe rehabilitation technologies, naturalized stormwater management facilities and partnerships with other county agencies such as Fairfax County Public Schools and the Fairfax County Park Authority to help protect and improve local streams. Additional funding is needed for maintenance dredging of publicly maintained lakes to sustain their environmental and recreational benefits.

In addition to supporting infrastructure reinvestment, the capital program funds critical capital projects from the watershed management plans including increasing numbers of flood mitigation projects; stormwater management pond retrofits; implementation of low impact development techniques; and stream restoration projects. It is important to note that these projects are necessary to address current community needs, mitigate the environmental impacts of erosion and comply with the county's MS4 permit. The benefits of these projects include reducing property damage due to flooding and erosion; reducing excessive sediment loading caused by erosion; improving the condition of streams; and reducing nutrient and sediment loads to local streams, the Potomac River, and the Chesapeake Bay. Additionally, they support the county's Environmental Vision and Strategic Plan.

Older suburban neighborhoods that were developed before the establishment of effective stormwater management regulations, including the requirements of stormwater conveyance, detention, and overland relief, may experience storm drainage issues. Lot-by-lot residential infill redevelopment, where an existing home is replaced by a larger home with more impervious area, generates additional stormwater flow that impacts the already inadequate stormwater management system. Over the next century, precipitation events are expected to become more intense, which is predicted to lead to more frequent flooding. Additional funding is needed to address neighborhood drainage improvement projects to reduce localized flooding and obtain water quality benefits in older neighborhoods that were developed without or limited stormwater management controls.

Erosion and Sediment Control Inspections, Stormwater Compliance Inspections

Erosion and sediment control (E&S) permits are issued by Fairfax County Land Development Services, authorizing disturbance of acres of land each fiscal year. E&S violation notices and stormwater violations are issued, and usually are resolved. For more information on how many inspections were conducted during the fiscal year, please see the MS4 Annual Report.

Virginia Department of Transportation Stormwater Treatment

Nearly 1,000 acres of impervious road surface area runoff are treated through a system of more than 200 stormwater basins and other measures throughout the county under the Virginia Department of Transportation's (VDOT's) Virginia Pollutant Discharge Elimination System (VPDES) General Permit (for discharge of stormwater from small MS4s within the urbanized areas of Virginia). Total maximum daily loads (TMDLs) have been developed for sediment, nitrogen, and phosphorus by the Virginia Department of Environmental Quality. Fairfax County continues to explore ways to partner with VDOT on potential stormwater management enhancements that go beyond minimum state regulations and better reflect the County's more stringent stormwater management requirements. Under the County Safety and Operation Improvement Fund (CSOI), VDOT partners with DPWES Stormwater to address maintenance level stormwater drainage projects. Recently, on the VDOT 495 Express Lanes Northern Extension project, VDOT provided funding to support the County's restoration of a segment of Scotts Run stream that will be impacted by the transportation improvements.

Outreach Activities

The County has numerous, award-winning watershed education and outreach programs and materials that are regularly utilized by the Fairfax County public school system and others. These programs include the Revitalize Restore, Replant! Program (R3), Stormy the Raindrop education campaign and Create a Caddisfly (for our younger residents), and the Stream Crime Investigation (SCI) and geomorphology labs designed for high school students. More information about these and many other programs can be found on the Stormwater Management website.

Staff from the Stormwater Planning Division, Solid Waste Management Program, Wastewater Management Program, Fairfax County Park Authority and the Northern Virginia Soil and Water Conservation District support large and small-scale volunteer cleanups coordinated by the Alice Ferguson Foundation, Clean Virginia Waterways and Clean Fairfax.

In 2019 a new partnership was initiated between DPWES and the Office to Prevent and End Homelessness (OPEH) to benefit the environment and provide assistance for individuals experiencing homelessness. Operation Stream Shield provides part-time, temporary work experience to guests of four of the county's homeless shelters to help improve the water quality of local streams. The program helps the county meet its mandate to keeping streams clean through the removal of litter and non-native invasive plant species, maintaining the county's pedestrian trail system, providing assistance to the county's Noman M. Cole, Jr., Pollution Control Plant, I-66 Transfer Station, and the I-95 Landfill Complex, and engaging in assigned special projects as they become available.

Northern Virginia Soil and Water Conservation District Support Programs

- Review and approve Soil and Water Quality Conservation Plans (SWQCPs) to renew existing Agricultural and Forestal (A&F) Districts.
- Assist homeowner associations, civic associations, and places of worship in resolution of drainage and erosion concerns as well as the promotion of energy efficient practices. Also,with funds provided by DPWES provide ongoing technical assistance to private

property owners with funding from the Virginia Conservation Assistance Program and the Conservation Assistance Program to implement the proposed water quality solutions.
- Organize storm drain marking efforts with colorful and watershed-specific labels stating, "No Dumping, Drains to [the nearby stream]."

RECOMMENDATIONS – PROTECTING AND RESTORING STREAMS, PONDS, AND LAKES

The Scorecard for this ARE contains the following recommendations pertaining to this subchapter. Please see the Scorecard for details.

5. Recommendation: 3C-W-2022.1 ***Increase funding for the stormwater Program be either by an increase in the Stormwater Service District rate in FY 2024 by at least one-quarter penny, from a rate of 3.25 cents per $100 assessed real estate value to 3.50 cents per $100 or that the increase occurs through a change in the tax rate.***

FIGURES

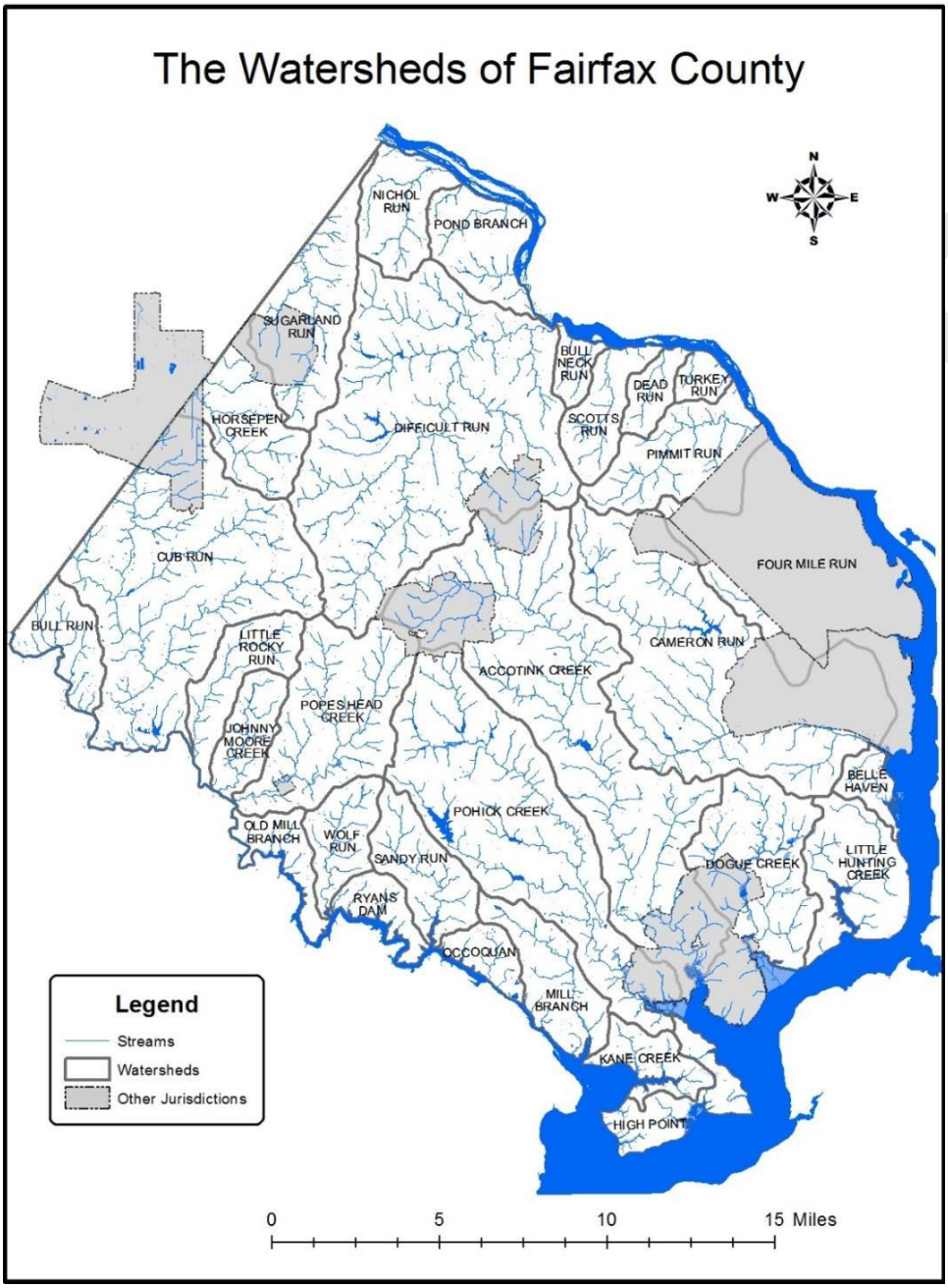

Figure 3-1. Watersheds of Fairfax County

Alt Text: *Map showing watersheds in Fairfax County. 30 named watersheds are shown, though not all are entirely within the County.*

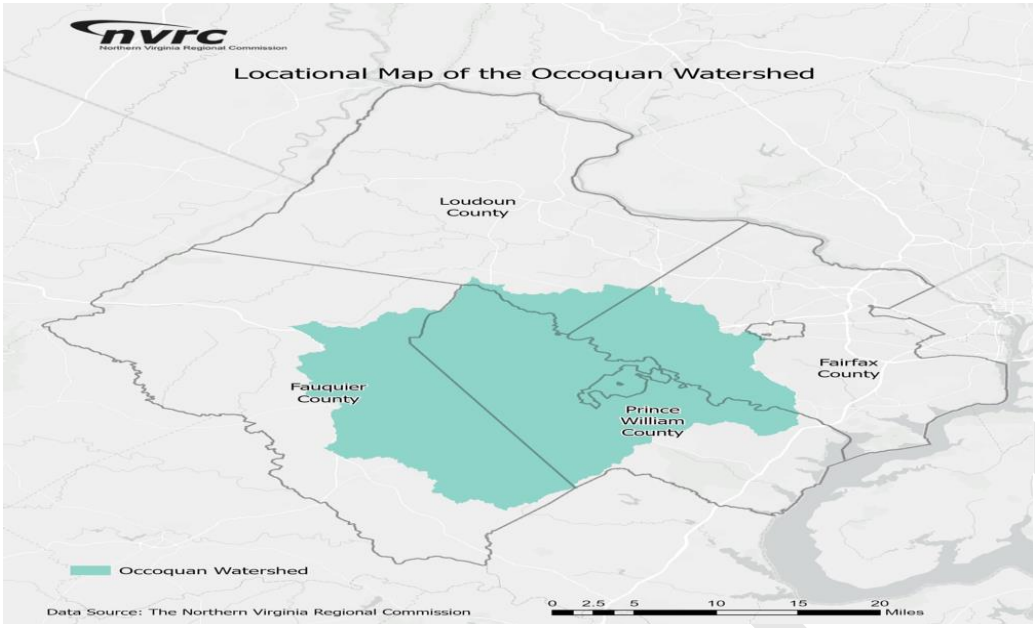

Figure 3-2: Locational Map of the Occoquan Watershed
Source: The Northern Virginia Regional Commission

Alt text, Figure 3-2. *Map showing the location of the Occoquan Watershed, covering parts of Fairfax, Prince William, Fauquier, and Loudoun Counties, and some internal jurisdictions.*

Figure 3-3: Examples of a healthy stream (left) well-connected to its floodplain, and a incised stream (right) separated from its floodplain.
***Source*:** *Photos provided by the Fairfax County Department of Public Works and Environmental Services.*

Figure 3-3 alt text: *Two photos. The one on the left shows a healthy stream well-connected to its floodplain. The stream on the right is incised into its stream bed and separated from its floodplain.*

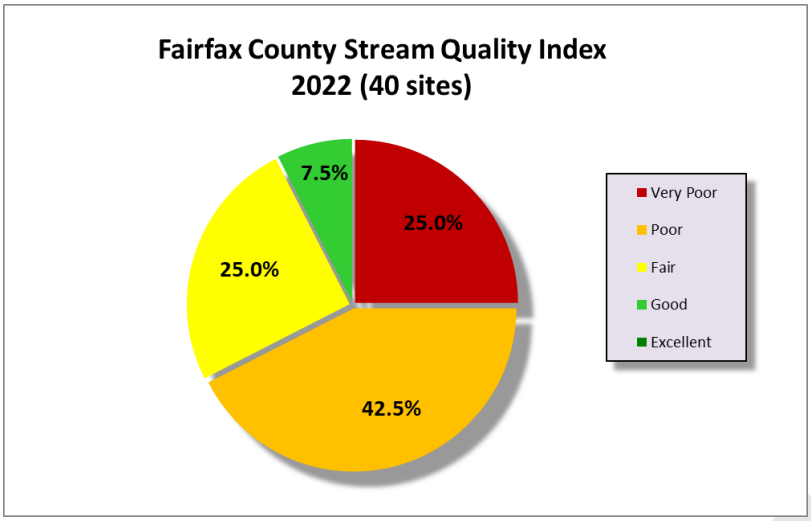

Figure 3-4. 2022 Fairfax County Stream Quality Index

Alt text: Pie chart of the 2022 Stream Quality Index: 25.0% very poor, 42.5% poor, 25.0% fair, 7.5% good, 0% excellent.

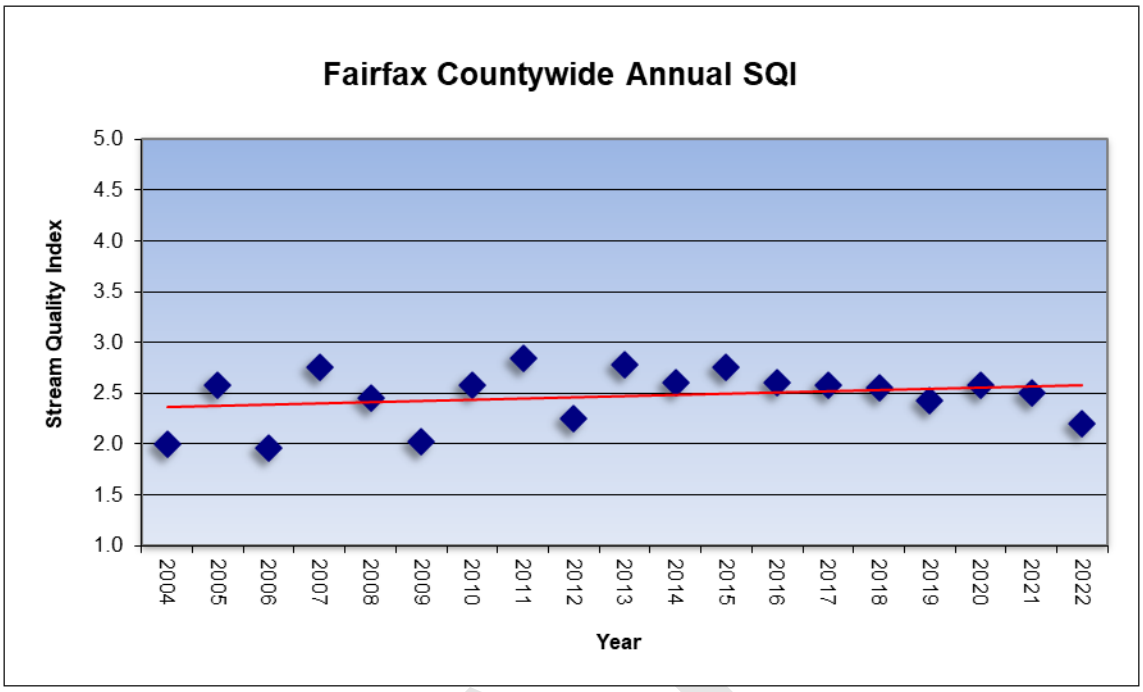

Figure 3-5. Countywide Stream Quality Index (SQI) 2004-2022.

Alt. text: Graph showing the Stream Quality Index for each year, 2024-2022. The values range from 2.0 and 2.9, with somewhat more dispersal before 2013. A linear trend line shows an increase from about 2.4 to 2.6 over the period.

SCORECARD ELEMENTS

	Water *Five Recommendations in 2022*	**Summary of Action Taken by Agency or Department**	**Status / EQAC Comments**
1	*Recommendation: 3A-W-2021.1* **Continue and enhance the protection of the Occoquan Reservoir, as needed.**	Unlike the vastly larger Potomac Watershed, the Occoquan water supply is very susceptible to pollutants introduced by local jurisdictions. There has been an effort by the BOS to look at consequences of additional data centers.	Status: Making some small Progress.
2	*Recommendation: 3A-W-2021.2* **Fund monitoring and modeling of emerging contaminants such as PFAS and of the rising sodium levels in the Occoquan Reservoir**	The Occoquan Watershed Monitoring Lab budget was increased around 2019. However additional increased budget allocations will be needed for the lab to continue to look to adequately address emerging contaminants and salts. Included in this need are next-generation water quality modeling tools (e.g., real-time interactive models to provide rapid answers to "what if" scenarios, and support strategic policy decisionsal. Dr Grant of OWML and Norm Goulet of NVRC have laid the foundational work for this work.	Status: Need funding to continue the work required. [ICON]
3	*Recommendation: 3B-W-2021.1* **Set the fee rate collected for wastewater treatment to meet the documented needs of the necessary upgrades and maintenance requirements for all the plants that serve the county and their respective wastewater collection system. This may include**	Funding of the wastewater program by increasing sewer fees is essential to successful operation and maintenance of the sewer system.	Status: ????

	Water *Five Recommendations in 2022*	**Summary of Action Taken by Agency or Department**	**Status / EQAC Comments**
	the necessary increases to hire and retain adequate wastewater personnel.		
4	*Recommendation: 3B-W-2021.2* **Continue aggressive public education and monitoring of the new alternate septic systems performance**	Homeowners may not be aware of their responsibilities for maintaining these systems. Education from the private sector and government sector, including both Fairfax County Department of Public Works and Environmental Services and the Health Department, is essential to prevent a high failure rate of the new more complex systems.	on-going
5	*Recommendation: 3C-W-2022.1* **Increase funding for the stormwater Program be either by an increase in the Stormwater Service District rate in FY 2024 by at least one-quarter penny, from a rate of 3.25 cents per $100 assessed real estate value to 3.50 cents per $100 or that the increase occurs through a change in the tax rate.**	The inventory of stormwater infrastructure continues to grow by approximately 500 stormwater management facilities and eight miles of pipe per year. In addition, much of the stormwater infrastructure in Fairfax County is reaching the end of its life cycle, and as the system ages it remains critical to maintain adequate inspection and rehabilitation programs to avoid infrastructure failures and ensure the functionality of stormwater treatment systems. and sustain current levels of service.	Status: continuing  The last rate increase from 3.00 cents to 3.25 per $100 of assessed real estate value occurred in FY 2019.