

5 Virginia Department of Environmental Quality 2006 Draft Impaired Waters Listings for Fairfax County

In August, the Virginia Department of Environmental Quality (VDEQ) released the draft 2006 Water Quality Assessment Integrated Report, which is a summary of the water quality conditions in Virginia from January 1, 2000, to December 31, 2004. The goals of Virginia's water quality assessment program are to determine whether water bodies meet water quality standards and then design and implement a plan to restore waters with impaired water quality. Water quality standards designate uses for waters and define the water quality needed to support each use. There are six designated uses for surface waters in Virginia: aquatic life, fish consumption, shellfish consumption, swimming, public water supplies (where applicable), and wildlife. Several new subcategories of the aquatic life use have been adopted for estuarine waters of the Chesapeake Bay and its tidal tributaries. If a water body contains more contamination than allowed by water quality standards, it will not support one or more of its designated uses. Such waters have "impaired" water quality and are listed on Virginia's 303(d) list as required under the Clean Water Act.

Once a water body has been listed as impaired, a Total Maximum Daily Load (TMDL) report identifying the sources causing the water quality problem and the reductions needed to resolve it must be developed by VDEQ and submitted to the United States Environmental Protection Agency (EPA) for approval. Upon approval, state law requires the Virginia Department of Conservation and Recreation (DCR) to develop a TMDL Implementation Plan outlining both point and non-point source controls needed to restore water quality. These specific controls may be incorporated into any Virginia Pollutant Discharge Elimination System (VPDES) permits identified as contributing to the water quality impairment. These permits are issued by VDEQ under the VPDES system and are used to regulate the inputs of pollution into receiving waters. The county holds a Municipal Separate Storm Sewer System (MS4) permit, which regulates the non-point source pollution entering receiving water bodies through the county's storm sewer system. Once specific controls are incorporated into a VPDES permit, these controls become mandatory.

The assessment and listing processes are based on water quality monitoring, which has been ongoing in Virginia for decades. In 1997, the Virginia General Assembly enacted the Water Quality Monitoring, Information, and Restoration Act (WQMIRA), which provides the VDEQ with a mandate to perform a minimum amount of water quality monitoring. The development and implementation of the Water Quality Monitoring Strategy in 2000 and its revision in 2004 have transformed Virginia's ambient monitoring program into a multilayered monitoring network that is designed to produce representative, high-quality data to support the evaluation, restoration, and protection of water quality for the purposes of fishing, swimming, boating, drinking, and the propagation and growth of a balanced, indigenous, healthy, natural ecosystem.

In order to achieve this goal, VDEQ has established a series of specific objectives to identify and define the diverse functions of its Water Quality Monitoring Program. These objectives include:

1. Assessment and remediation objectives to support the characterization of existing conditions, the identification and remediation of impaired waters, and the assessment and forecasting of trends in water quality.
2. Permit objectives to allow the calculation of permit limits and the evaluation of permit compliance.
3. Efficiency objectives to minimize any duplication of effort, increase the use of biological monitoring, investigate, identify and characterize additional avenues of water quality impairment, and guarantee adequate Quality Assurance/Quality Control (QA/QC) procedures.
4. Research objectives to provide data to validate special stream or site designations, evaluate new sampling methodologies, and provide data for other research objectives.

Virginia's monitoring network and special studies includes the following programs:

- WATERSHED (AW): VDEQ's ambient watershed network of stations represents the largest single section of the monitoring program.
- COASTAL 2000 (C2): Coastal 2000 is the federally funded tidal probabilistic program designed by U.S. EPA and sampled by VDEQ staff.
- CHESAPEAKE BAY (CB): Chesapeake Bay Program designed through the Federal Interstate Chesapeake Bay Program and encompassing a multi-state water quality characterization effort.
- CITIZEN MONITORING (CM): These stations are monitored due to specific requests from the public, usually as a result of local concerns.
- FACILITY INSPECTION (FI): Facility inspections are not specifically identified in the water quality monitoring strategy but are integral to determining compliance with discharge limits.
- FRESHWATER PROBABILISTIC (FP): The freshwater probabilistic monitoring program covers the non-tidal, free-flowing waters of the state and is designed to help determine the overall water quality of free flowing streams in Virginia.
- FISH TISSUE (FT): The fish tissue and sediment monitoring program is conducted by central office staff from the Office of Water Quality Standards.

- MERCURY (HG): The mercury Special Study Program is paid for by the responsible parties.
- POLLUTION COMPLAINTS (PC): Pollution complaints are special samples collected generally as a result of a petroleum spill.
- INCIDENT RESPONSE (IR): Incident response samples are the same as PC but are non-petroleum in origin.
- REGIONAL BIOLOGICAL (RB): The biological monitoring program focuses on the analysis of the benthic macroinvertebrate community as a tool to detect water quality conditions.
- RESERVOIR MONITORING (RL): Reservoir monitoring is described in the Lake Monitoring Guidance 3 available at <http://www.deq.virginia.gov/waterguidance/pdf/022004.pdf>.
- SPECIAL STUDIES (SS): Special studies are identified by individual project plans and are generally specialized intensive targeted monitoring efforts designed to answer specific hypotheses related to water quality conditions.
- TMDL (TM): TMDL monitoring stations are those stations associated with the development of a TMDL and subsequent implementation plan for segments listed as impaired.
- TREND (TR): Trend stations are long term stations sited for permanent monitoring for the purpose of detecting water quality trends for a wide variety of environmentally important water quality parameters.
- CARRYOVER (TW): Carryover stations have insufficient data for assessment and will be sampled until sufficient data is available to determine the water quality conditions.

A summary of the number of water bodies identified as impaired for both the 2004 and 2006 assessment periods is presented in Table 5. Table 6 presents more detail on the 2006 list of impaired waters, including the impacted use and related water quality standard for each water body. Figure 24 shows the location of all impaired water bodies within Fairfax County. Figures 25, 26 and 27 show the location of impairments based on the impacted designated use including aquatic life, fish consumption and recreational contact impairments.

Additional information on VDEQ's water quality program and 2006 report is available at:

<http://www.deq.state.va.us/water/>

Table 5: Summary of Impaired Waters in Fairfax County for 2004 and 2006

WATER TYPE	WATER NAME	NUMBER OF IMPAIRMENTS IN 2004	NUMBER OF NEW IMPAIRMENTS IN 2006	TOTAL NUMBER OF IMPAIRMENTS IN 2006
Estuarine	Accotink Bay	1	2	3
	Belmont Bay	1	2	3
	Belmont Bay (Occoquan River)		3	3
	Dogue Creek	1	3	4
	Four Mile Run	3	2	5
	Gunston Cove	1	2	3
	Hunting Creek/Potomac River/Belle Haven	1	3	4
	Little Hunting Creek	1	3	4
	Occoquan Bay	2	4	6
	Occoquan Bay/Belmont Bay	2	4	6
	Occoquan River	2	2	4
	Pohick Bay	2	6	8
	Total Estuarine Waters	11	1	12
	Total Estuarine Impairments	17	36	53
	Reservoir	Occoquan Reservoir	1	
Riverine	Accotink Creek	3		3
	Backlick Run	1		1
	Broad Run		4	4
	Bull Run	3	3	6
	Cameron Run/Hunting Creek		1	1
	Cub Run		1	1
	Difficult Run	2	4	6
	Elklick Run		2	2
	Holmes Run	2		2
	Indian Run		1	1
	Mills Branch	1		1
	Mine Run		1	1
	Pimmit Run	3	4	7
	Pohick Creek	2	2	4
	Popes Head Creek	1	1	2
	Snakeden Branch		1	1
	Sugarland Run		2	2
	Tripps Run	1		1
	Wolf Run		1	1
	Total Riverine Waters	10	9	19
	Total Riverine Impairments	19	28	47
Total Waters With Impairments		22	10	32
Total Impairments		37	64	101

Table 6: Summary of 2006 VDEQ list of impaired waters in Fairfax County

WATER TYPE	WATER BODY NAME	SEGMENT ID	Aquatic Life			Fish Consumption				Recreation		Total	Units		
			Sub-merged Aquatic Plants	Benthic	Estuarine Bio-Assessment	Dissolved Oxygen	pH	Benzofluoranthene	Chlor-dane	Hepta-chlor epoxide	PCB in Fish Tissue			E. coli	Fecal Coliform
Estuarine	Accotink Bay	IVAN-A15E_ACO01A06	0.3										0.3	Sq. Mi.	
	Belmont Bay	IVAN-A25E_OCC04A02	0.4										0.4	Sq. Mi.	
	Belmont Bay (Ocoquan)	IVAN-A23E_OCC09A04	0.4		0.4								0.4	Sq. Mi.	
	Dogue Creek	IVAN-A14E_DOU01A00	0.7										0.7	Sq. Mi.	
	Fournille Run	IVAN-A12E_FOU01A00	0.1								0.1		0.1	Sq. Mi.	
	Gurston Cove	IVAN-A15E_POH01A00	1.5										1.5	Sq. Mi.	
	Hunting Creek/Potomac	IVAN-A13E_HUT01A02	1.3								1.3		1.3	Sq. Mi.	
	Little Hunting Creek	IVAN-A14E_LIF01A00	0.2								0.2		0.2	Sq. Mi.	
	Ocoquan Bay	IVAN-A25E_OCC01A04	0.5										0.5	Sq. Mi.	
	Ocoquan Bay/Belmont B	IVAN-A25E_OCC02A00	0.6			0.6							0.6	Sq. Mi.	
	Ocoquan River	IVAN-A25E_OCC20A02	5.4										5.4	Sq. Mi.	
	Pohick Bay	IVAN-A25E_POT20A02	0.2										0.2	Sq. Mi.	
			IVAN-A15E_POH02A00	0.6									0.6	Sq. Mi.	
			IVAN-A16E_POH01A06	0.3									0.3	Sq. Mi.	
	Estuarine Total			12.6	0.0	0.4	0.0	0.0	0.0	0.0	11.7	1.6	1.7	12.6	Sq. Mi.
	Reservoir	Ocoquan Reservoir	IVAN-A24L_OCC01A02	0.0	0.0	0.0	1,327.5	0.0	0.0	0.0	0.0	0.0	0.0	1,327.5	Acres
Reservoir Total			0.0	0.0	0.0	1,327.5	0.0	0.0	0.0	0.0	0.0	0.0	1,327.5	Acres	
Riverine	Accotink Creek	IVAN-A15R_ACO01A00		7.9										7.9	Miles
	Backlick Run	IVAN-A15R_ACO04A02									1.2			1.2	Miles
	Broad Run	IVAN-A13R_BAL01A00												6.5	Miles
		IVAN-A09R_BRB01A00		2.9										2.9	Miles
		IVAN-A09R_BRB02A06												2.2	Miles
		IVAN-A09R_BRB03A06												1.1	Miles
	Bull Run	IVAN-A21R_BUL01A06												0.2	Miles
		IVAN-A21R_BUL01B06												2.5	Miles
		IVAN-A23R_BUL01B04												0.9	Miles
		IVAN-A23R_BUL02A02												4.8	Miles
	Cameron Run/Hunting Cr	IVAN-A13R_CAM01A04		4.8										4.8	Miles
	Cub Run	IVAN-A22R_CUB01A00												2.0	Miles
	Difficult Run	IVAN-A11R_DIF01A00												6.7	Miles
		IVAN-A11R_DIF01B06		2.9										2.9	Miles
		IVAN-A11R_DIF03A02												1.0	Miles
	Ellick Run	IVAN-A22R_ELC01A04												2.2	Miles
	Holmes Run	IVAN-A13R_HOR01A00												2.2	Miles
	Indian Run	IVAN-A13R_HOR01B00		5.8										3.6	Miles
	Mills Branch	IVAN-A14R_INA01A06												2.9	Miles
	Mine Run	IVAN-A25R_WLB01A02												2.9	Miles
	Pimmit Run	IVAN-A12R_PIM01A00												1.7	Miles
		IVAN-A12R_PIM02A00												1.6	Miles
	IVAN-A12R_PIM02B06												2.5	Miles	
Pohick Creek	IVAN-A16R_POH01A00												3.2	Miles	
	IVAN-A16R_POH03A04												3.3	Miles	
Popes Head Creek	IVAN-A23R_POE01A00		4.9										1.5	Miles	
Snakeden Branch	IVAN-A11R_SNA01A02												0.9	Miles	
Sugarland Run	IVAN-A10R_SUG01A00												4.9	Miles	
	IVAN-A10R_SUG01B06												0.8	Miles	
Tripps Run	IVAN-A10R_SUG01B06												4.7	Miles	
Wolf Run	IVAN-A13R_TRI01A00												1.0	Miles	
	IVAN-A24R_WOL01A06		0.0	31.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	Miles	
Riverine Total			0.0	0.0	0.0	0.0	0.0	1.6	4.6	28.8	37.7	34.1	91.4	Miles	

2006 VA DEQ Impaired Waters - Fairfax County

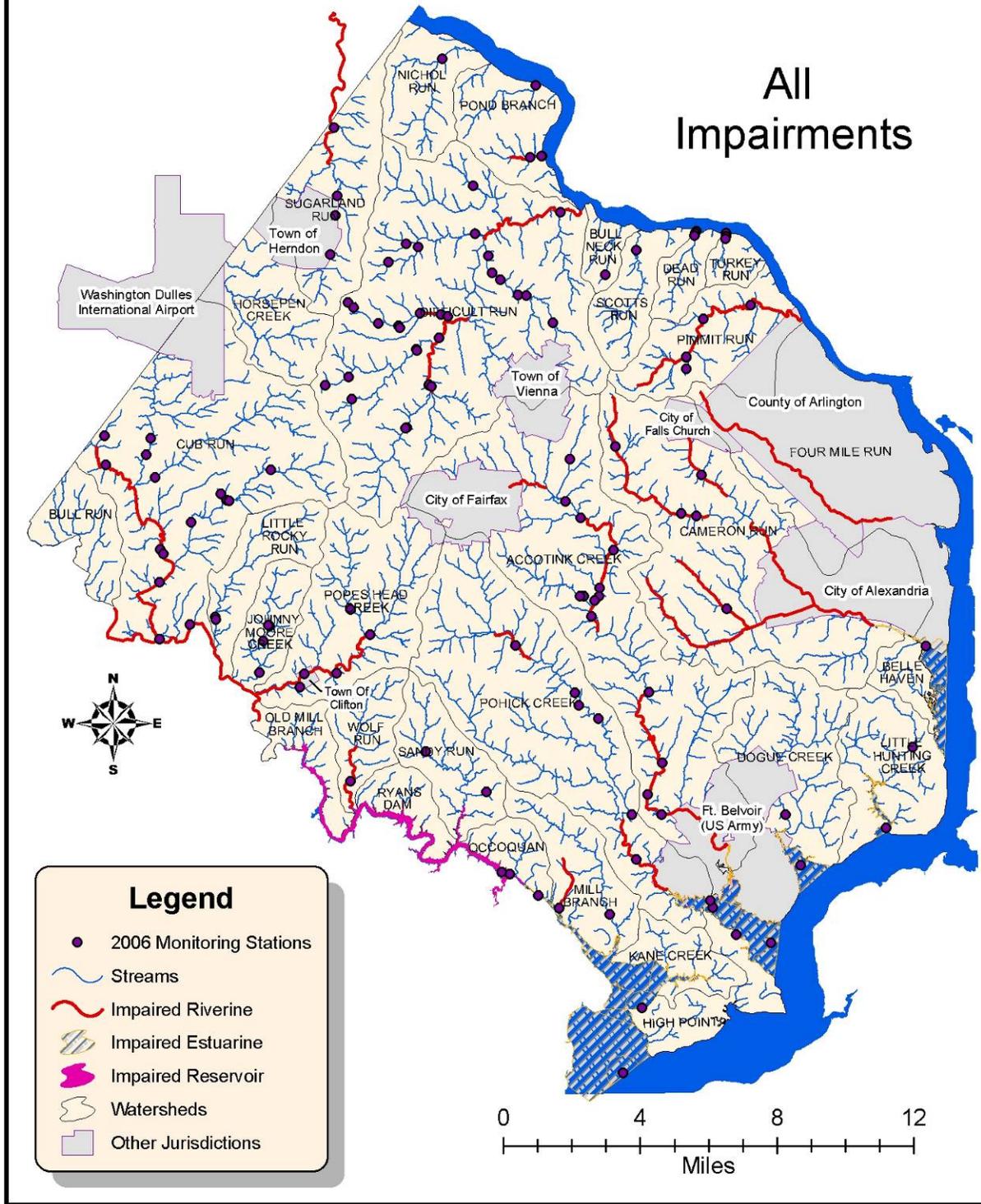


Figure 24: All Impaired waters within Fairfax County as listed on the State of Virginia's 2006 draft 303(d) report to US EPA - per the Clean Water Act mandate(s)
 2006 Annual Report on Fairfax County's Streams
 Stormwater Planning Division, DPWES

2006 VA DEQ Impaired Waters - Fairfax County

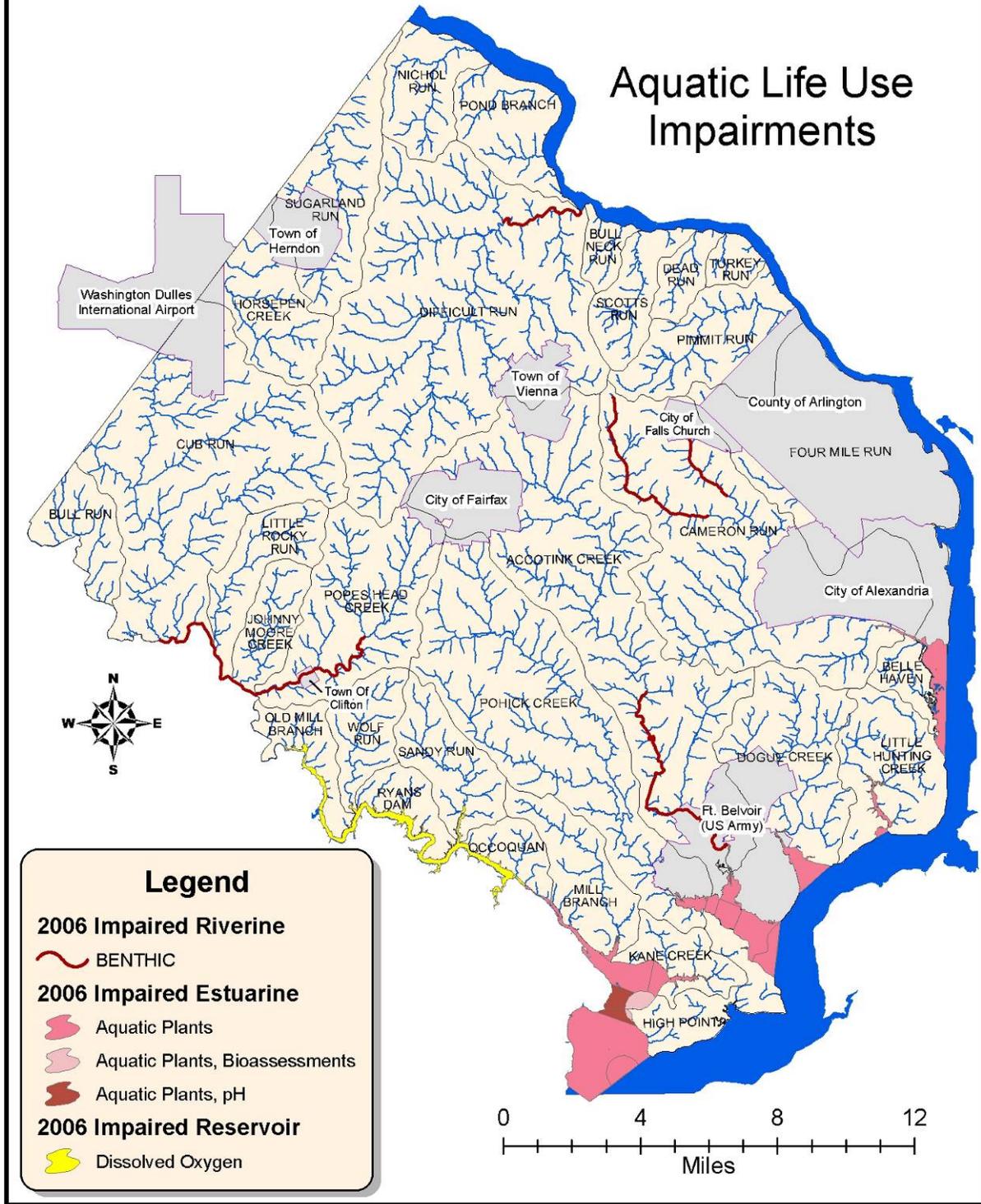


Figure 25: Waters designated as impaired for aquatic life uses within Fairfax County (as listed on the State of Virginia's 2006 draft 303(d) report to US EPA)

2006 Annual Report on Fairfax County's Streams
Stormwater Planning Division, DPWES

2006 VA DEQ Impaired Waters - Fairfax County

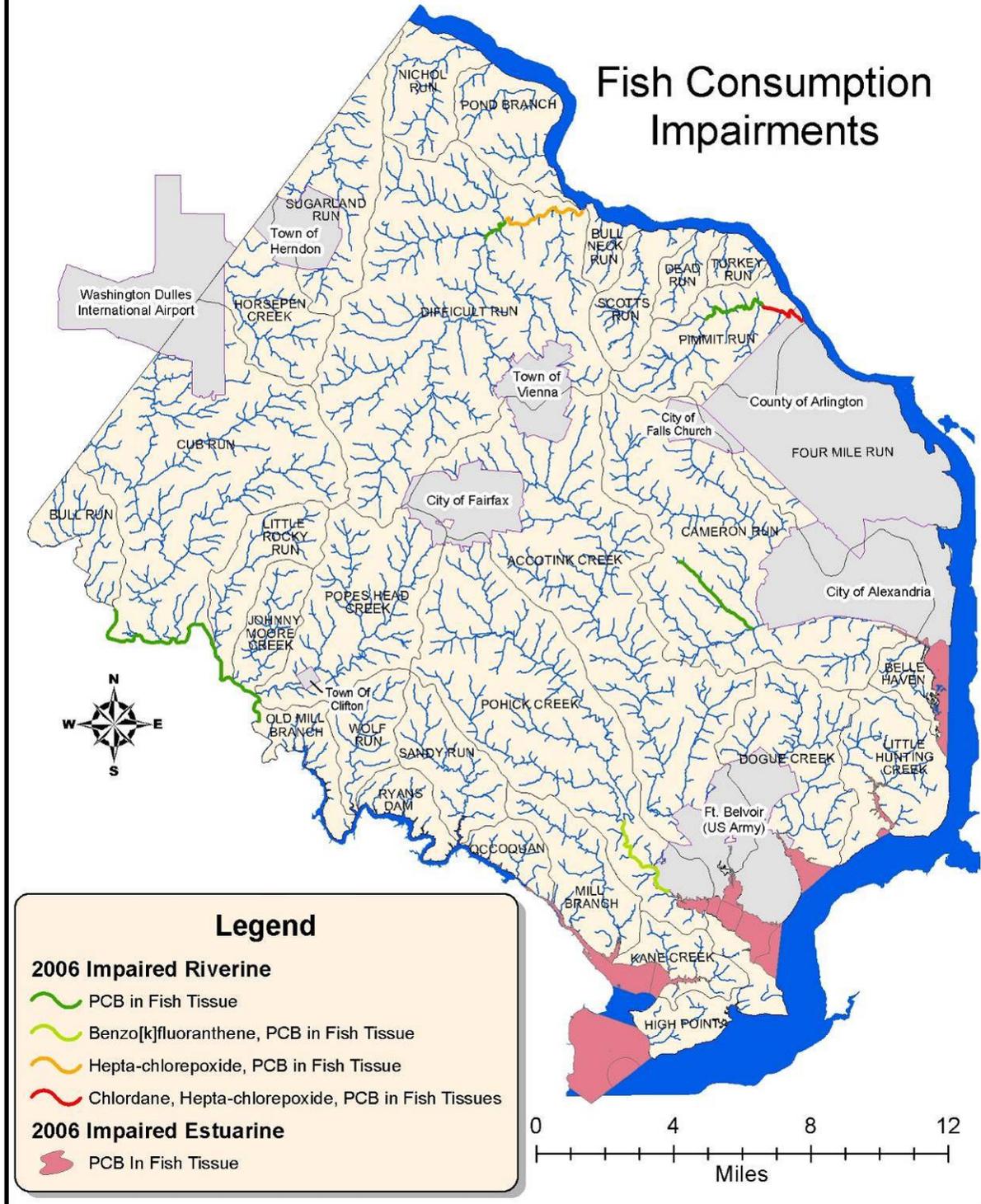


Figure 26: Fairfax County waters designated as impaired for fish consumption use (as listed on the State of Virginia’s 2006 draft 303(d) report to US EPA)

2006 Annual Report on Fairfax County’s Streams
 Stormwater Planning Division, DPWES

2006 VA DEQ Impaired Waters - Fairfax County

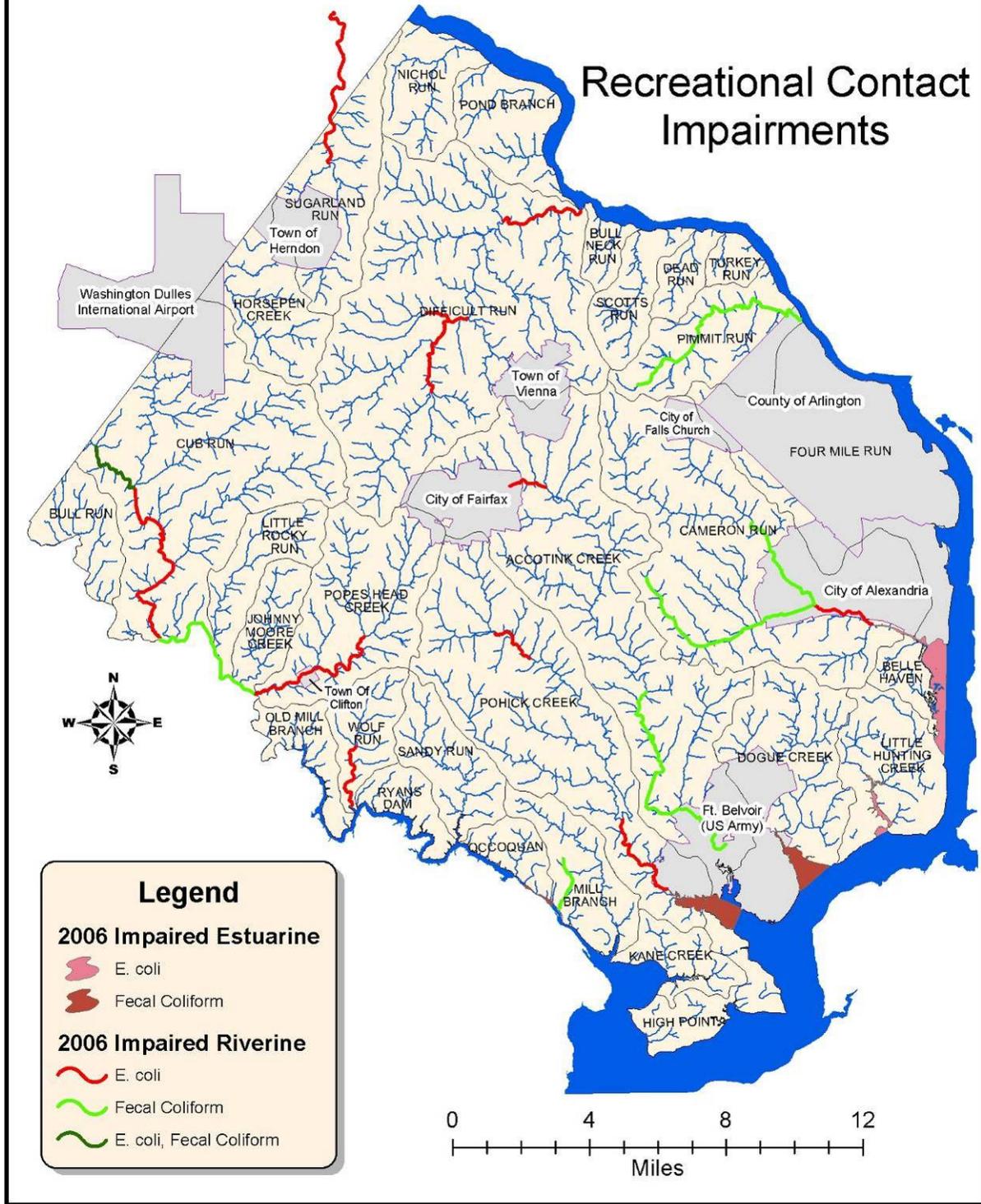


Figure 27: Fairfax County waters designated as impaired for recreational contact use (as listed on the State of Virginia’s 2006 draft 303(d) report to US EPA)

2006 Annual Report on Fairfax County’s Streams
Stormwater Planning Division, DPWES