Prince George’s County, MD Polychlorinated Biphenyls (PCBs) Total Maximum Daily Load (TMDL) Stormwater Wasteload Allocation (SW-WLA) Watershed Implementation Plan

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Abbreviations and Acronyms

BIBI	Benthic Index of Biotic Integrity
BMI	Brownfield Master Inventory
BMP	best management practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COMAR	Code of Maryland Regulations
CFR	Code of Federal Regulations
CSO	combined sewer overflow
CWA	Clean Water Act
DoE	[Prince George's County] Department of the Environment
EPA	[U.S.] Environmental Protection Agency
EIA	[U.S] Energy Information Administration
GIS	geographic information system
HLI	Historic Landfill Initiatives
LA	load allocation
LBC	Lower Beaverdam Creek
LRP	Land Restoration Program
MD DNR	Maryland Department of Natural Resources
MDE	Maryland Department of the Environment
MDP	Maryland Department of Planning
mg/kg	milligrams per kilogram
MOS	margin of safety
MS4	municipal separate storm sewer system
ng/g	nanograms per gram
ng/L	nanograms per liter
NEB	Northeast Branch [of the Anacostia River]
NPDES	National Pollutant Discharge Elimination System
NRC	National Response Center
NWB	Northwest Branch [of the Anacostia River]
PADS	PCB Activity Database System
PAXMH	Patuxent River Mesohaline
PAXOH	Patuxent River Oligohaline
PAXTF	Patuxent River Tidal Fresh
PCB	polychlorinated biphenyl
PE	polyethylene
ppb	parts per billion
ppm	parts per million
ppt	parts per trillion
QAPP	quality assurance project plan
SAP	sampling and analysis plan

SHA	[Maryland] State Highway Administration
SIC	Standard Industrial Classification
SSO	sanitary sewer overflow
SW-WLA	stormwater-wasteload allocation
TD	trackdown
TMDL	total maximum daily load
TRI	Toxic Release Inventory
WIP	Watershed Implementation Plan
WLA	wasteload allocation
WWTP	wastewater treatment plant

1. Introduction

On December 2, 2022, the Maryland Department of the Environment (MDE) issued Prince George's County (the County) its fifth-generation permit (Permit Number: 20-DP-3314 MD0068284) for its National Pollutant Discharge Elimination System (NPDES) municipal separate storm sewer system (MS4), which is a series of stormwater sewers owned by a municipal entity (e.g., the County) that discharges the conveyed stormwater runoff into a waterbody (e.g., Piscataway Creek). The permit covers the period of December 2, 2022, through December 1, 2027. MS4 permits are generally issued in five-year cycles enabling regulators and permit holders to adjust permit objectives and expectations.

The 2022 MS4 permit requires that the County develop local restoration plans to address each U.S. Environmental Protection Agency (EPA)-approved total maximum daily load (TMDL) with a stormwater wasteload allocation (WLA). A TMDL can be seen as a *pollution diet* in that it is the maximum amount of a pollutant that a water body can assimilate and still meet water quality standards and designated uses. The WLA is the portion of the TMDL that is allocated to permitted dischargers such as wastewater treatment plants or MS4s.

This stormwater wasteload allocation (SW-WLA) Watershed Implementation Plan (WIP) covers the SW-WLA assigned to the County's MS4 for polychlorinated biphenyl (PCB) impairments in the Anacostia River, Patuxent River, and Potomac River watersheds. A WIP is a strategy for managing the natural resources within a geographically defined watershed.

The MS4 permit discusses PCBs in Part IV.G.3 (Assessment of Controls, PCB Source Tracking).

> *Within one year of permit issuance, Prince George's County shall develop a PCB source tracking monitoring plan for all applicable TMDL WLAs where watershed reductions are required to meet water quality standards. The County shall submit results and provide updates annually on the monitoring efforts.*

PCBs belong to the toxic substances group that is regulated by MDE; this includes all known site activities that might have been under MDE's review and regulatory permitting and enforcement. The MS4 permit stipulates that the County must develop additional implementation plans within one year of the EPA approval or establishment of a new TMDL. In the case of PCBs, the WIP must be submitted to MDE *within two years of the publication of MDE PCB planning guidance,* which was released in August 2022, therefore this WIP is due to MDE by August 2024 (MDE 2022a). As of January 1, 2023, there are multiple EPA-approved PCB TMDLs in the County (Figure 1). Local TMDL restoration plans for PCBs were previously developed in 2014 for the County portions of the watersheds associated with the Anacostia River, Mattawoman Creek, Piscataway Creek, and Potomac River watersheds and, in 2019, for the County portions of the tidal Patuxent River watershed.

MDE's August 2022 *Guidance for Developing Local PCB TMDL (Total Maximum Daily Load) Stormwater Wasteload Allocation (SW-WLA) Watershed Implementation Plans* (MDE 2022a) provides guidance on how to perform source tracking monitoring or tracking down the exact location of PCB pollution sources, which is the focus of this PCB TMDL WIP. This work will be conducted through phases in the current MS4 permit and across subsequent permits. The PCB source tracking effort by the County will supply source tracking information to MDE for State regulatory action on potential source locations of known or unknown PCB impairments on properties. The County expects MDE to supply the County with the status and updates of such State actions of known PCB sites. It is not a requirement that jurisdictions develop models to estimate load reductions within PCB impaired watersheds nor assign an exact end-date to when WLAs will be achieved.

The 2022 MDE Guidance lists the Anacostia River, Patuxent River, and Potomac River watersheds as requiring PCB TMDL SW-WLAs. For the Patuxent River watershed, only the tidal fresh portion has SW-WLA reductions. Specifically, the Mesohaline and Oligohaline portions of the Patuxent watershed have a 0% reduction. For the Potomac River watershed, MDE guidance only requires reductions to the Oxon Run and upper tidal portions of this watershed. There are two TMDLs covering PCBs in the Piscataway and Mattawoman watersheds (emptying into the tidal Potomac). The first TMDL concerns the Tidal Potomac and Anacostia River PCB TMDL (the Potomac and Anacostia rivers merge near Hain's Point). This TMDL applied a 5% reduction for both watersheds. The second, separate PCB TMDL directly applies to the Piscataway and Mattawoman watersheds with a similar 5% reduction. Both TMDLs concluded that the proposed 93% reduction in atmospheric deposition of PCBs should adequately address reductions in the MS4 stormwater loads, which do not need to be addressed directly. Similarly, the middle tidal portion of the Potomac River watershed only has a 5% reduction, which is also covered by atmospheric deposition.

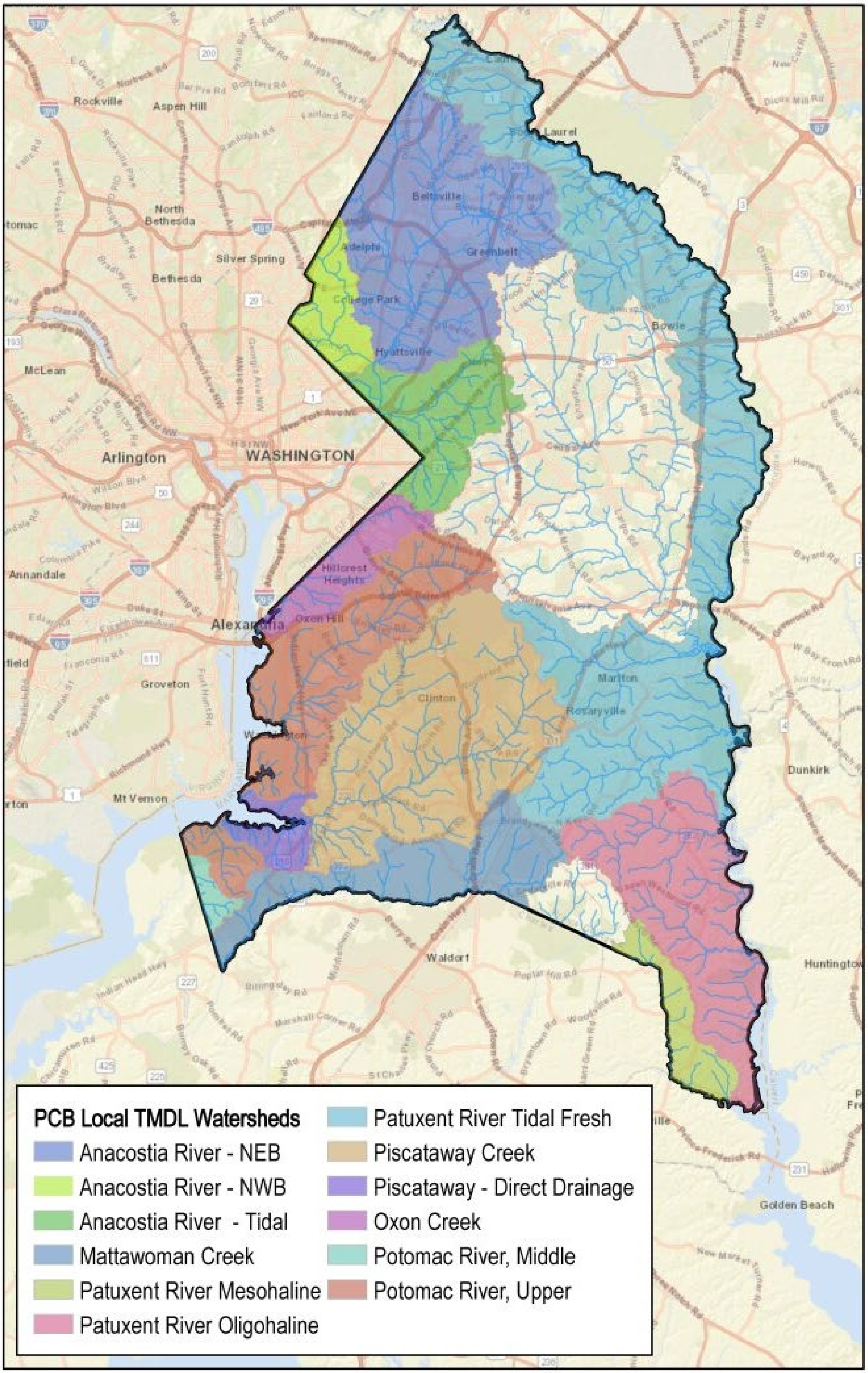

Figure 1. PCB-impaired and Listed Watersheds in Prince George's County, MD with TMDLs.

This strategy document is organized in the following sections:

- Section 1: Introduction
  - Definition of TMDL and the related WIP, specific water quality impairments, water quality standards, designated uses, PCB TMDLs in the County, and existing water quality data.
- Section 2: 2022 MDE PCB WIP Guidance & Requirements
  - Review of MDE WIP guidelines and methodologies for PCB source assessment and trackdown, including required and recommended elements.
- Section 3: PCB Source Assessment
  - Review of all the data sets needed for all desktop phases of the PCB source assessment.
- Section 4: Subwatershed Prioritization
  - Discussion of the subwatershed prioritization approach, along with both tiers and risk values for potential sources.
- Section 5: Multi-Phase Trackdown Investigations Methodology
  - Summary of the investigation methodology for each phase of the trackdown investigation, along with how to interpret these monitoring results.
- Section 6: Adaptive Approach and Reporting
  - Description of the County's adaptive management program, annual reporting, and trackdown timeline.
- Section 7: References
- Appendix A: Results of Subwatershed Prioritization
  - Factsheets for each main watershed with the Phase I source assessment results and subwatershed prioritization.
- Appendix B: Other Agency Activity in Lower Beaverdam Creek
  - Description of activities by EPA in the Lower Beaverdam Creek subwatershed.

1.1. Purpose of Report and WIPs

1.1.1. What is a TMDL?

Section 303(d) of the Clean Water Act (CWA) and EPA's Water Quality Planning and Management Regulations (codified in Title 40 of the Code of Federal Regulations Part 130) require states to develop TMDLs for impaired water bodies. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and nonpoint sources, to restore and maintain the quality of the state's water resources (USEPA 1991).

A TMDL is a pollution diet that establishes the amount of a pollutant a water body can assimilate without exceeding its water quality standard for that pollutant. A TMDL is represented as a mass per unit of time (e.g., pounds per day). The mass per unit time is called the load. For instance, a TMDL could stipulate that a maximum load of 1,000 pounds of sediment per day could be discharged into an entire stream before the stream experiences any detrimental effects. The pollution diet for a given pollutant and water body is composed of the sum of individual WLAs for point sources and LAs (load allocations) for nonpoint sources and natural background levels of that same pollutant. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for uncertainty in the relationship between pollutant loads and the quality of the receiving water body. The following equation illustrates TMDL components, where Σ means the sum:

$$TMDL = \Sigma\ WLAs + \Sigma\ LAs + MOS$$

A WLA is the portion of the overall pollution diet assigned to permitted dischargers, such as the County's MS4. The County's MS4 permit requires that the County develop local restoration plans or WIPs to address each EPA-approved TMDL with a stormwater WLA.

1.1.2. What is a Watershed Implementation Plan?

A WIP is a strategy for managing the natural resources within a geographically defined watershed. For the County's Department of the Environment (DoE), this largely means managing urban stormwater (i.e., runoff originating from rainstorms or snowmelt) to protect and / or restore the County's waterbodies for their designated uses. Stormwater management is most effective when viewed in the watershed context—watersheds are land areas and their network of streams that convey stormwater runoff to a common body of water.

The PCB WIP requirements are slightly different from other WIPs in that programmatic options such as education and outreach campaigns cannot be used to meet WIP requirements. In addition, the County ***will not*** receive credit for PCB load reductions via the removal of contaminated materials from stormwater management facilities, which might tend to accumulate PCBs. Also, the County ***will not*** receive credit for PCBs removed by structural stormwater best management practices (BMPs). Only the trackdown or pinpointing of PCB sources and subsequent removal or remediation of those pollution sources ***will meet*** the goals of the PCB-focused TMDL and 2022 MDE Guidance.

As per the 2022 MDE Guidance, the WIP development process will focus on PCB source trackdown and monitoring requirements, followed by MDE investigation and enforcement, with the final goal of improving the health of the streams in the County to meet designated uses and to create value for neighborhoods in County watersheds.

The overall goals of the WIP are to:

- Protect, restore, and enhance habitat in the watershed in stages by first identifying specific sources of PCBs in the impaired watersheds.
- Support compliance with regional, state, and federal regulatory requirements.
- Focus on trackdown to identify sites—where PCB soil contamination could be present.
- Provide the understanding that these implementation plans will carry over several permit terms and be based on adaptive management and MDE enforcement, which help offset the high cost of SW-WLA implementation associated with this pollutant type.

This document represents the first stage in achieving these goals. This plan is not meant to constitute site-level planning but, rather, focuses on the overall PCB trackdown strategy based on MDE guidance with the goal of identifying and removing PCB sources. The County will use adaptive management to continually adjust decision making to meet the stated goals most effectively. The overall PCB trackdown strategy also relies on adaptive management as steps and phases are worked through (e.g., Sections 2 and 5).

In summary, the WIP process seeks to:

- Identify PCB sources at the desktop using existing data sources (a source assessment).
- Determine and prioritize risks associated with PCB contamination at the subwatershed scale in preparation for water quality monitoring. These determinations rely on information from the desktop PCB source assessment.
- Develop and implement a three-phase monitoring component to better define potential sources in the stream bed/banks, a near stream source, or storm sewers via
  - Subwatershed PCB screening,
  - In-stream subwatershed PCB characterization, and
  - Storm sewer PCB characterization.
- Ensure that MDE collaborates with other stakeholders to effectively remediate PCB contamination as the County continues to monitor progress in meeting TMDLs.

1.1.3. What are PCBs?

PCBs are a class of 209 synthesized organic chlorine compounds (known as *congeners*) commercially manufactured from 1929 to 1979. These compounds were widely used from the 1940s to the 1970s in manufacturing and industry for their fire-retardant and insulating properties. In 1979, implementation of the Toxic Substances Control Act (Title 15 of the United States Code § 2601 et seq.) banned PCB use in the United States. Regulations exclude some manufacturing processes; they allow for, under certain conditions, inadvertently-generated PCBs at an annual average of <25 parts per million (ppm), with a 50 ppm maximum 50 ppm threshold and these regulations have reporting requirements (USEPA 2023a).

The widespread use of PCBs resulted in the legacy contamination of soils that still release the compounds into waterways. An additional source of watershed PCBs reflects the possibility that these compounds might be found in existing materials produced before 1979. Now, PCBs are released into the environment through sources such as poorly maintained hazardous waste sites that contain them, leaks or releases from electrical transformers containing them, and disposal of PCB-containing consumer products into municipal landfills not designed for hazardous waste.

PCB applications

- Electrical, heat transfer, and hydraulic equipment
- Plasticizers in paints, plastics, and rubber products
- Pigments, dyes, and carbonless copy paper
- Other industrial applications

Products that could contain PCBs

- Transformers and capacitors
- Electrical equipment including voltage regulators, switches, re-closers, bushings, and electromagnets
- Oil used in motors and hydraulic systems
- Old electrical devices or appliances containing PCB capacitors
- Fluorescent light ballasts
- Cable insulation
- Thermal insulation material including fiberglass, felt, foam, and cork
- Adhesives and tapes
- Oil-based paint
- Caulking
- Plastics
- Carbonless copy paper
- Floor finish

Adapted from USEPA 2023b

Before 1979, PCBs were used in numerous products including capacitors, transformers, plasticizers, building materials, surface coatings, inks, adhesives, pesticide extenders, paints, and carbonless duplicating paper. Historically, PCBs were introduced into the environment through discharges from point sources and through spills and releases. Although point source contributions are now controlled, facilities could unknowingly discharge PCB loads from historical contamination. Sites with PCB-contaminated soils can also act as precipitation-driven nonpoint sources.

Once in a water body, PCBs become associated with sediment particles. These compounds are very resistant to breakdown. PCBs do not readily decompose once in the environment, remaining in river and lake sediments for many years. PCBs are known by extensive documentation to cause cancer and negatively affect the immune, reproductive, nervous, and endocrine systems of many animals, including humans. These compounds are hydrophobic, meaning they do not mix with water and attach to sediments. PCBs bioaccumulate in the fatty tissues of animals and do not break down over time. Small organisms that ingest PCB-contaminated sediment or food are then eaten by larger organisms, contributing to the accumulation of PCBs in the tissues of larger organisms such as fish.

PCBs can enter waterways through atmospheric deposition via air currents and / or by precipitation including rain and snow. Deposition can occur directly to waterbodies through atmospheric deposition and via soil transport or by washing into waterbodies. The primary source of PCBs in the atmosphere is the volatilization of legacy PCB-containing products in landfills that are disposed of as waste and by incineration of solid waste (Li et al. 2021). Wind can also act as a transport mechanism to move particles over great distances including across geographical (e.g., watersheds) and jurisdictional boundaries. PCBs deposited through atmospheric deposition can be washed into streams from the built environment via roadways, rooftops, and other surfaces by rain and snow runoff.

In aquatic sediments, PCBs could be present in pore water—the water that occupies the spaces between sediment particles. Fish living near contaminated sediments might be exposed to PCBs through direct contact with pore water or by ingesting sediment-dwelling organisms that have accumulated PCBs.

Consumption of PCB-contaminated fish is a primary pathway of PCB exposure in humans. PCBs manufactured before the 1970s, continue to exist in the environment and are released through fires or leaks from old PCB-containing equipment, accidental spills, burning of PCB-containing oils, and leaks from hazardous waste sites.

Besides identifying impaired water bodies in the State's Integrated Report (MDE 2022b), MDE also issues statewide and site-specific fish consumption advisories (ranging from 0 to 4 meals per month) and recommendations (ranging from 4 to 8 meals per month).

1.1.4. Interjurisdiction Cooperation

The identification of PCBs in a water body necessitates essential collaboration among jurisdictions, particularly when the County shares watershed boundaries with another MS4. This collaboration is vital for addressing the environmental and public health issues associated with these pollutants. Planning and cooperation will typically involve various levels of government, environmental agencies, and relevant stakeholders. The primary elements of this plan include immediate reporting and further contamination assessment. The following outlines a general framework for how jurisdictions might work together in such situations:

- **Immediate Reporting and Assessment:** The jurisdiction discovering PCB contamination promptly reports the findings to the relevant local, regional, and national environmental agencies and authorities. Jointly, these entities will conduct a thorough assessment to determine the extent and severity of PCB contamination.
- **Information Sharing:** Open and transparent communication channels are established among jurisdictions to facilitate data sharing, research findings, and information related to PCB contamination. Regular updates are provided to the public to ensure transparency and keep communities informed.
- **Coordination of Investigation Efforts:** The jurisdictions plan to coordinate investigative efforts, which could include expanded monitoring efforts and the removal of identified PCB-contaminated sediments, if possible. This coordination will allow for resources to be more effectively utilized.
- **PCB Siting Location & Regulatory Enforcement:** When PCB sources have been identified upstream of a jurisdiction (A), the jurisdiction (B) where the source is located will coordinate directly with MDE on proper follow-up and enforcement.

  While the detection continues at a downstream jurisdiction (A), MDE will inform the receiving jurisdiction (A) to adjust or remove the concentrations generated from the upstream jurisdiction (B) from their annual report.
- **Community Engagement:** Public awareness campaigns will be conducted to educate communities about the risks associated with PCBs and ongoing efforts to address the issue. Public information will be disseminated and coordinated with MDE for identified sites containing PCBs. If enforcement is conducted by MDE, MDE will provide necessary updates on their website.
- **Monitoring and Long-Term Management:** The jurisdictions will establish a long-term monitoring system to track the effectiveness of cleanup efforts and to ensure that PCB levels remain within acceptable limits.

Continuous collaboration will be maintained for ongoing management and adaptive strategies as needed. The County considers effective collaboration among jurisdictions essential for a comprehensive and coordinated response to PCB contamination in streams or rivers, focusing on protecting the environment and public health.

1.2. Prince George's County Water Quality Impairments

This section summarizes the PCB-related water quality problems identified in the County's watersheds.

1.2.1. Designated Uses

MDE classifies waterbodies in the state based on the waterbody's existing conditions and designated uses for the waterbody. Additional designated use information can be found in the *Code of Maryland Regulations* (COMAR) Sections 26.08.02.02 *Designated Uses* and 26.08.02.02-1 *Anti-Degradation Policy*.

The County has the following designated uses (COMAR 26.08.02.08 O), which are also summarized by Use Class in Table 1:

- Use Class I: Water Contact Recreation, Fishing, and Protection of Nontidal Warmwater Aquatic Life including fish (other than trout), agricultural and industrial water supply
- Use Class I-P: Water Contact Recreation, Protection of Aquatic Life, and Public Water Supply
- Use Class II: Support of Estuarine and Marine Aquatic Life and Shellfish Harvesting (tidal reaches only)
- Use Class III: Nontidal Cold Water
- Use Class IV: Recreational Trout Waters

Table 1. Designated Water Uses in the County Based on MDE Use-class Groupings in COMAR.

Designated Uses	Use Classes				
	I	II	III	IV	I-P
Growth and propagation of fish (not trout), other aquatic life, and wildlife	✓	✓	✓	✓	✓
Water contact sports	✓	✓	✓	✓	✓
Leisure activities involving direct contact with surface waters	✓	✓	✓	✓	✓
Fishing	✓	✓	✓	✓	✓
Agricultural water supply	✓	✓	✓	✓	✓
Industrial water supply	✓	✓	✓	✓	✓
Propagation and harvesting of shellfish		✓			
Seasonal migratory fish spawning and nursery use		✓			
Seasonal shallow water submerged aquatic vegetation use		✓			
Open-water fish and shellfish use		✓			
Seasonal deep-water fish and shellfish use		✓			
Seasonal deep-channel refuge use		✓			
Growth and propagation of trout			✓		
Capable of supporting adult trout for a put-and-take fishery				✓	
Public water supply					✓

Source: MDE 2022a.

The Anacostia River watershed contains primarily Class I use streams; The Northwest Branch (NWB) is Class IV and the upper reaches of Paint Branch are Class III (Table 2). The Anacostia River watershed also has some Class II waters at the County's border with Washington, D.C. The Piscataway Creek watershed has mainly Class I, except for a tidal stream, which is Class II. The Upper Patuxent River watershed is all Class I use.

Table 2. River Miles of Each Designated Water Use Class in the County.

Watershed	Miles of Streams in Designated Use Class				
	I	II	III	I-P	IV
PBC TMDL Watersheds - Trackdown Required[a]					
Anacostia River	148.7	0.5	3.2	0.0	5.7
Patuxent Tidal Fresh	201.7	0.3	0.0	0.4	0.0
Potomac River	84.3	1.0	0.0	0.0	0.0
PCB TMDL Watersheds - No Trackdown[a]					
Potomac-Middle	5.2	0.0	0.0	0.0	0.0
Mattawoman Creek	35.8	0.0	0.0	0.0	0.0
Patuxent Mesohaline	12.1	0.0	0.0	0.0	0.0
Patuxent Oligohaline	70.4	0.2	0.0	0.0	0.0
Piscataway Creek	107.7	0.6	0.0	0.0	0.0

Note:
[a] See explanation in Section 1, page 1-2.

The Mattawoman Creek watershed is designated as Use Class I. Piscataway Creek's designated uses are Use Class I in the mainstem and tributaries and Use Class II in the open water downstream portion.

The County's portion of the Potomac River watershed is Use Class II for the mainstem of the Potomac River and embayments, while its tributaries in the County are designated as Use Class I. The upper, middle, and lower portions of the Patuxent River watershed, and Rocky Gorge, consist of Class I use streams.

Maryland has also designated Tier II high quality waters, which are waterbodies with existing water quality that is significantly better than water quality standards. Per federal regulations (Title 40 of the *Code of Federal Regulations* section 131.12 [40 CFR 131.12]), these waters must be maintained at their high-quality level. Figure 2 through Figure 8 show the designated uses in each watershed in addition to the Tier II stream segments, tidal waters, impoundments, baseline stations, and locations with no assimilative capacity remaining.

MDE's assimilative capacity analysis is a measure of how much Tier II stream water quality can decline before the stream's quality is considered degraded. For additional information on Maryland's Tier II waters and assimilative capacity, please see MDE's webpage on anti-degradation.[1] The Mattawoman watershed contains five Tier II stream segments, two in Prince George's County and three in Charles County MD. One of the two Mattawoman stream segments in Prince George's County has assimilative capacity, while the other segment does not. Piscataway Creek has two short segments of Tier II streams. Piscataway also has a large portion of the watershed with no assimilative capacity. Neither Tier II segments along Piscataway Creek have any assimilative capacity. The Anacostia River watershed contains two Tier II stream

[1] https://mde.maryland.gov/programs/Water/TMDL/WaterQualityStandards/Pages/Antidegradation_Policy.aspx

segments with assimilative capacity. The Patuxent Tidal Fresh watershed contains two Tier II segments: One has assimilative capacity and the other does not. The Patuxent Oligohaline watershed contains one Tier II stream segment with assimilative capacity remaining. The Patuxent Mesohaline watershed contains one Tier II segment with no assimilative capacity remaining. The Potomac River watershed contains no Tier II segments (MDE 2022b).

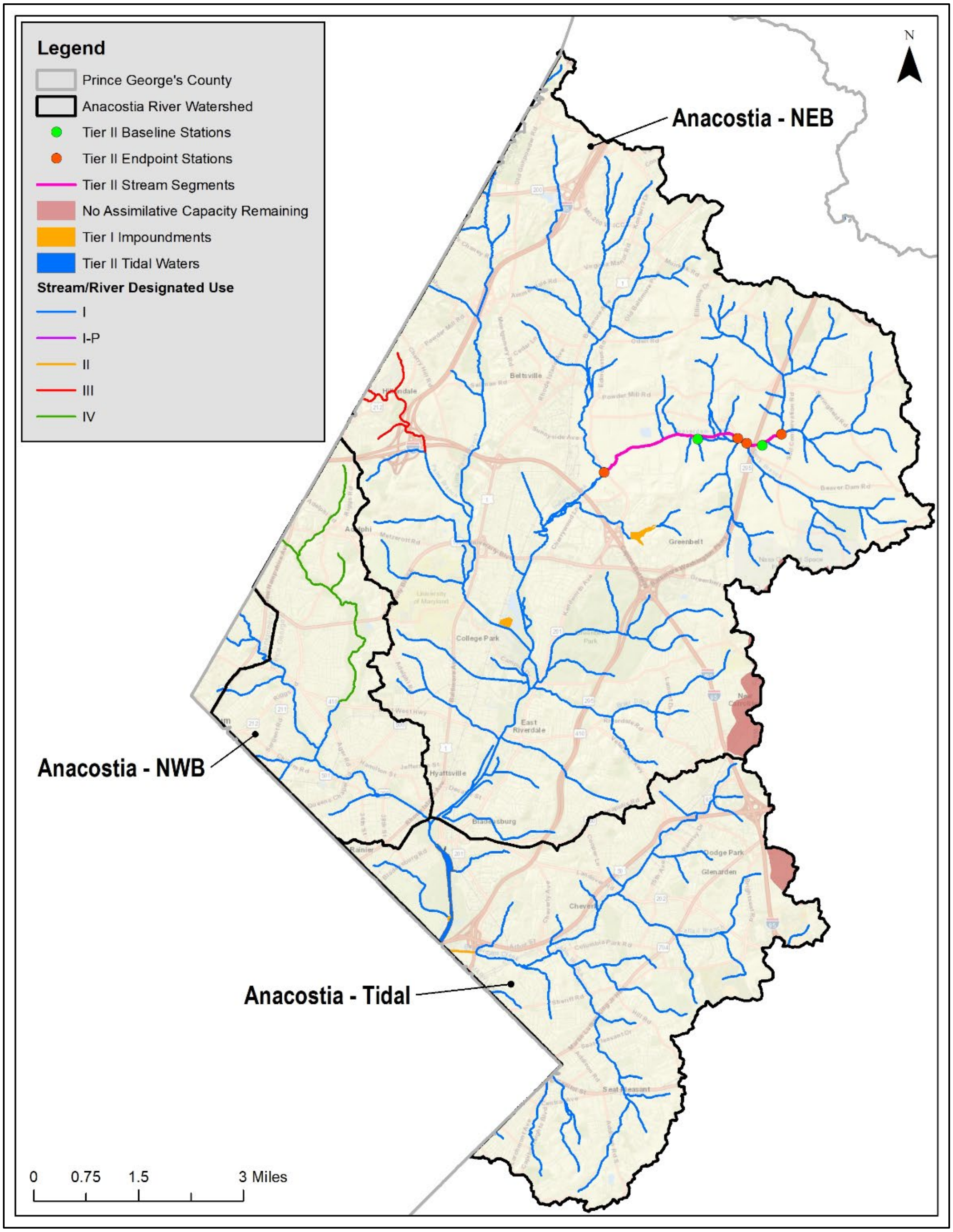

Figure 2. Designated Uses and Tier II Stream Segments in the Anacostia River Watershed.

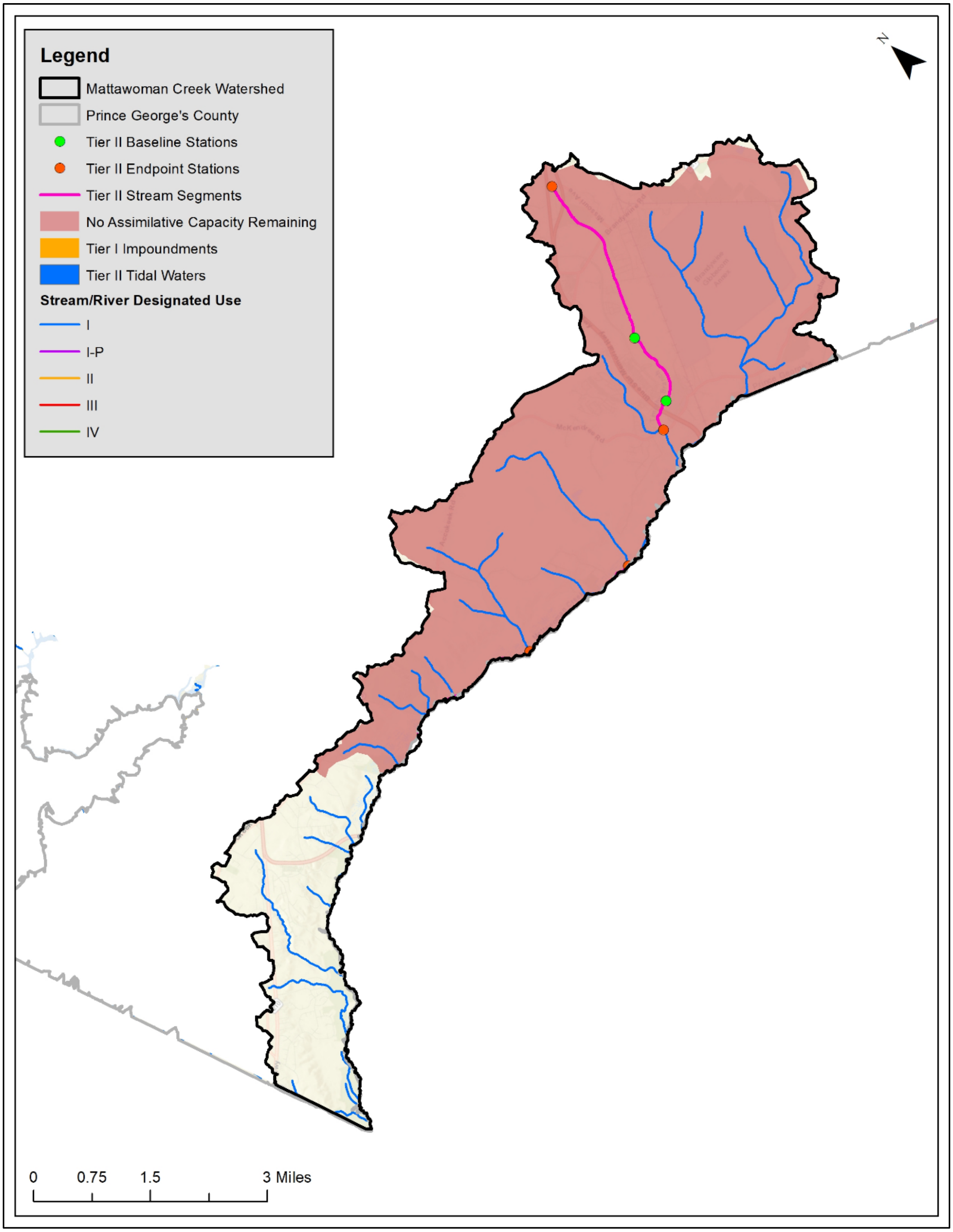

Figure 3. Designated Uses and Tier II Stream Segments in the Mattawoman Creek Watershed.

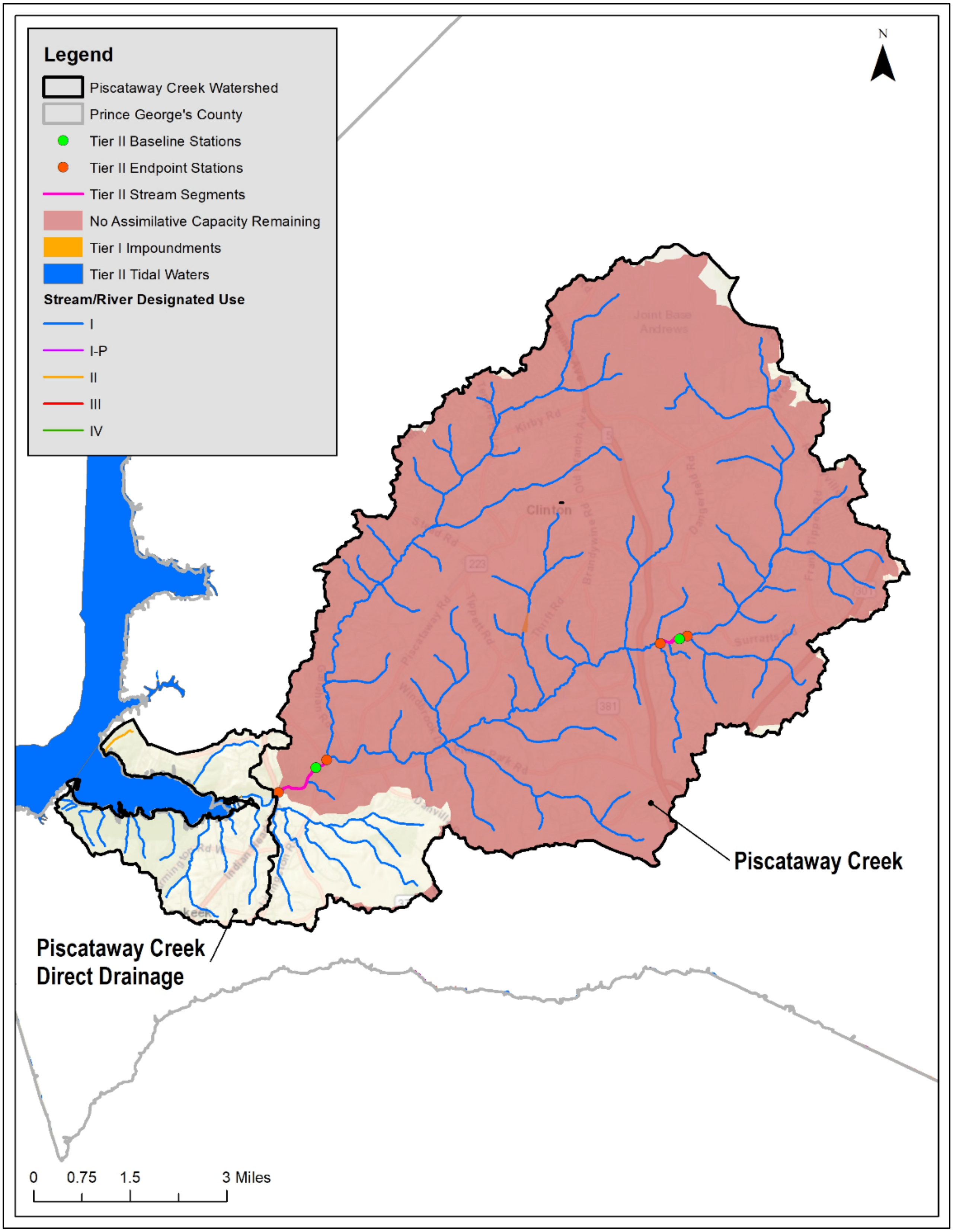

Figure 4. Designated Uses and Tier II Stream Segments in the Piscataway Creek Watershed.

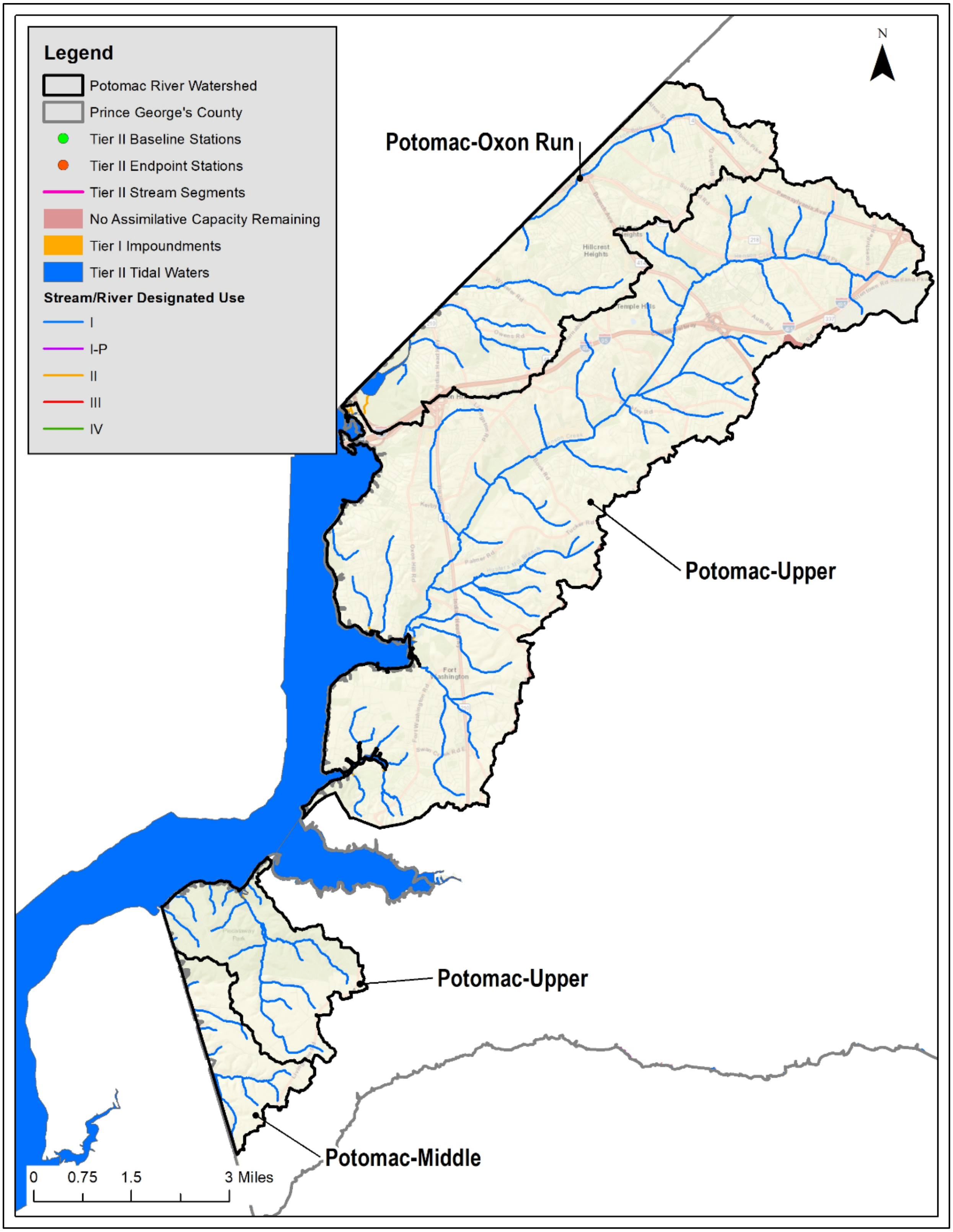

Figure 5. Designated Uses and Tier II Stream Segments in the Potomac River Watershed.

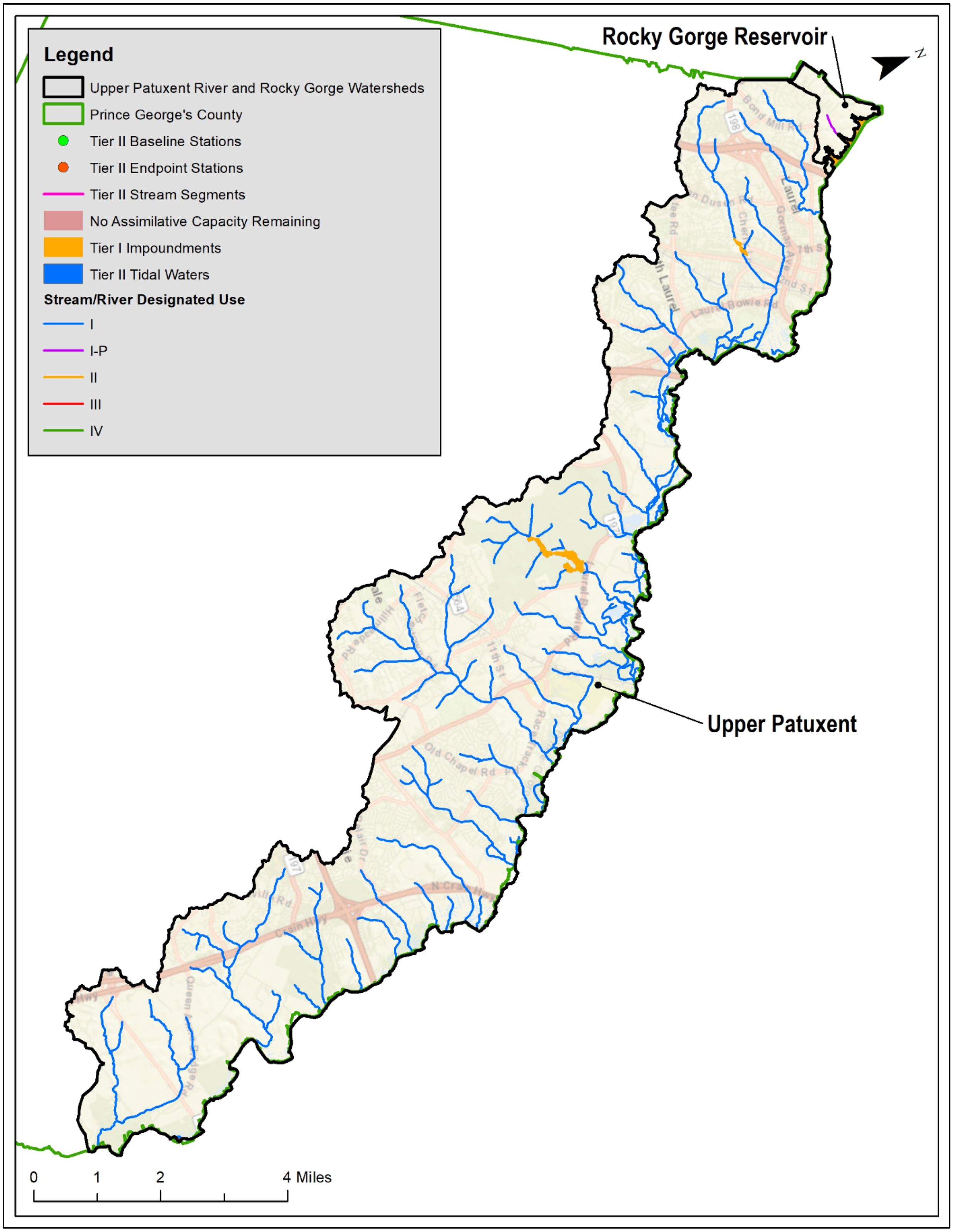

Figure 6. Designated Uses and Tier II Stream Segments in the Upper Patuxent River and Rocky Gorge Watersheds.

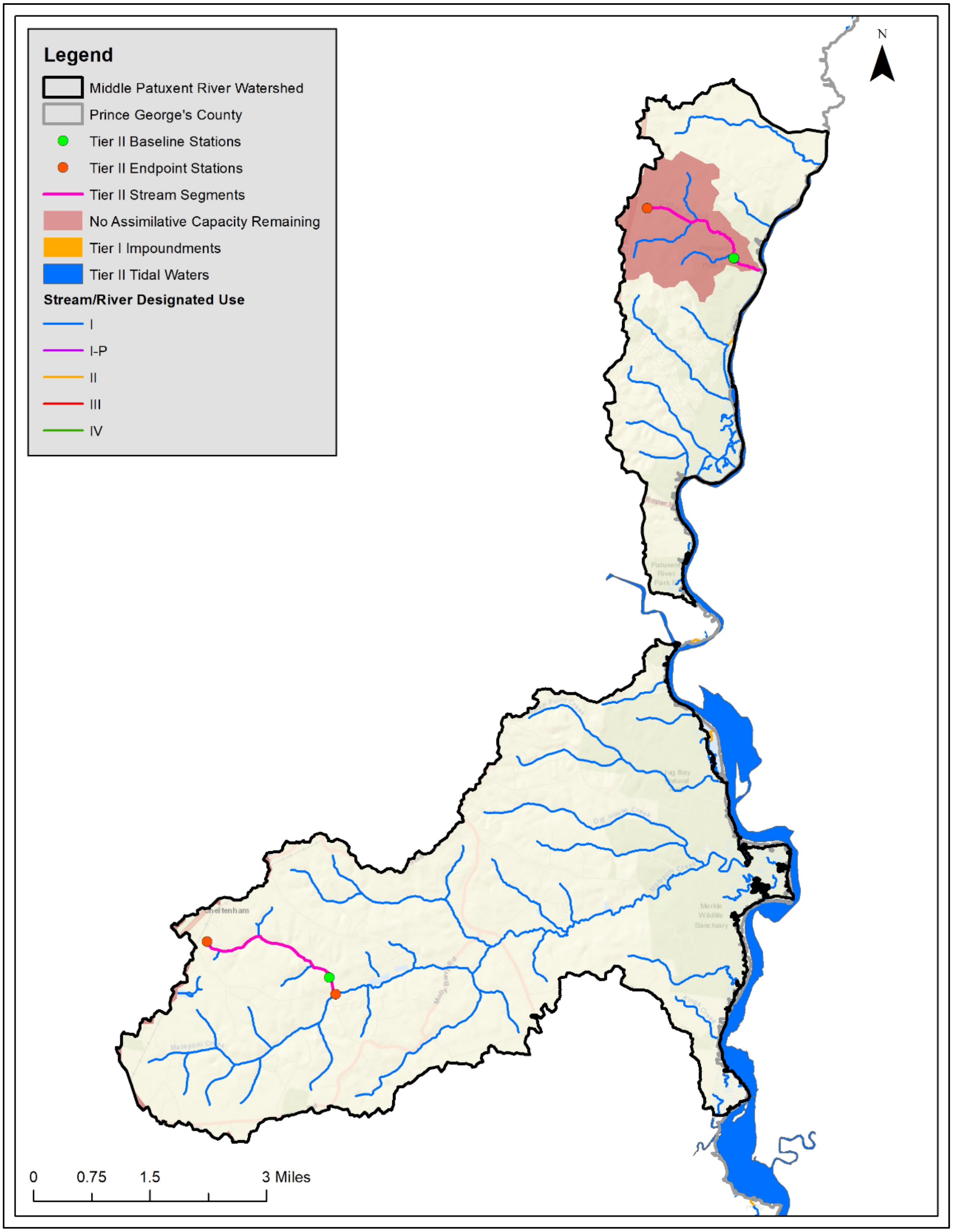

Figure 7. Designated Uses and Tier II Stream Segments in the Middle Patuxent River Watershed.

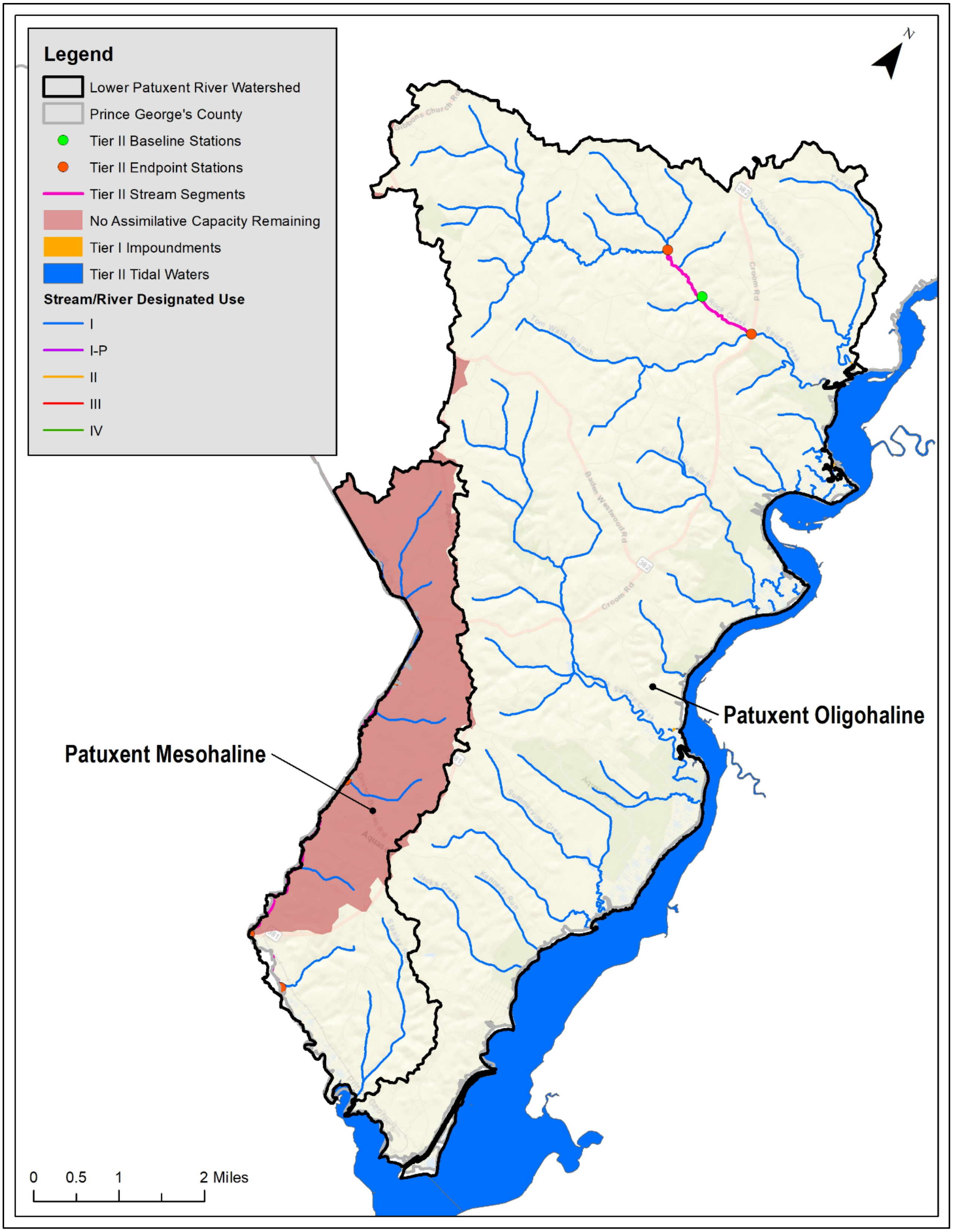

Figure 8. Designated Uses and Tier II Stream Segments in the Lower Patuxent River Watershed.

1.2.2. Water Quality Standards

Maryland's General Water Quality Criteria states that,

> . . .the waters of this State may not be polluted by…any material, including floating debris, oil, grease, scum, sludge and other floating materials attributable to sewage, industrial waste, or other waste in amounts sufficient to be unsightly; produce taste or odor; change the existing color to produce objectionable color for aesthetic purposes; create a nuisance; or interfere directly or indirectly with designated uses. . . [COMAR 26.08.02.03B(2)].

PCB Water Quality Criteria

Specific water quality criteria also apply to PCBs. Water quality criteria for toxic substances are found in COMAR 26.08.02.03-2 (*Numerical Criteria for Toxic Substances in Surface Waters*). The State of Maryland has adopted three separate water column total PCB criteria to account for different aspects of water quality (COMAR 2016d):

1. A human health criterion of 0.64 nanograms per liter (ng/L) or 64 parts per *trillion* (ppt) in the water column, that addresses drinking water and the consumption of PCB-contaminated fish;
2. A freshwater chronic criterion of 14 ng/L or 0.014 parts per *billion* (ppb), that is protective of aquatic life in nontidal systems; and
3. A saltwater chronic criterion of 30 ng/L or 0.03 ppb, that is protective of aquatic life in tidal systems.

Since the human health criterion is more stringent than either the freshwater or the saltwater aquatic life criterion, meeting the human health criterion satisfies all applicable water quality criteria.

PCB Fish Tissue Quality Criteria

CWA Section 101(a)(2) establishes the national goal of the attainment of "water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water." This stated aspiration is commonly referred to as the CWA's *fishable/swimmable* goal. In addition, Section 303(c)(2)(A) requires water quality standards to protect public health and welfare, enhance the quality of water, and serve the purposes of the Act. EPA and MDE interpret those sections of the law to mean that water quality should support thriving and diverse fish and shellfish populations, which should be safe for humans to catch and consume.

Some contaminants, including PCBs, bioaccumulate in the tissues of gamefish (e.g., largemouth bass) and bottom-feeders (e.g., catfish). When a contaminant reaches levels in fish tissue associated with an increased risk of chronic health effects in humans that consume the fish, the State Department of Health issues a fish consumption advisory intended to protect the public as well as sensitive populations (e.g., young children and women who are or may become pregnant). Recommendations are also issued to protect frequent consumers of fish.

When MDE issues a fish consumption advisory, the warning is issued for a water body, where the designated use of that water body (fishing, for example) is accepted by the state as not being supported[2]. This situation typically results in the water body being listed as impaired for the specific contaminant. State fish tissue contaminant thresholds have been developed to determine the necessity of consumption advisories and recommendations. The thresholds are compared to a sample weighted mean of the contaminant level in the edible portion of the common recreational fish species to determine impairment.

The State's total PCB fish tissue listing threshold is 39 nanograms per gram (ng/g), assuming a fish consumption limit of four 8-ounce meals per month of skinless fillet of the fish, the edible portion typically consumed by humans (MDE 2017). When total PCB fish tissue concentrations exceed that threshold, the water body is listed as impaired for PCBs in fish tissue in Maryland's Integrated Report and as not supporting the "fishing" designated use (MDE 2017). The Integrated Report combines two requirements of the Clean Water Act: (1) Section 305(b), which requires states to perform annual water quality assessments; and (2) Section 303(d), which requires states to identify waters not meeting water quality standards.

1.2.3. PCB-Listed Waterbodies

This section summarizes of all the PCB-impaired waters and their watersheds in the County and the data supporting these impairment decisions.

Anacostia and Potomac Rivers

Tidal portions of the Anacostia River and Potomac River (which includes Oxon Creek) watersheds are listed for PCBs in fish tissue. PCBs are assessed through MDE's fish and shellfish monitoring programs. Ambient water column and fish tissue data collected from 2002 to 2007 showed that the existing PCB water quality criteria were not protective of fish tissue concentrations in the tidal Potomac and Anacostia rivers. For the TMDL, target water column concentrations were also calculated, using EPA-recommended methods, to be protective of fish tissue concentrations. These TMDLs have assigned load reductions to the tidal and nontidal portions of these streams.

The PCB impairment in the Northeast Branch (NEB) and Northwest Branch (NWB) of the Anacostia River (nontidal portions) occurred because of the exceedance of human health criteria for water column PCBs. Estimates suggest that PCBs contaminate 4 percent of the river bottom of the Anacostia River mainstem (MWCOG 2010).

Mattawoman Creek and Piscataway Creek

Mattawoman Creek and Piscataway Creek, both of which contribute loads to the tidal Potomac, were listed as impaired for PCBs in 2014 and assigned load reductions under the TMDL. The State's latest 2020-2022 Integrated Report on Surface Water Quality lists Piscataway Creek and

[2] MDE maintains a map of fish consumption advisories for the state at Fish Consumption Advisories (state.md.us) and a list of fish consumption advisories for Prince George's County at https://mde.maryland.gov/programs/Marylander/fishandshellfish/Documents/FCA-County-Charts/PrinceGeorgesCounty_FCA.pdf

Mattawoman Creek Tidal Fresh Chesapeake Bay Tidal Segments impaired for PCBs. Both waterbodies have EPA-approved TMDLs as of 2019.

Point and nonpoint sources of PCBs were identified within the Piscataway Creek and Mattawoman Creek watersheds. Point sources include stormwater runoff within the watershed and two wastewater treatment plants (WWTPs). Nonpoint sources include direct atmospheric deposition to the tidal segments, runoff from non-regulated watershed areas, and one contaminated site, the U.S. Naval Surface Warfare Center near Mattawoman Creek; this military site, which resides in the Charles County portion of the Mattawoman Creek watershed, is, therefore, is not addressed in this watershed WIP.

The Tidal Potomac and Anacostia River PCB TMDL applied a 5% reduction for both watersheds. The separate PCB TMDL for the Piscataway River and Mattawoman Creek watersheds had a similar 5% reduction. Both TMDLs concluded that the proposed 93% reduction in atmospheric deposition of PCBs should adequately address reductions in the MS4 stormwater loads, which do not need to be addressed directly. Therefore, the County will not perform a PCB trackdown assessment for these watersheds.

Patuxent River

MDE includes tidal segments of Patuxent River as impaired for PCBs on its section 303(d) list. Those segments and their watersheds (segmentsheds) were developed as part of the Chesapeake Bay Model segmentation (USEPA 2010).

The State of Maryland defines the "Patuxent River Area" (MD 6-Digit Code: 021311) as freshwater above a line connecting Chalk Point and God's Grace Point, which acts as the boundary between the Patuxent River Mesohaline (PAXMH) and Patuxent River Oligohaline (PAXOH) tidal segments. The PAXOH and PAXMH tidal segmentsheds encompass the Lower Patuxent River watershed, with most of the watershed located in PAXOH, making the saltwater aquatic life criterion applicable to a small portion of the Lower Patuxent River. The freshwater aquatic life criterion applicable to the PAXOH and Patuxent River Tidal Fresh (PAXTF) segmentsheds is, thus, applicable to the Upper, Middle, and Lower Patuxent River and Rocky Gorge Reservoir watersheds they cover. MDE developed TMDLs to address impairments caused by the exceedance of water quality standards for sediment and PCBs in the Lower and Middle Patuxent River watersheds. This MDE scope included the PAXTF segmentshed, the PAXOH segmentshed (slightly brackish water salt concentrations between 0.5 and 5 ppt), and the PAXMH segmentshed (brackish water with a salinity of between 5 and 18 ppt) of the Patuxent River.

The listing of the Patuxent River PAXOH and PAXMH tidal segments in 2008 corresponded with a change in listing methodology for PCBs: adopting a more conservative threshold for fish tissue. The 2006 PCB threshold concentration used for fish tissue listing was reduced from 88 ppb (i.e., ng/g – wet weight) to 39 ppb to be more protective of public health, with a focus on sensitive populations. The initial listing used fish tissue data collected in 2005 and identified contaminated sediments as the likely pollutant source (MDE 2016).

Maryland's 2016 Integrated Report on Surface Water Quality expanded the impairment listing to include the PAXTF because of PCB levels found in the tissue of channel catfish collected in

2009. The more recently collected fish tissue data from 2014 and 2015 also demonstrated that the PAXMH and PAXOH tidal segments are impaired by total PCBs for different species of fish—white perch in the PAXMH segment and channel catfish in the PAXOH segment. The PAXMH and PAXOH tidal segments are listed separately in the State's 2016 Integrated Report (MDE 2016).

1.3. Existing Water Quality Data

1.3.1. PCB Water Quality Monitoring Data

The County does not currently measure water quality for PCBs through its water quality monitoring programs but will develop and implement trackdown investigations as part of the overall PCB countywide plan. The TMDL reports developed by MDE provide the water quality data used in developing the TMDLs. These reports are the main source of PCB water quality data in the County and include most fish tissue data used to determine impairments in the area. The County, MDE, and others have also conducted monitoring in the Lower Beaverdam Creek (LBC) watershed, which is a tributary to the Anacostia River.

PCB concentrations in water and sediment can be quantified by various laboratory methods. The method chosen generally depends on the type of medium analyzed, the purpose of the investigation, and the minimum detection level required for compliance. Individual PCB congener analysis provides results with significantly lower detection limits than other methods; this explains the method's preferred use in targeted source trackdown investigations and chemical fingerprinting efforts. Overall, limited PCB water and sediment data exists for the County. This section looks only at total congener data, analyzed using EPA's Standard Method 1668.

Table 3 presents data summaries for stations with PCB total congener water quality data. Figure 9 shows PCB data over time for the two monitoring locations in the Anacostia River watershed with more than 35 samples each over three years. The levels of total PCBs from data collected on the NWB and the NEB of the Anacostia River appear stable over time. Average values are consistently higher on the NWB site; however, the highest observed value occurred at the NEB site. The sample locations are provided in Figure 10.

Table 3. Summary of Available Water Quality Total PCB (congener) Data.

Watershed	Station ID	Date		Number of Records	Value (ng/L)			Percent over criteria	
		Min.	Max.		Min.	Mean	Max.	Human Health	Fresh-water Chronic
Anacostia - NEB	ARNE	06/24/02	10/07/05	38	0.002	3.03	15.60	84%	3%
Anacostia - NWB	ARNW	06/24/02	10/07/05	36	0.176	4.04	12.06	83%	0%
Anacostia - Tidal	AR1	05/06/02	10/17/02	4	0.895	1.38	1.85	100%	0%
Anacostia - Tidal	CB-1PG	12/18/20	12/18/20	1	0.889	0.89	0.89	100%	0%
Anacostia - Tidal	CB-2PG	12/17/20	12/17/20	1	1.760	1.76	1.76	100%	0%
Anacostia - Tidal	CSO2	08/21/01	07/26/02	6	0.001	0.04	0.21	0%	0%
Anacostia - Tidal	OF-07PG	12/17/20	12/17/20	1	18.800	18.80	18.80	100%	100%
Anacostia - Tidal	OF-08PG	12/18/20	12/18/20	1	70.800	70.80	70.80	100%	100%

Watershed	Station ID	Date		Number of Records	Value (ng/L)			Percent over criteria	
		Min.	Max.		Min.	Mean	Max.	Human Health	Fresh-water Chronic
Anacostia - Tidal	OF-12PG	12/18/20	12/18/20	1	4.780	4.78	4.78	100%	0%
Anacostia - Tidal	OF-15PG	12/18/20	12/18/20	1	5.020	5.02	5.02	100%	0%
Anacostia - Tidal	SD-12PG	12/17/20	12/17/20	1	12.100	12.10	12.10	100%	0%
Anacostia - Tidal	SD-28-PG	12/17/20	12/17/20	1	17.300	17.30	17.30	100%	100%
PAXTF	LPR11	08/20/13	05/13/14	4	0.150	5.95	12.76	50%	0%
PAXTF	LPR7	08/20/13	05/15/14	4	0.011	0.28	0.78	25%	0%

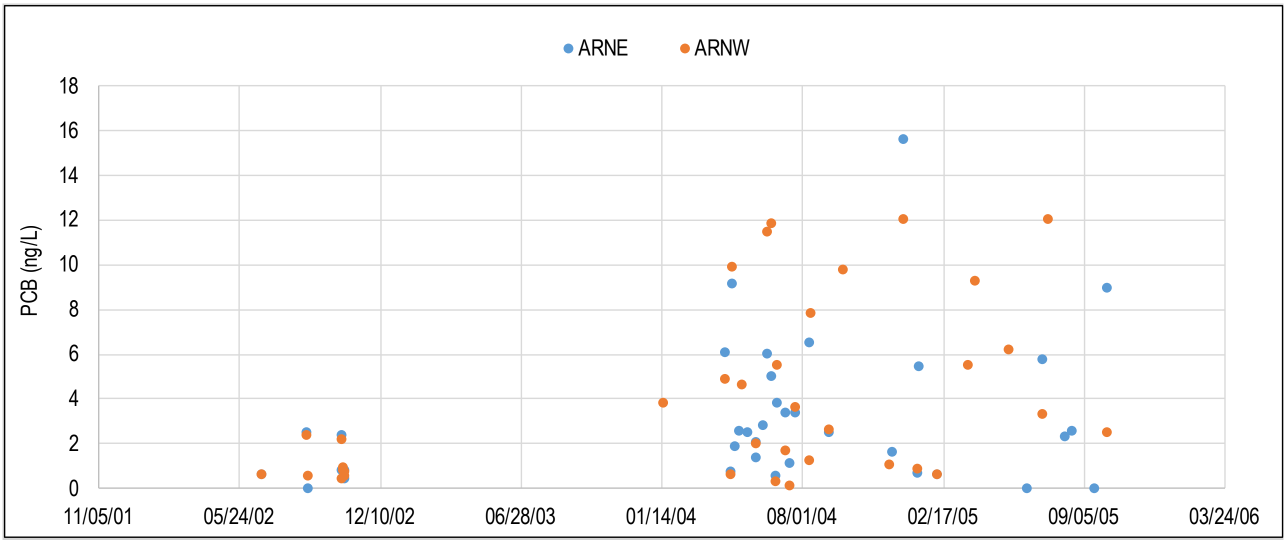

Figure 9. Plot of Total PCB Congeners over Time in the Anacostia River Watershed.

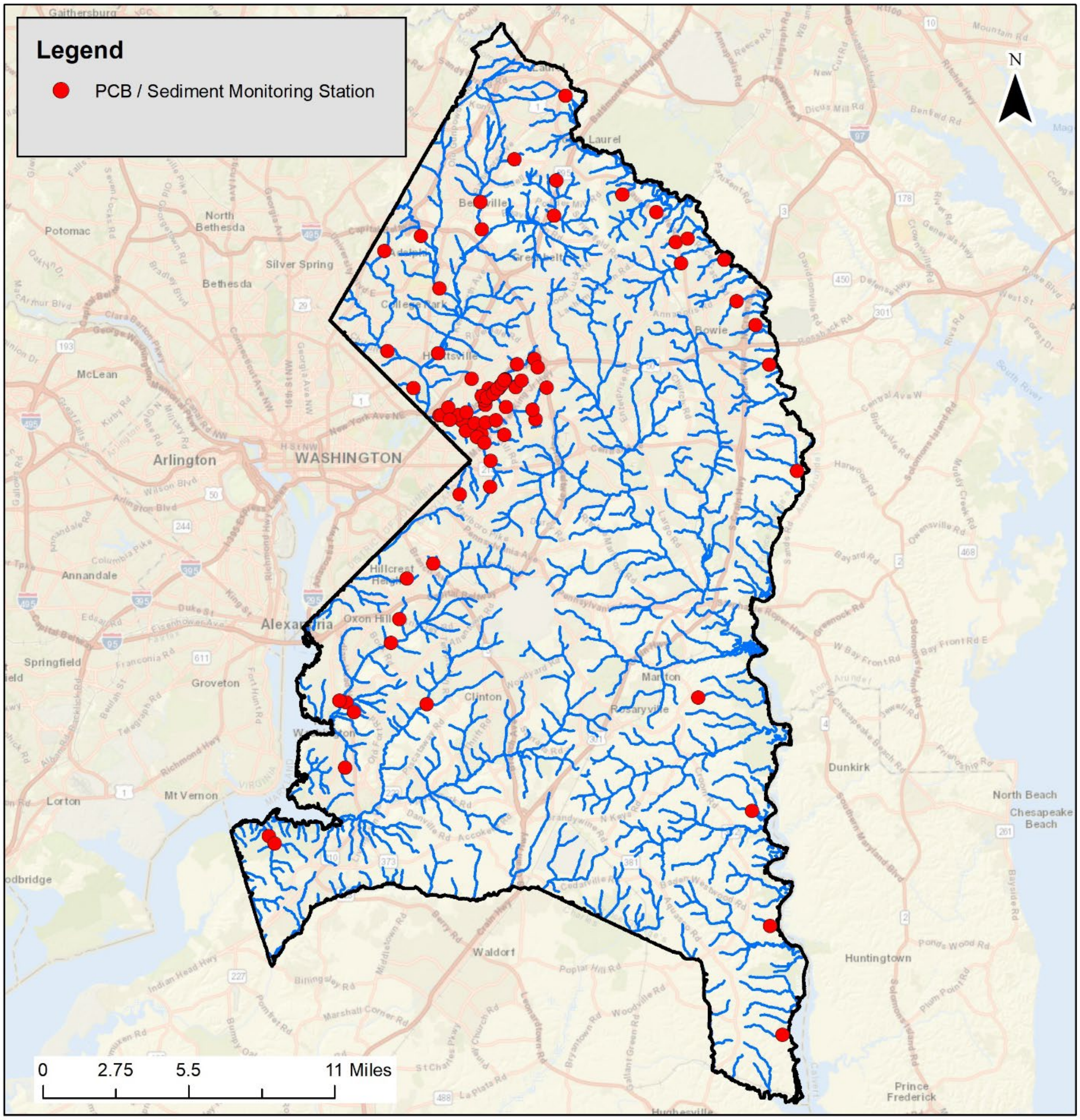

Figure 10. Locations of Water Quality Monitoring Stations.

1.3.2. PCB Sediment Monitoring Data

Table 4 summarizes available sediment total PCB congener data. This analysis effort included 111 additional locations for Aroclors[3], which were under the detection limit. The monitoring locations for sediment and PCB congener data are shown in Figure 10.

Table 4. Summary of Sediment Total PCB (congener) Data

Station	Date	Result	Units	Watershed
CB-2PG	12/17/20 1:45 PM	0.0044	mg/kg	Anacostia - Tidal
CB-1PG	12/18/20 1:30 PM	0.00569	mg/kg	Anacostia - Tidal
SD-12PG	12/17/20 2:45 PM	0.433	mg/kg	Anacostia - Tidal
SD-28-PG	12/17/20 3:35 PM	0.338	mg/kg	Anacostia - Tidal
OF-07PG	12/17/20 4:20 PM	1.83	mg/kg	Anacostia - Tidal
OF-08PG	12/18/20 11:15 AM	0.463	mg/kg	Anacostia - Tidal
OF-12PG	12/18/20 11:45 AM	1.05	mg/kg	Anacostia - Tidal
OF-15PG	12/18/20 12:30 PM	0.15485	mg/kg	Anacostia - Tidal

1.3.3. Biological (Benthic Macroinvertebrate) Monitoring Data

Analysis of biological monitoring data provides insights into the status and trends of ecological conditions in a stream and watershed. Watershed planners can use the biological monitoring and assessment data with analytical results to help identify pollution problems; document relationships among stressor sources, stressors, and response indicators; and evaluate environmental management activities, including restoration. Most County streams are impacted by multiple and complex stressors, often making it difficult to isolate the biological effects of individual pollutants. However, riparian ecological studies suggest that those streams with the greatest concentrations of PCB could also exhibit more severe biological degradation.

County Benthic Index of Biotic Integrity (BIBI) Assessment Methodology

Analyses of biological monitoring program data provide insights into the status and trends of ecological conditions in a stream and watershed. DoE began implementing its countywide, watershed-scale biological monitoring and assessment program in 1996 and is in its fifth round of sampling. To date, the department has assessed more than 79 stream locations in the Lower Patuxent River watershed and 69 locations in the Middle Patuxent River watershed through three rounds of data gathering: Round 1 assessed 59 sites between 1996 and 2002; Round 2 assessed 44 sites from 2011 to 2013; and Round 3 (R3) assessed 48 sites between 2015 and 2017. Because different stream conditions support different types of bottom-dwelling, or "benthic," organisms, analyzing those organisms collected along a stream reach can provide a good indication of the health of that reach. The primary measure of stream health is the BIBI (Southerland et al. 2007).

Field sampling and data analysis protocols employed by the County for the program are comparable to those used by the Maryland Department of Natural Resources (MD DNR) in the

[3] "Aroclor" denotes a PCB mixture produced from 1929 to 1979. Aroclor is a trade for PCB mixtures, where many types exist and are differentiated by a suffix indicating the degree of chlorination.

Maryland Biological Stream Survey. Streams assessed are wadeable and generally first- through third-order, according to the Strahler Stream Order system (Strahler 1957). Stream order designation is based on the National Hydrography Dataset map scale of 1:100,000. The number of streams sampled in each watershed is proportional to the size of the watershed and is allocated among first- to third-order streams, with a larger number of sites sampled on smaller first-order streams.

For the County's biological monitoring assessment, the team sampled a 75-meter reach at each selected site. Laboratory technicians identified the collected benthic organisms to a target taxonomic level, usually genus. The number of different kinds of organisms found was used to calculate the B-IBI numeric value or score. Based on that score, biological integrity was rated as Good, Fair, Poor, or Very Poor. Stream reaches rated as Poor or Very Poor are considered degraded.

Biological Assessment Results

The geographic distribution of the narrative results of the biological assessments can be seen in the following figures for each watershed.

- **Anacostia**: The Northeast Branch (northeastern portion of the watershed) has more areas rated as Good to Very Good while Downstream (southern portion of the watershed) has more areas rated as Poor (Figure 11).
- **Potomac**: Both Oxon Run and Henson Creek (Upper Potomac) have majority Poor and Very Poor ratings, with Henson Creek having a smaller percentage of Very Poor (Figure 12). Henson Creek also has several locations that were rated Fair and one location rated Good.
- **Patuxent:** The Lower Patuxent River (PAXOH and PAXMH) has majority Good ratings with some Fair and a few Poor and Very Poor (Figure 13). The Middle Patuxent Watershed (southern portion of PATF) has Good and Fair ratings with Poor and Very Poor in more urban areas (Figure 14). The Upper Patuxent Watershed (northern portion of PATF) has mainly Poor and Very Poor ratings in the tributaries, with Good and Fair in the mainstem (Figure 15).
- **Mattawoman:** The watershed has mainly Good ratings along the mainstem, with Fair, Poor and Very Poor along the tributaries that go through urban areas (Figure 16).
- **Piscataway:** The watershed has Fair, Poor, and Very Poor ratings along the Tinkers Creek tributary and a significant number of Good ratings along the mainstem (Figure 17).

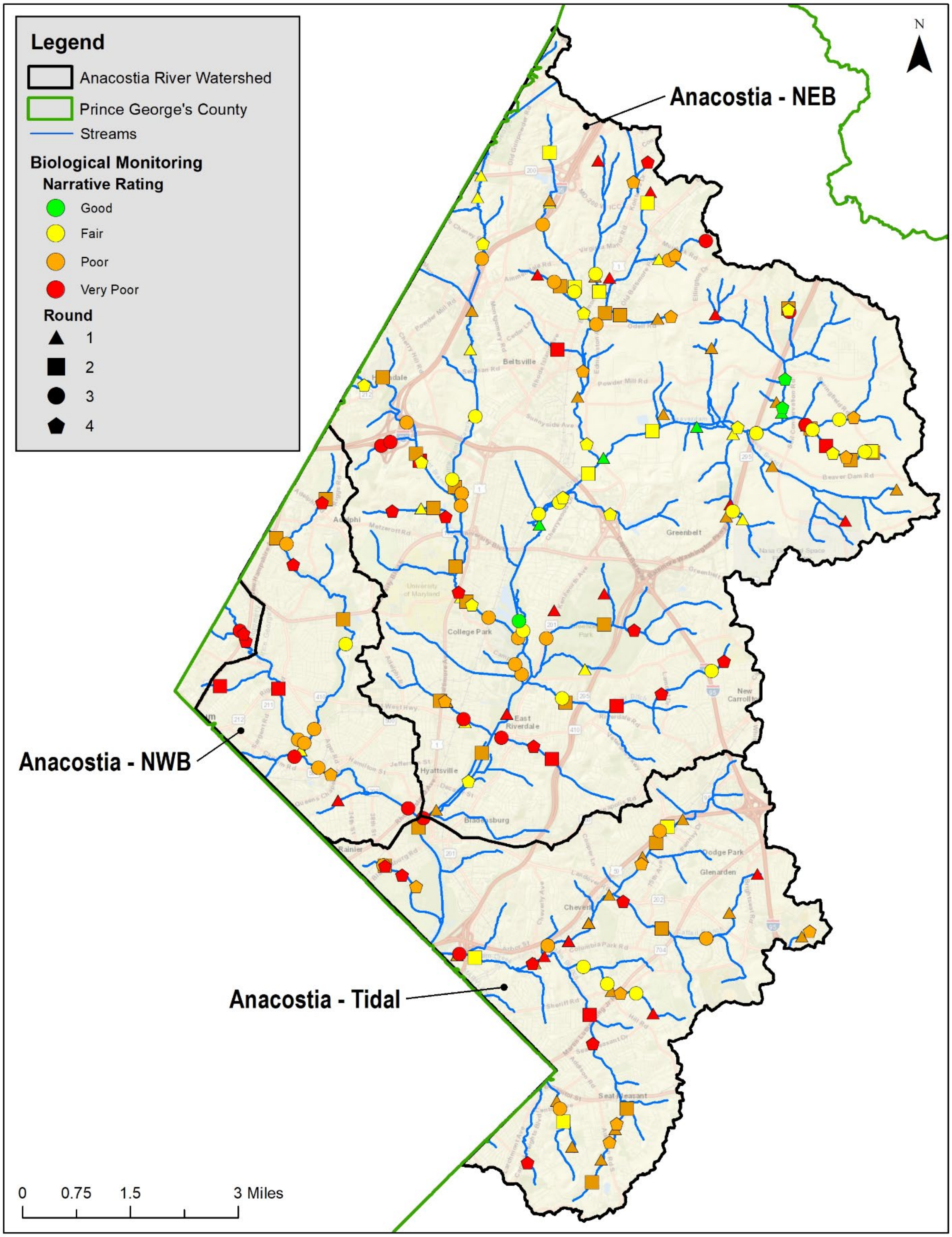

Figure 11. Biological Assessment Narrative Ratings by Monitoring Location in the Anacostia River Watershed.

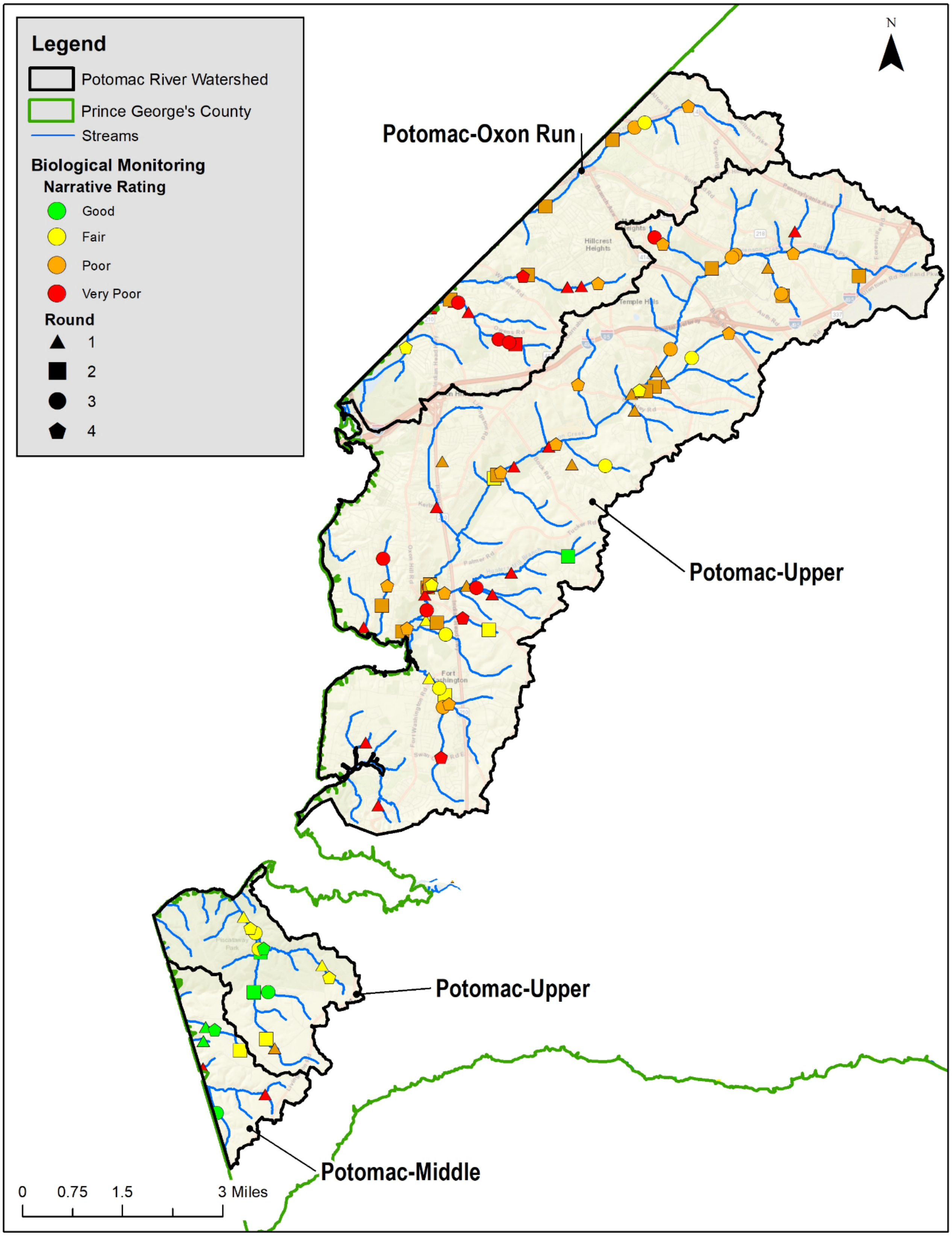

Figure 12. Biological Assessment Narrative Ratings by Monitoring Location in the Potomac River Watershed.

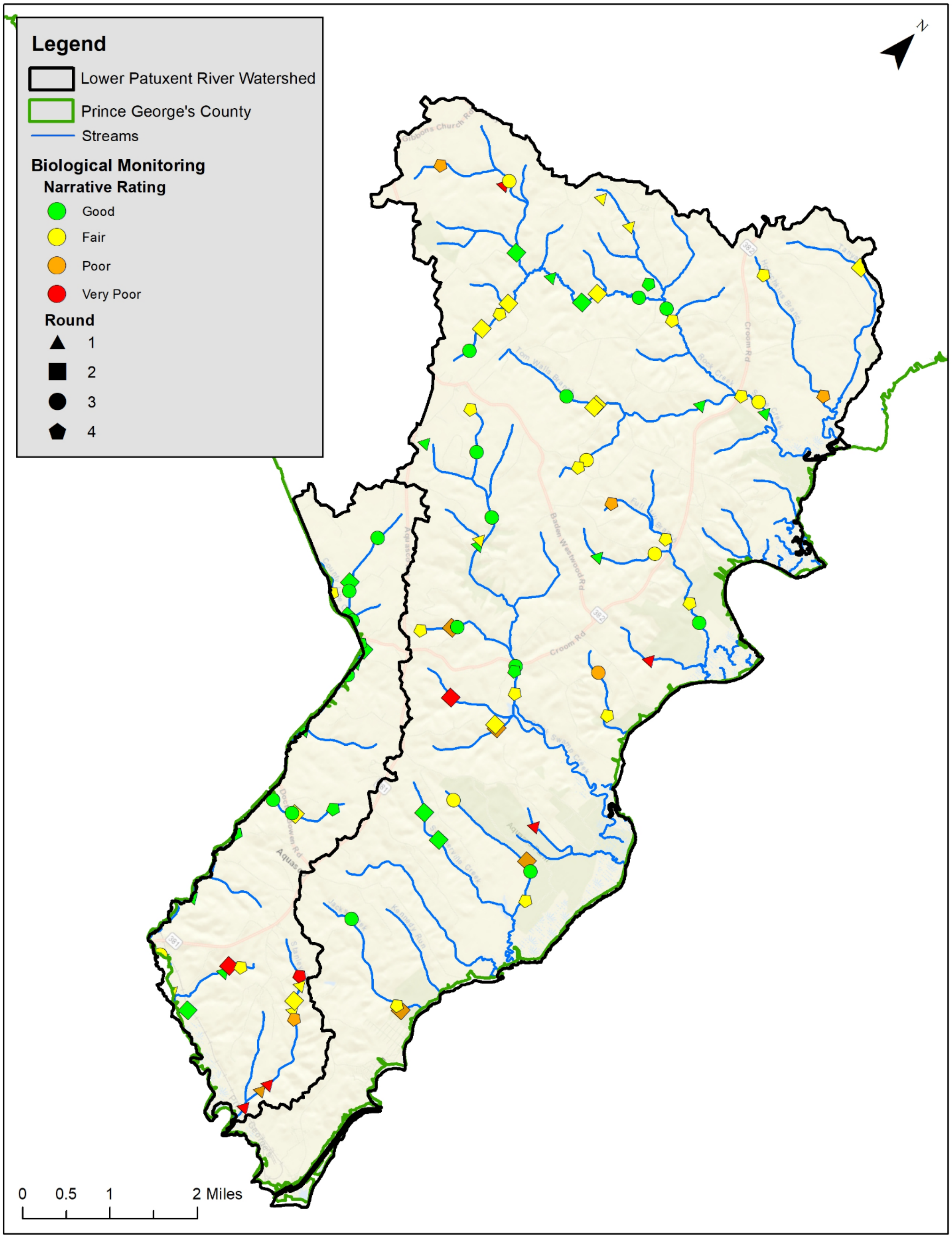

Figure 13. Biological Assessment Narrative Ratings by Monitoring Location in the Lower Patuxent River Watershed.

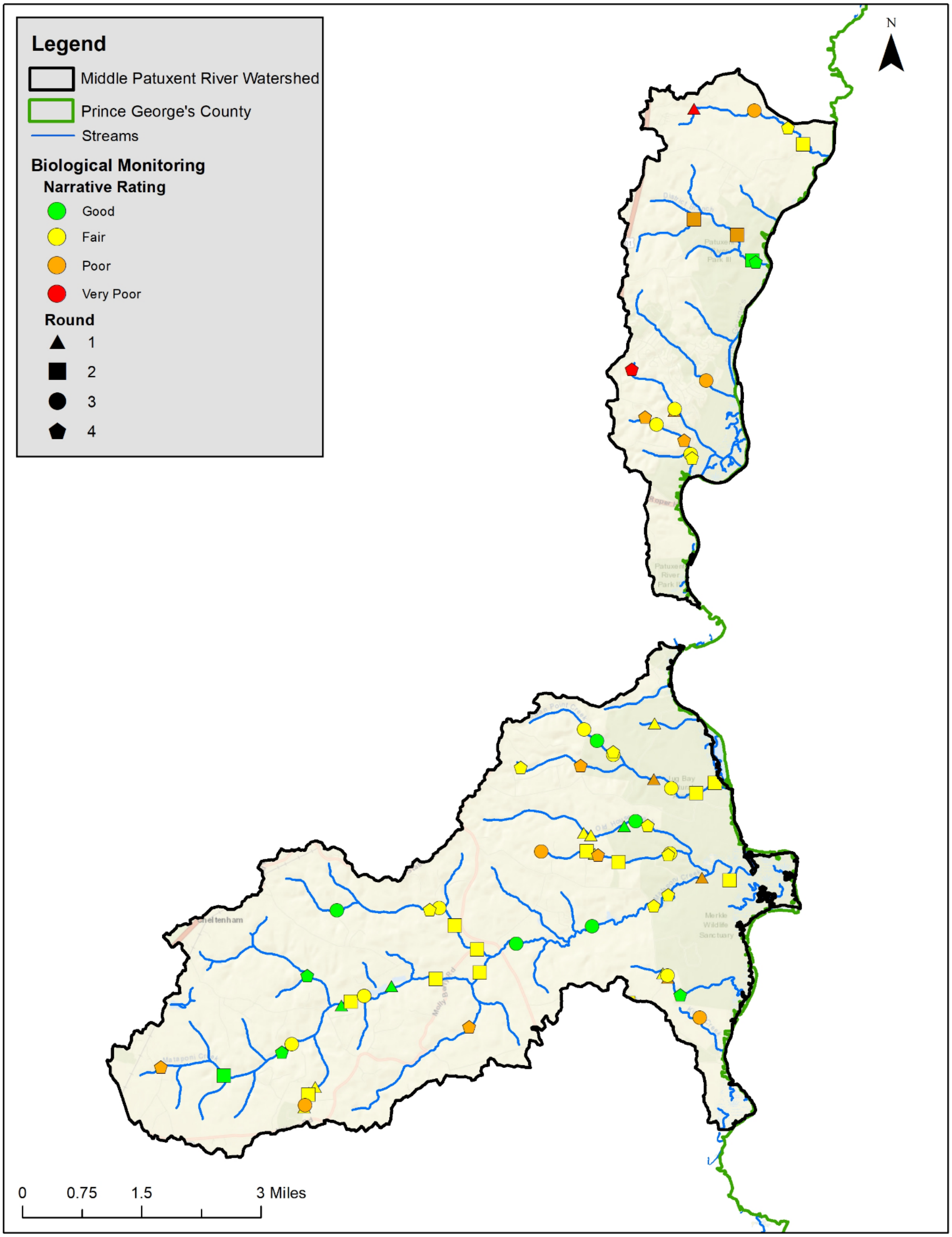

Figure 14. Biological Assessment Narrative Ratings by Monitoring Location in the Middle Patuxent River Watershed.

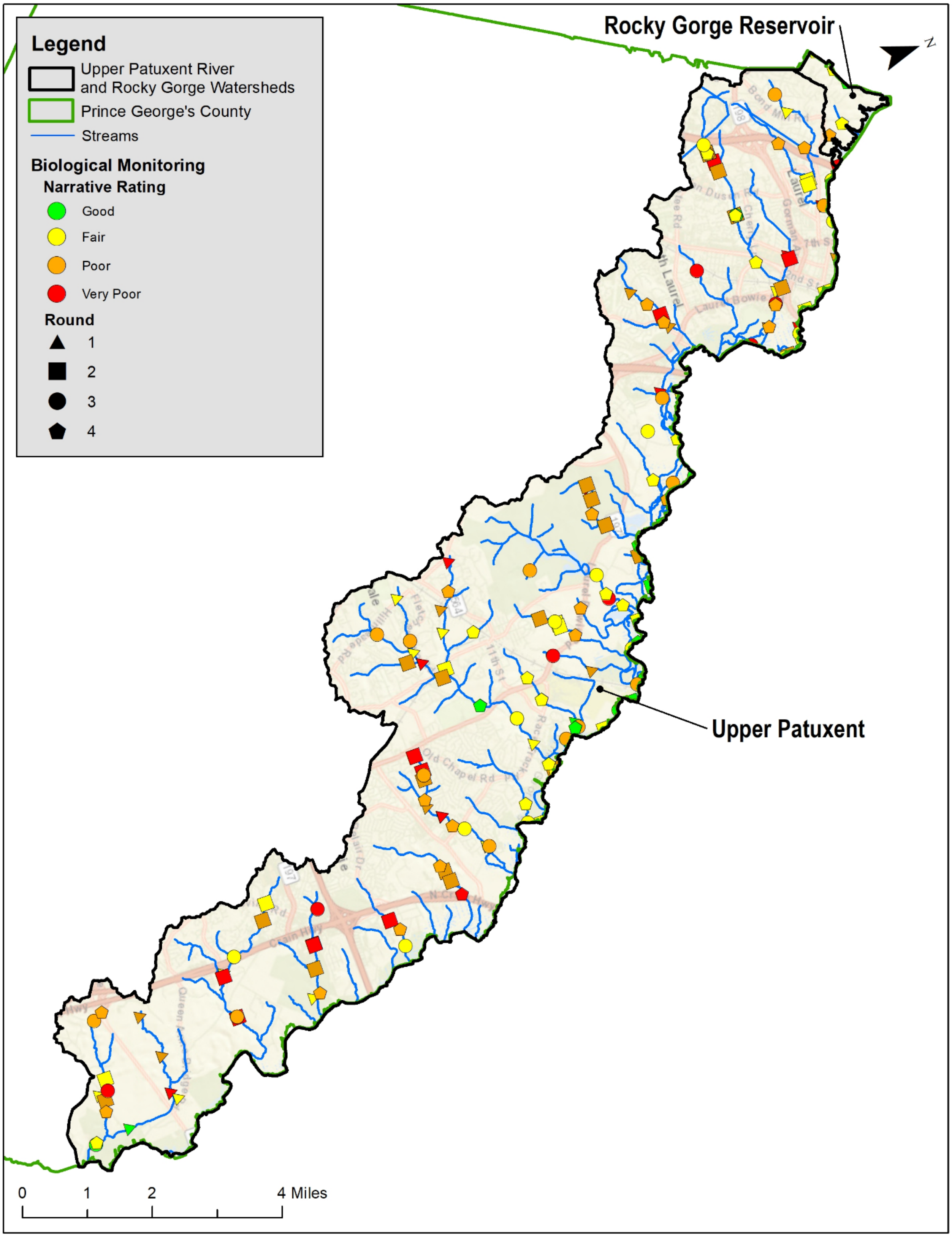

Figure 15. Biological Assessment Narrative Ratings by Monitoring Location in the Upper Patuxent River and Rocky Gorge Reservoir Watersheds.

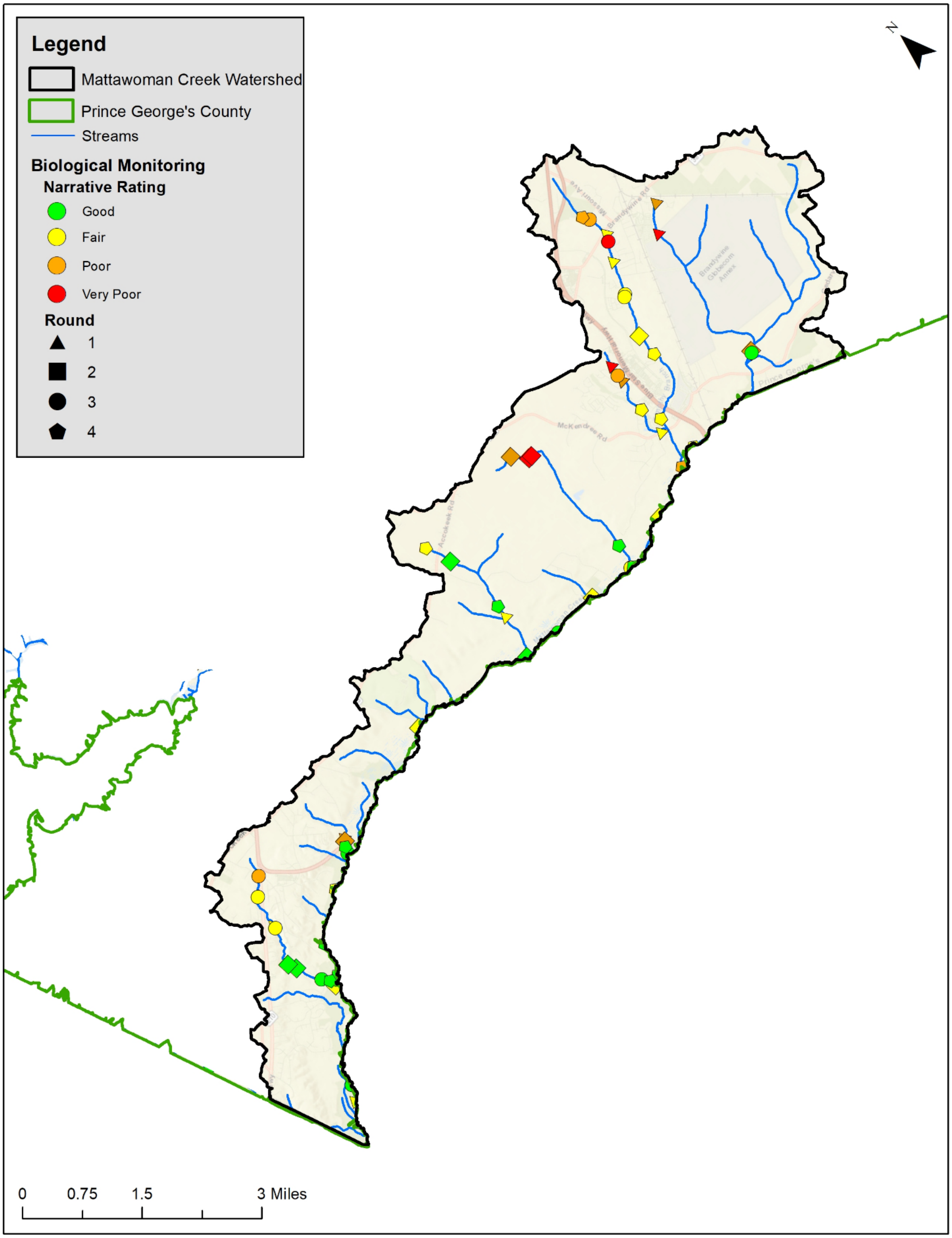

Figure 16. Biological Assessment Narrative Ratings by Monitoring Location in Mattawoman Creek Watershed.

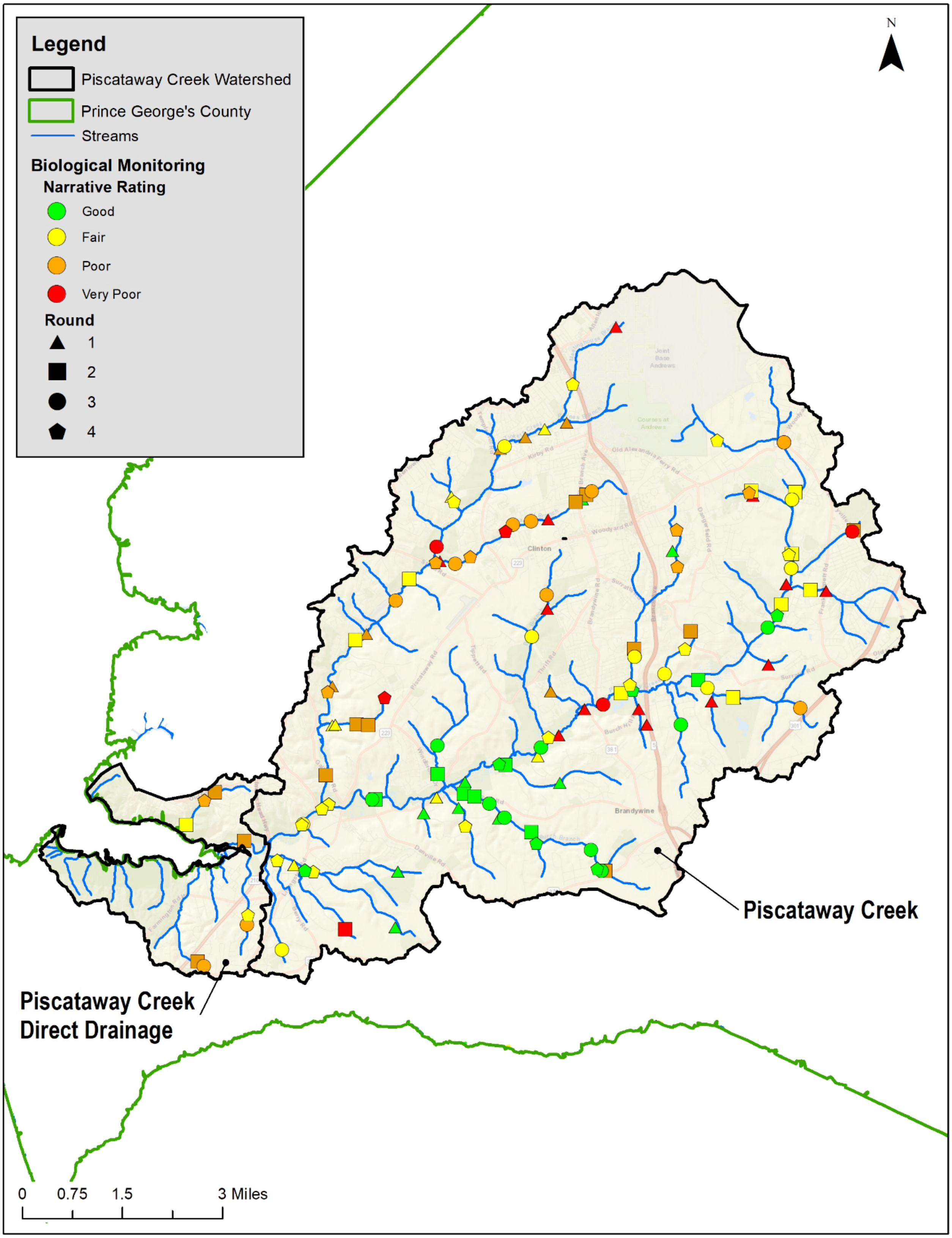

Figure 17. Biological Assessment Narrative Ratings by Monitoring Location in the Piscataway Creek Watershed.

2. 2022 MDE PCB WIP Guidance & Requirements

The *Guidance for Developing Local PCB TMDL (Total Maximum Daily Load) Stormwater Wasteload Allocation (SW-WLA) Watershed Implementation Plans (WIPs)* (MDE 2022a) outlines the planning, monitoring, reporting requirements, and recommendations to fulfill source trackdown investigation obligations necessary to comply with Part IV.F.2 Standard Conditions of the County's MS4 permit. This section reviews and summarizes the August 2022 MDE Guidance.

This guidance will be applied to the Anacostia, Potomac, and Patuxent (tidal fresh only) river watersheds to address their TMDLs. The PAXMH and PAXOH received 0% load reductions, so the MDE guidance will only be applied to the PAXTF portion of the watershed. (See Figure 1 for watershed boundaries.)

The Tidal Potomac and Anacostia River PCB TMDL applied a 5% reduction for the Piscataway Creek and Mattawoman Creek watersheds. The separate PCB TMDL for the Piscataway and Mattawoman watersheds had a similar 5% reduction. Both TMDLs concluded that the proposed 93% reduction in atmospheric deposition of PCBs should adequately address the reductions in the MS4 stormwater loads, which do not need to be addressed directly. Therefore, the County will not perform a PCB trackdown assessment for these watersheds. Similarly, the Potomac River, Middle portion of the Potomac River watershed received only a 5% reduction and will not be addressed using this guidance. (See Figure 1 for watershed boundaries.)

2.1. Introduction and Overview of MDE's Methodology:

MDE's PCB WIP guidance covers four topics:

- Planning
- Monitoring
- Reporting requirements and
- Recommendations for source trackdown investigations.

The PCB guidance differs from MDE guidance for nutrients and sediment in these four ways.

- Compliance requires efforts for the trackdown and remediation of PCB sources.
- MDE does not expect jurisdictions to model or make load reductions in the immediate term. Rather, the PCB guidance focus calls for source trackdown through a desktop analysis of potential risks, followed by water quality monitoring.
- Stormwater management facilities concentrate many types of pollutants, but are not allowed to be dredged to meet the requirements of the TMDL; additionally disallowed are programmatic BMPs, such as outreach and education, to be counted towards meeting the TMDL requirements.
- Permittees are not required to assign an exact end-date to achieve the WLAs.

2.2. PCB Source Trackdown Components

A source trackdown program aims to find the sources contributing to elevated concentrations of PCBs in County waterways. PCB source trackdown has three primary analyses that are described in detail in this document: PCB source assessment (Section 3), subwatershed prioritization strategy (Section 4), and multi-phase trackdown investigation (Section 5). These three analyses can repeat during different steps (or phases) of the overall PCB source trackdown, corresponding to finer scales of the study area. The three scales denoted as Steps 1 through 3 in Figure 18—from larger to finer scale—are the subwatershed scale, the local scale, and the conveyance [system] scale. The overall general flow of PCB source trackdown analyses is shown in Figure 18, with Steps 1 through 3 requiring assessments, prioritization strategies, and trackdown investigation analyses. MDE acknowledges that the overall PCB source trackdown study process will be an adaptive and iterative undertaking.

Step 1 **Subwatershed PCB screening** **(Subwatershed Scale)**	**PCB Source Assessment:** Desktop analysis to identify potential sources of PCBs in TMDL subwatersheds
	Subwatershed Prioritization Strategy
	Multi-phase Source Trackdown Investigation: Subwatershed PCB Screening (Phase I Source Trackdown Investigations)
Step 2 **In-stream subwatershed PCB characterization** **(Local Scale)**	**PCB Source Assessment:** Desktop analysis to identify sources of PCBs for Phase II source trackdown investigations
	Subwatershed Prioritization Strategy
	Multi-phase Source Trackdown Investigation: In-stream Subwatershed PCB Characterization (Phase II Source Trackdown Investigations)
Step 3 **MS4 PCB characterization** **(Conveyance Scale)**	**Multi-phase Source Trackdown Investigation:** MS4 PCB Characterization (Phase III Source Trackdown Investigations)

Figure 18. PCB Source Trackdown Steps in 2022 MDE Guidance.

2.2.1. PCB Source Assessment by Subwatershed

The first analysis in a subwatershed trackdown study is to identify potential sources of PCBs using a desktop analysis of existing data resources using geographic information system (GIS) datasets at the subwatershed scale in TMDL watersheds. The primary purpose of the desktop source assessment is to identify subwatersheds that could require additional source trackdown investigations by identifying potential legacy PCB sources (e.g., transformers, certain types of industries). Simultaneously, the source assessment considers natural and water resource assets, use-class designations, and risks to those assets to prioritize the assets impacted by PCBs.

All data are assembled into a project geodatabase for incorporation into the DoE's master GIS file server, which is accessible to all DoE staff. The source assessment, list of potential source types, and its data sources are described in detail in Section 3 of this document.

2.2.2. Subwatershed Prioritization Strategy

Following the PCB source assessment desktop GIS analysis, the County will rank each subwatershed using MDE's *TMDL Subwatershed Risk Assessment* spreadsheet. Subwatersheds with the highest risk (score) based on MDE's scoring methodology will be prioritized for in-field source trackdown investigations. This step is discussed in detail in Section 4.

2.2.3. Multi-Phase Source Trackdown Investigation (Phases I, II, and III)

This next analysis is a combined desktop and field investigations (or in-stream subwatershed PCB characterization) to pinpoint discrete sources of PCBs in the subwatersheds. This analysis has three phases (Figure 18), which are described in Section 5. A sampling and analysis plan (SAP) and a quality assurance project plan (QAPP) are required for each phase. The SAP will provide details of the monitoring, including sampling methodologies and locations.

Based on the results of the source assessment and multi-phase source trackdown data evaluation, the County must coordinate with MDE for the identification of responsible parties and to implement mitigation or remediation measures and, where necessary, regulatory enforcement. When there are direct drainages with PCB contamination, the County must coordinate with MDE for alternate regulatory enforcement mechanisms. Monitoring sites with exceedances above the TMDL or sediment endpoints, but no upstream MS4 outfalls or other discrete discharges, could indicate the presence of legacy upland sources or a contaminated stream bank or bed sediment. In such cases, the County must work with MDE to identify the responsible party to assign remediation responsibilities.

The investigation monitoring methodology is briefly described in Section 5 of this document, along with information on how the monitoring results will be used to declare subwatersheds and sewersheds as PCB-free or when to continue with source trackdown.

3. PCB Source Assessment

Although no longer commercially produced in the United States, PCBs could be present in products and materials produced before the 1979 PCB ban. Due to their unique chemical and physical makeup, PCBs persist in the environment and can still be released from these legacy sources. When released, PCBs tend to concentrate in sediment, but are also present in free and dissolved concentrations in the water column, making these congeners available for uptake by aquatic organisms, as well as other animals and humans.

Sources of PCBs in the watershed can be characterized as either point or nonpoint sources. A *point source* is described as a discernible, confined, and discrete conveyance from which pollutants are or may be discharged to surface waters; this process is permitted through the NPDES program. Point sources of PCBs could include sources from legacy industrial activities of known sites with PCBs previously regulated by the State, wastewater treatment plants, sewer overflows, and MS4s. *Nonpoint sources* are diffuse sources that typically cannot be identified as entering a water body through a discrete conveyance at one location, such as atmospheric deposition, contaminated sediment, runoff from contaminated sites, and groundwater. In the County, all sources of pollutant loading not regulated by NPDES permits are considered nonpoint sources.

Identifying the sources of PCBs is critical to developing appropriate strategies to reduce the amount of those pollutants getting into the waterways. DoE recognizes that effective PCB reduction requires a long-term commitment to routine and consistent sampling, measurement, analysis, and reporting.

Subsections 3.1 and 3.2 are an overview of the datasets described in the August 2022 PCB Guidance from MDE. Most datasets were provided by MDE. The County will also use its internal data to help inform each portion of the trackdown process. The first subsection details the subwatershed scale desktop analysis, which reviews potential high priority sources to aid in prioritizing subwatersheds for trackdown investigations. This data is used to create a *risk score*[4] (Section 4) for each subwatershed.

Subsection 3.2 is a local scale (Step 2 in Figure 18) desktop analysis, which is implemented after PCBs are detected from the Phase I subwatershed scale trackdown investigation monitoring. The local scale desktop analysis helps identify upstream sources as well as tributaries and stormwater outfalls for monitoring in-stream subwatershed PCB characterization (Phase II Source Trackdown Investigation).

3.1. Phase I: Subwatershed Scale Desktop Analysis

The first step in the PCB trackdown study includes conducting a GIS desktop analysis of potential PCB sources. This analysis evaluates areas with known or suspected PCB contamination. Information supplied by MDE as well as current County data is evaluated, catalogued, and plotted as part of the assessment to help identify current or historical sources of

[4] A risk score is a calculated of potential risk of PCB contamination using information from the Phase I PCB source assessment.

potential contamination and their spatial distribution. The County will create and maintain a PCB Trackdown GIS geodatabase with pertinent trackdown data as part of the WIP.

In most cases, PCBs in the County are likely diffuse and difficult to pinpoint. One of the primary transport mechanisms of PCBs is through the runoff of contaminated sediment from urban and industrial areas. PCBs typically adsorb to fine sediment particles and move through waterways as the suspended sediment and is ultimately transported downstream.

A records analysis review includes the evaluation of many County, state, and federal data sources that contribute to background and location information about facilities, historical activities, and land use among others. Table 5 presents the list of data sources that must be collected and reviewed as part of the Phase I source assessment per MDE guidance. If any of these data are not used, the County must document why the data was excluded from the prioritization analysis. The records included in the datasets below will be used as inputs to the subwatershed prioritization trackdown strategy; additionally, these records will be used in the multiphase trackdown investigations.

Table 5. List of Phase I Watershed Scale Source Data.

PCB Source Data Category	Source	Data Source
PCB transformers	• EPA PCB Transformer Registry Database	MDE provided
PCB activities	• EPA PCB Activities Database (PADS)	MDE provided
hazardous waste sites (Superfund/ Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA])	• MDE Land Restoration Program (LRP)	MDE provided
NPDES permitted wastewater and stormwater dischargers (active and inactive)	• MDE Wastewater Permits Interactive Search Portal • EPA Permit Compliance System (PCS) and Integrated Compliance Information System (ICIS) search • EPA Enforcement and Compliance History Online (ECHO) search • EPA Facility Registry Service (FRS) search	County search of listed sources
known toxic releases	• EPA Toxic Release Inventory (TRI) Database	MDE provided
known PCB releases	• National Response Center (NRC) Database	County search of listed source
historic landfills	• MDE Historic Landfill Initiatives (HLI) Report	MDE provided
MDE permitted solid waste acceptance facilities (Active and Closed)	• MDE website • County Planning Department GIS	County search of listed sources
MDE permitted sewage sludge utilization activities	• MDE Sewage Sludge Utilization Facilities	MDE provided
public angler access sites	• MD DNR website • County Parks Department • Maryland GIS	County search of listed sources

PCB Source Data Category	Source	Data Source
sanitary sewer overflows	• MDE website database search	County search of listed source
military installations	• MDE provided GIS • Chesapeake Bay GIS	MDE provided / County search of listed source
land use	• Maryland Department of Planning (MDP) • MDE provided GIS	MDP / MDE provided

EPA PCB Transformer Registration Database and Reclassified Transformers

EPA maintains an inventory of all in-use PCB transformers, which are those with greater than 500 ppm of PCBs in its Transformer Registration database. The database maintains the address of registered transformers. The addresses need to be converted to latitude and longitude for the desktop analysis.

Historical spills and leaks in those areas also pose a threat of PCB contamination in the soil or nearby water bodies.

If transformers in the County are added to the list, the County will create a table and GIS shapefile of *PCB transformer* (>500 ppm of PCBs), *PCB contaminated transformers* (>50 - <500 ppm of PCBs) as well as *reclassified transformers* (where mineral oil replaced PCB-laden oil) locations within the TMDL watersheds using registration information provided in EPA's "PCB Transformer Database" table as a potential source of legacy contamination. Reclassified transformers are of interest because they can contain remnants of PCB-laden oil.

EPA PCB Activities Database

EPA maintains the PCB Activity Database (PADS), which identifies researchers, generators, transporters, commercial stores, and / or brokers and disposers of PCBs. Companies or individuals engaged in those activities or conducting PCB research and development must notify EPA, which issues them an identification number.

The County will review PADS' most recent spreadsheet in conjunction with the industrial / commercial land use and NPDES GIS analyses to identify facilities with a high potential for PCB contamination. This review will result in creation of a table and companion GIS shapefile of the site locations within TMDL watersheds.

Hazardous Waste Sites - MDE Land Restoration Program (LRP)

MDE's LRP focuses on addressing uncontrolled hazardous waste sites in the state. The LRP Controlled Hazardous Substance (CHS) Enforcement Division manages the oversight of sites not on the federal National Priority List, while monitoring remediation efforts. This division also oversees environmental remediation at sites throughout Maryland with primary emphasis on the Brownfield Master Inventory (BMI), a list of sites known or reported to be contaminated by hazardous waste. The Voluntary Cleanup Program (VCP) encourages the cleanup or redevelopment of brownfield properties. The LRP focuses on protecting public health by limiting risks to human health and the environment posed by contaminated soil, groundwater, and surface water via remediation. Remediated sites can still pose a risk, including those not required to conduct ongoing cleanup, if legacy contamination leaves the site and enters adjacent waterways.

The County will create additional tables and a GIS shapefile of documented hazardous waste sites within the respective TMDL watersheds and cross check these two data resources against LRP's BMI. Both active and archived BMI sites will be mapped to identify areas that may pose an ongoing threat of PCB migration. Federal Superfund sites identified in the EPA Superfund Enterprise Management System will also be entered into the County database.

NPDES Permitted Wastewater and Stormwater Dischargers

Under the NPDES stormwater program, operators of large, medium, and regulated small MS4s as well as WWTPs and industrial wastewater dischargers must obtain authorization to discharge pollutants. NPDES-permitted facilities are assigned a major Standard Industrial Classification (SIC) code based on the type of facility (e.g., electrical services). Table 6 displays the SIC codes most likely to be associated with PCBs (MDE 2022a).

Table 6. Major Standard Industrial Classification (SIC) Codes for NPDES Facilities Potentially Discharging PCBs.

Major SIC code group	SIC code description
2000	food and kindred products
2100	tobacco products
2200	textile mill products
2600	paper and allied products
2700	printing, publishing, and allied industries
2800	chemical and allied products
3000	rubber and miscellaneous plastics
3200	stone, clay, glass, and concrete products
3300	primary metal industries
3400	fabricated metal products
3600	electronic and other electrical equipment
3700	transportation equipment
4000	railroad transportation
4200	motor freight transportation
4400	water transportation
4700	transportation services
4900	electric, gas, and sanitary services
5000	wholesale trade - durable goods
5100	wholesale trade - nondurable goods
7600	miscellaneous repair service
9700	national security and international affairs

Source: MDE 2022a

Wastewater facilities might include those publicly owned treatment works providing wastewater treatment and disinfection for sanitary sewer systems, or industrial facilities providing treatment of process waters.

As part of the subwatershed prioritization step the County will enter facilities with SIC codes listed in Table 7 in the TMDL watersheds into the GIS geodatabase.

EPA Toxic Release Inventory (TRI) Database

The TRI is a publicly available EPA database that contains information on toxic chemical releases and other waste management activities, including those related to PCBs, that could pose threats to human health and the environment. This database contains information on volumes / amounts of specific chemicals of concern that are released by industrial sectors. The County searched for TRI facilities with the potential for PCB releases based on their SIC code, particularly if these facilities were not previously identified in the evaluation of NPDES permitted wastewater and stormwater dischargers.

National Response Center (NRC) Database

The NRC is a 24-hour-a-day emergency call center operated by the U.S. Coast Guard. This center is tasked with recording and reporting instances of oil and chemical releases into the environment. Reports generated by the NRC are forwarded to appropriate federal or state agencies for response and are available by year beginning in 1990.[5]

The County will create a table and GIS shapefile of all incidents from 1990 to the present within the respective TMDL watersheds. An initial review of the database showed records associated with Prince George's County. These will be reviewed and processed during the source trackdown analysis.

MDE Historic Landfill Initiatives (HLI) Report

Dumps and landfills in the State of Maryland were generally unregulated prior to the 1950s. To better understand the extent and severity of potential environmental and human health hazards, MDE (2009) was tasked to document historic landfill sites throughout the state. The HLI has identified sites, which they define as either as municipal, industrial, rubble, land clearing, clean fill, or unknown.

The County will create a table and GIS shapefile of the historic landfill sites within TMDL watersheds using the information provided in the "Historic Landfills" Excel file. The County will enter the historical location of landfill facilities within the respective TMDL watersheds in the PCB trackdown geodatabase.

MDE Permitted Solid Waste Acceptance (SWA) Facilities

Since 1914, Maryland has had laws requiring solid waste to be managed to minimize environmental impacts. MDE's Solid Waste Management Program is responsible for ensuring that domestic, commercial, and nonhazardous industrial solid waste is managed properly and

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[5] https://nrc.uscg.mil/Default.aspx

does not pose risks to public health and water resources[6]. This long-standing practice has created an opportunity for PCB contamination via disposal, processing, or transfer of PCB containing materials and equipment.

MDE's *Permitted Solid Waste Facilities* online database includes information for solid waste acceptance facilities permitted for refuse disposal permits, groundwater discharge permits, and natural wood waste recycling. These documented facilities include municipal landfills, rubble landfills (construction and demolition debris), solid waste processing facilities, and solid waste transfer stations.

The County will enter all SWA facilities within the respective TMDL watersheds in the PCB trackdown geodatabase.

MDE Permitted Sewage Sludge Utilization Activities

Sewage sludge (also referred to as biosolids) is the product of treated sewage from a wastewater treatment plant or septic tank. A typical practice is to reuse biosolids in agriculture by spreading biosolids for fertilizer, as the practice returns nutrients to the soils. However, this practice presents the possibility of PCBs leaching into the soil. The Sewage Sludge Utilization Permit from MDE requires that PCB concentrations in sewage sludge be lower than 10 ppm for land application, which still has the potential for contamination of stormwater that could lead to human health and ecological risks. The chief health and environmental concern arises because of PCB bioaccumulation in fish and the potential impact on human health from fish consumption (MDE 2022a).

Using MDE's sewage sludge utilization permits the County will create a table and GIS shapefile of sewage sludge utilization activities in their respective TMDL watersheds.

Public Angler Access Sites

While recreational and subsistence fishing is not a source of contamination, this activity is the primary pathway for human ingestion of fish with elevated levels of PCBs. The County will consult the MD DNR's interactive Fishing and Boating Services Anglers Access Map to incorporate data from this map into the database (MDE 2022a). The County also identified additional geospatial data on Maryland sports fishing venues from Maryland iMap. The Maryland-National Capital Park and Planning Commission / Prince George's County parks website has a park finder function that users can use to search for parks with amenities, such as fishing. The County will enter this information for the respective TMDL watersheds into the PCB trackdown database.

Sanitary Sewer Overflows (SSOs)

Sanitary sewers occasionally unintentionally discharge raw sewage to surface waters during events called SSOs. These events have the potential to discharge PCBs into local waterways. SSOs can be caused by sewer blockages, pipe breaks, defects, and power failures.

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[6] https://mde.maryland.gov/programs/Land/SolidWaste/Pages/index.aspx

The Maryland Reported Sewer Overflow Database contains the bypasses, combined sewer overflows (CSOs), and sanitary sewer overflows reported to MDE from January 2005 through the most recent update. The County will maintain a database based on the addresses of all SSOs, CSOs, and bypasses from 2005 to the present within the TMDL watersheds. These events will be reviewed and processed during the source trackdown analysis.

Military Installations

Military facilities often have equipment with electrical systems that could contain PCBs. The constituents in fire retardants have also historically contained PCBs. The County will use (1) the Chesapeake Bay Program dataset of all U.S. military installations in the Chesapeake Bay, and (2) the geospatial data for military facilities with Phase II MS4 permits and those without permits. The County will enter all information for military installations, ranges, and training areas within the respective TMDL watersheds into the County trackdown geodatabase.

Land use (PCB Era Development)

Buildings constructed or renovated between 1929 and 1979 (PCB manufacturing era) commonly have PCB-containing building materials and electrical equipment containing PCBs.

The County will document PCB-era building development within the TMDL watersheds using a combination of the Maryland Department of Planning (MDP) 2010 land use and County property geospatial data. Parcels developed during the PCB manufacturing era will be categorized by type— industrial, commercial, institutional, residential (high, medium, and low- density), and extractive—to isolate potential sources for subwatershed prioritization. The geodatabase will also include non-PCB era development and non-urban land uses (agriculture, forest, water, wetlands).

3.2. Phase II: Local Scale Desktop Analysis

The County will evaluate the following resources in TMDL subwatersheds requiring Phase II in-stream subwatershed PCB characterization. This information (Table 7) will be used in the sampling design for Phase II, meaning that these data sets will not be needed during Phase I. The data will help identify tributaries and outfalls to monitor as part of the Phase II trackdown investigations (Section 5.2.2).

Table 7. List of Phase II Local Scale Source Data.

PCB Source Data Category	Source	Data Source
NPDES phase I MS4 infrastructure & impervious	• Internal County	County files
aerial imagery	• Numerous	Numerous
construction activities	• Internal County	County files
electrical power transmission networks	• U.S Energy Information Administration	MDE provided
state and federal facilities (non-military)	• MDE provided	MDE provided
NPDES phase II MS4 municipalities	• MDE provided	MDE provided
NPDES phase I MS4 State Highway Administration (SHA) infrastructure	• MDE provided	MDE provided
rail transportation network	• MDE provided	MDE provided / County files

PCB Source Data Category	Source	Data Source
	• County Planning Department GIS	
dredging activities and dredged material placement sites	• MDE Wetlands and Waterways Permits Interactive Search Portal	County search of listed sources
non-permitted industrial wastewater and stormwater dischargers	• MDE Wastewater Permits Interactive Search Portal • EPA Permit Compliance System (PCS) and Integrated Compliance Information System (ICIS) search • EPA Enforcement and Compliance History Online (ECHO) search • EPA Facility Registry Service (FRS) search	County search of listed sources

NPDES Phase I MS4

This data category includes features in the MS4 network, such as BMPs, stormwater conveyance pipes, and stormwater nodes, such as inlets and outlets. The County has this information geospatially, along with impervious area extent. This information will help identify downstream pipes, outlets, and BMPs from potential sources. Such data will be used to develop a sampling design at outfalls or stream segments most likely to receive PCB from potential sources.

Aerial Imagery

The County will overlay high resolution aerial imagery with potential PCB sources to identify potential illicit sources of PCBs that would not have been identified during the Phase I desktop PCB source assessment. These illicit sources could be waste piles or junk yards in areas zoned as residential or similar. Sources of the imagery could be the 2018 National Agriculture Imagery Program aerial imagery, the 2017 & 2020 Maryland Six Inch Resolution Aerial Imagery, or equivalent.

Construction Activities

Stormwater could be contaminated through redevelopment or renovation of properties from building materials containing PCBs. While the MDE 2023 general permit for construction activity stormwater includes PCB control requirements, the permit does not address disturbance of potentially contaminated soils that could be transported offsite by stormwater during construction. Practices that control and retain sediment left in place after construction can be a source of PCBs.

Data on construction activities from the past five years will be obtained from the Prince George's County Department of Permitting, Inspections and Enforcement's construction permit database. These activities will include those that need a general construction permit (20-CP) and smaller land disturbing projects with county-specific permits. This information will be cross referenced with parcels developed, built, or renovated during the PCB era.

Electrical Power Transmission Networks

Historically, PCB-containing fluids were used in electrical equipment (e.g., transformers, capacitors, ballasts) and electrical power transmission networks (e.g., power plants, transmission lines, underground transformer vaults, above-ground transformer concrete pads). Despite the 1970s ban on producing PCBs, some of this equipment is permitted to remain in service. The U.S Energy Information Administration (EIA) website has substation locations under the Homeland Infrastructure Foundation-Level Data. The EIA website also has geospatial data on power transmission lines. This data will be entered into the PCB trackdown database as they could be potential sources of contamination from an accidental release during maintenance and repair or catastrophic failure. Local utilities will be contacted to obtain a higher level of confidence in the location and age of these facilities. This effort will complement information available on the EPA PCB Transformer Registry Database and NPDES industrial wastewater and stormwater discharge permit holders.

State and Federal Facilities (Non-Military)

The County has many non-military state and federal facilities, some of which are permitted MS4s. This data will be used to inform sampling design. Future monitoring could indicate that these facilities are potential sources of PCB contamination.

NPDES Phase II MS4 Municipalities

Potential PCB sources in Phase II MS4 municipal areas could be mapped to specific outfalls, thus informing future sampling efforts. The County will inform municipalities of any confirmed results for PCBs that could emanate from that jurisdiction. All Phase II municipalities in the County, except Bowie, are covered with a memorandum of understanding with Prince George's County to be covered under the County's MS4 permit.

The municipal Phase II MS4 entities in the Anacostia River watershed are:

- Berwyn Heights
- Bladensburg
- Brentwood
- Capitol Heights
- Cheverly
- College Park
- Colmar Manor
- Cottage City
- Fairmount Heights
- Glenarden
- Greenbelt
- Hyattsville
- Landover Hills
- Mount Rainier
- New Carrollton
- Riverdale Park
- Seat Pleasant
- University Park

The municipal Phase II MS4 entities in the Potomac River watershed are:

- District Heights
- Forest Heights
- Morningside

The municipal Phase II MS4 entity in the Patuxent River watershed is:

- Bowie

NPDES Phase I MS4 State Highway Administration (SHA) Infrastructure

MDE provided the areas under the SHA permit, mainly state highways and their rights-of-way. This information does not show stormwater infrastructure such as inlets or conveyance pipes, which the County will request from SHA. Potential PCB sources in Phase II SHA areas could be mapped, thus informing sampling design in Phase II of the source trackdown investigations. The County will not be responsible for trackdown sampling in the SHA MS4.

Rail Transportation Network

Rail transportation networks use PCB-containing electrical equipment, like electrical power transmission networks. PCB-era equipment could still be in use or PCBs could have been released during prior equipment replacements or spills. The County will use its railway geospatial information to help inform future phases of the PCB trackdown effort.

Dredging Activities & Dredged Material Placement Sites

Dredging waterbodies can resuspend sediment contaminated with PCBs or expose previously buried PCB-contaminated sediments. The beneficial reuse of land applied dredge materials holds the possibility of transporting of PCBs, where these compounds can enter the environment through stormwater or groundwater. The County will access information on permitted dredging activities through the MDE Wetlands and Waterways Program *Wetlands and Waterways Permits Interactive Search Portal* website. The results will be incorporated into the geodatabase to evaluate the dredging activities and dredged material placement.

Non-permitted Industrial Wastewater and Stormwater Dischargers

This data set could capture industrial facilities that might be operating without NPDES permits. The dataset content overlaps with the requirement set forth in section C.2 Source Identification, of the Phase I MS4 permit. Once identified, the analysis is like that of *NPDES Permitted Wastewater and Stormwater Dischargers.* As possible, the County will identify non-permitted industrial facilities, including historic facilities active during the PCB era of 1929-1979, which may be a source of legacy contamination with the potential to discharge PCBs in their stormwater or wastewater; the information will be entered into the PCB trackdown geodatabase.

4. Subwatershed Prioritization

Under this component of the overall PCB source trackdown program, the County will calculate risk scores for each subwatershed by using the information collected under the *PCB Source Assessment Phase I: Subwatershed Scale Desktop Analysis*. The risk score will be used to identify the subwatersheds with the greatest potential of PCB contamination, based on the number and type of potential sources.

A risk score of the potential for release of PCB contamination in wastewater, stormwater, or groundwater is calculated for each subwatershed to prioritize future sampling investigation efforts. MDE guidance presents the methodology to calculate risk scores using a three-tiered approach using an assumed risk of each PCB source type separated. MDE assigned a tier to each source type based on the high, medium, and low potential for PCB contaminations from the source.

Table 8 presents the subwatershed scale desktop analysis source types, their tier, and risk value, which are variables used to calculate the risk score are described below. Table 9 presents the same information for different types of permitted dischargers. The information from these tables was obtained from an Excel workbook that MDE provided with their 2022 PCB guidance.

Urban land use associated with PCB-era development, one of the PCB source categories evaluated in the PCB Source Assessment, is not incorporated as a tier consideration; however, these data are considered with the overall risk scores, to generate a TMDL ranking and subwatershed prioritization.

The risk score for each subwatershed is calculated using the following equation.

$$S = (T1 \times 10) + (T2 \times 5) + (T3 \times 1)$$

where;

S = TMDL subwatershed risk score

T1 = Number of tier 1 (high potential) PCB sources (10 points each)

T2 = Number of tier 2 (medium potential) PCB sources (5 points each)

T3 = Number of tier 3 (low potential) PCB sources (1 point each)

The results of the subwatershed risk score calculations are presented in Appendix A.

Table 8. MDE *TMDL Subwatershed Risk Table* Scoring.

PCB Source Category	Tier	Risk Value*
PCB Transformers (EPA PCB Transformer Registry Database)	1	10
PCB Activities (EPA PCB Activities Database)	3	1
Hazardous Waste Sites (Superfund/CERCLA)	1	10
NPDES Permitted Wastewater and Stormwater Dischargers (Active and Inactive)	See Table 9.	
TRI Facilities (EPA TRI Database)	3	1

PCB Source Category	Tier	Risk Value*
PCB releases (NRC Database)	2	5
Historic Landfills	2	5
MDE Permitted Solid Waste Acceptance Facilities (Active and Closed)	2	5
MDE Permitted Sewage Sludge Utilization Activities	2	5
Public Angler Access Sites	3	1
Sanitary Sewer Overflows	3	1
Military Installations	1	10

*Risk values are assigned based on a tiered approach by MDE. Three tiers have been assigned based on sources having a high, medium, or low potential for release of PCB contamination in wastewater, stormwater, or groundwater.

Table 9. MDE *NPDES Discharger Risk Table* Scoring.

Major SIC Code Group	SIC Code Description	Tier	Risk Value*
2000	Food and Kindred Products	2	5
2100	Tobacco Products	2	5
2200	Textile Mill Products	1	10
2600	Paper and Allied Products	2	5
2700	Printing, Publishing and Allied Industries	2	5
2800	Chemical and Allied Products	1	10
3000	Rubber and Miscellaneous Plastics	3	1
3200	Stone, Clay, Glass and Concrete Products	3	1
3300	Primary Metal Industries	1	10
3400	Fabricated Metal Products	2	5
3600	Electronic and Other Electrical Equipment	1	10
3700	Transportation Equipment	2	5
4000	Railroad Transportation	2	5
4200	Motor Freight Transportation	2	5
4400	Water Transportation	1	10
4700	Transportation Services	1	10
4900	Electric, Gas and Sanitary Services	1	10
5000	Wholesale Trade - Durable Goods	1	10
5100	Wholesale Trade - Nondurable Goods	2	5
7600	Miscellaneous Repair Service	2	5
9700	National Security and International Affairs	2	5

*Risk Value for Major SIC Code Groups assigned based on the findings of the VADEQ study (Richards 2016) which established high, medium, and low levels of PCB contamination in wastewater and stormwater discharges.

5. Multi-Phase Trackdown Investigations

The final analysis of PCB source trackdown includes sampling for the presence of PCBs and the identification of potential sources through trackdown investigations. This component of the overall PCB source trackdown program is driven by the data collected in the source assessment and prioritization.

This part of the process includes three phases at different scales, which are depicted in Figure 19, using a geographically-based watershed example. Figure 19 uses three images, from left to right, showing the order and analytical task of these three phases:

- Phase I: Subwatershed PCB Screening
- Phase II: In-stream Subwatershed PCB Characterization
- Phase III: MS4 PCB Characterization

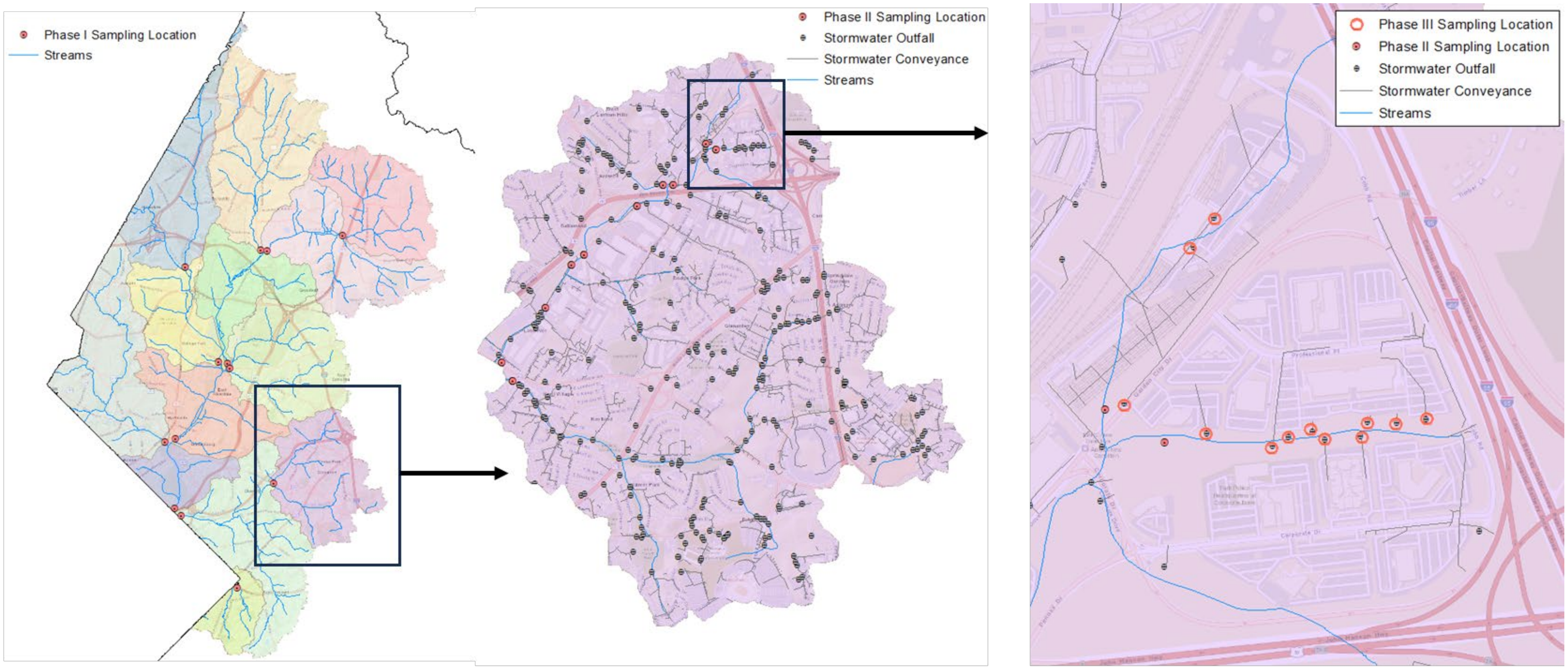
Each phase will require its own SAP and QAPP, because each phase is conducted at different scales requiring different sampling techniques, as described in Section 5.1. Each phase also requires a different approach to data interpretation and outcomes. Section 5.2 describes this process in detail.

MDE requires two reference sites to measure background PCB levels. Results from these reference sites will compare trackdown PCB data to reference PCB data. Importantly, these reference sites should not have any urban development or potential sources of PCBs present, as identified through the PCB source assessment. Additionally, reference sites must be in perennial streams with sufficient flow where PCB levels should only be influenced by background concentrations due to atmospheric deposition. Two sites are needed in case one of the sites shows the potential for unknown illicit PCB discharges. If illicit discharge of PCBs is found, results from that reference site will not be used. If there are no suitable reference sites, MDE will allow for the presence of agriculture, roadways, and post-PCB development in the two reference sites or the use of locations in adjacent watersheds. Suitable reference sites will be determined during the SAP development.

5.1. Investigation Monitoring Methodology

This section is an overview of the monitoring methodology for the three phase trackdown investigations. Table 10 presents an overview of the methodologies and techniques. Full descriptions will be in the respective SAP and QAPP. Table 10 describes three main sampling methods:

- *Passive sampling* uses a polyethylene or alternative polymer strip deployed in the water column for three months. These sampling materials can be attached to a weight, such as a concrete block, and must be submerged but not buried in the sediment.
- *Sediment sampling* is the collection of the top two inches of sediment across a cross section of the stream. The collected composite must comprise at least three locations: left bank, mid-channel, and right bank.
- *Automatic sampling* uses an automatic sampler to collect discrete samples throughout a storm event. These samples are then composited for a single representative storm sample.



Phase I:
Subwatershed PCB Screening

Phase II:
In-stream Subwatershed PCB Characterization

Phase III:
MS4 PCB Characterization

Figure 19. Generalized Representation of Multi-Phase Trackdown Investigation.

In all phases, samples must be analyzed using EPA Method 1668, which measures total PCB congeners (chemical constituent) and has a detection level low enough to identify PCB concentrations associated with a diffuse source. The ability to identify a specific congener can also aid in *fingerprinting*; because congeners can be specific to a specific use or industry, fingerprinting can help identify an upland source. Aroclor-based methods (e.g., EPA Method 608, 8082A) are unsuitable for this application due to their high detection limits, which might not detect small levels of PCB contamination.

Table 10. Comparison of Monitoring Requirements and Methodologies for Multi-Phase Trackdown Investigations

Phase /Scale	**I:** Subwatershed PCB Screening	**II:** In-stream Subwatershed PCB Characterization	**III.a:** MS4 PCB Characterization: Outfall and stormwater BMP monitoring	**III.b:** MS4 PCB Characterization: Sewer trackback monitoring
Sample Method	Single passive sampler (polyethylene [PE] or alternative polymer strip) in the water column	1. Single passive sampler (PE or alternative polymer strip) in the water column 2. Composite sediment sample at the surface (top 2 cm)	1. Automatic sampler 2. Passive sampler	1. Automatic sampler 2. Passive sampler 3. Inlet sediment traps
Event Timeline	3-month deployment	1. 3-month deployment 2. Dry period during passive sampler deployment	1. Storm event 2. Multiple storm events	1. Storm event 2. Multiple storm events 3. Resampling out outfalls
Location	Subwatershed outlet	Dependent upon the size of the subwatershed, total stream miles, number of confluences, stormwater outfalls, and the location of potential PCB sources	Stormwater or BMP discharge pipe	– Combination of outfall, in-pipe, catch basin/storm drain, and stormwater BMP PLUS original outfall
Notes	Two reference sites	– Dry period = 72 hours <0.1 inch of rain. – Sediment also analyzed for total organic carbon and grain size.	– Only one technique needed but should be consistent. – MDE is open to alternative techniques.	– Only one technique needed but should be consistent. – MDE open to alternative techniques.

5.2. Investigation Result Interpretation Methodology

This section describes processing data results from the multi-phase trackdown investigations to determine if additional monitoring is required for each phase. The investigation monitoring results will be compared to the mean concentrations from the reference watersheds (called the **reference threshold**) and the TMDL water column endpoint (**TMDL endpoint**). There is also a **sediment endpoint**, which is undefined by MDE in their guidance.

These investigations will take time. MDE expects the PCB source trackdown process to span several permit terms. For example, the County will not be required to conduct Phase II or Phase III source trackdown investigations in the current permit term (December 2022–December 2027). Phase I should be conducted in the current permit term. The County will work with MDE if Phase II and Phase III of the investigation cannot be fully completed in the next permit term. However, MDE expects at least one round of Phase II investigations in a subwatershed that was deemed a priority during Phase I. This timeline is presented in Section 6.3 with other important dates.

5.2.1. Phase I: Subwatershed PCB Screening

This phase consists of installing a monitoring site at the outlet of each subwatershed that is representative of the entire drainage area, not tidally influenced, and captures all potential, discrete sources in the subwatershed. PCB concentrations at subwatershed monitoring sites will determine whether subwatersheds ***will or will not*** require further source trackdown investigations under Phase II and which subwatersheds to prioritize.

Figure 20 presents the generalized decision matrix for determining the next steps (toward Phases II and III) of the trackdown study, which is summarized below:

- If the screening trackdown (TD) result from a subwatershed site is equal to or below the reference threshold, no further trackdown is required for the subwatershed in question.
- If the TD result from a subwatershed site is above the reference threshold, but below the TMDL endpoint, this inquiry is considered indeterminate for sources of PCBs. The reference threshold is measured in dissolved PCBs, while TMDL endpoints are total PCBs. These subwatersheds will likely be ranked low for Phase II trackdown investigations, meaning that the County will focus on higher ranked subwatersheds (greater impairment) for Phase II investigations.
    - MDE will determine whether these subwatersheds require further source trackdown investigations using existing data and information provided by the PCB Source Assessment.
- If the TD result from a subwatershed site is equal to or above the TMDL endpoint, further trackdown is required.
- If the TD result from a downstream subwatershed is equal to or below the result from an upstream watershed, it can be assumed that any PCBs from the downstream subwatershed originated from the upstream subwatershed. Further trackdown might be needed if the TD result in the downstream subwatershed is above the TMDL endpoint and is not significantly lower than the upstream watershed. Sources of PCBs could still be present in the downstream subwatershed requiring source trackdown.

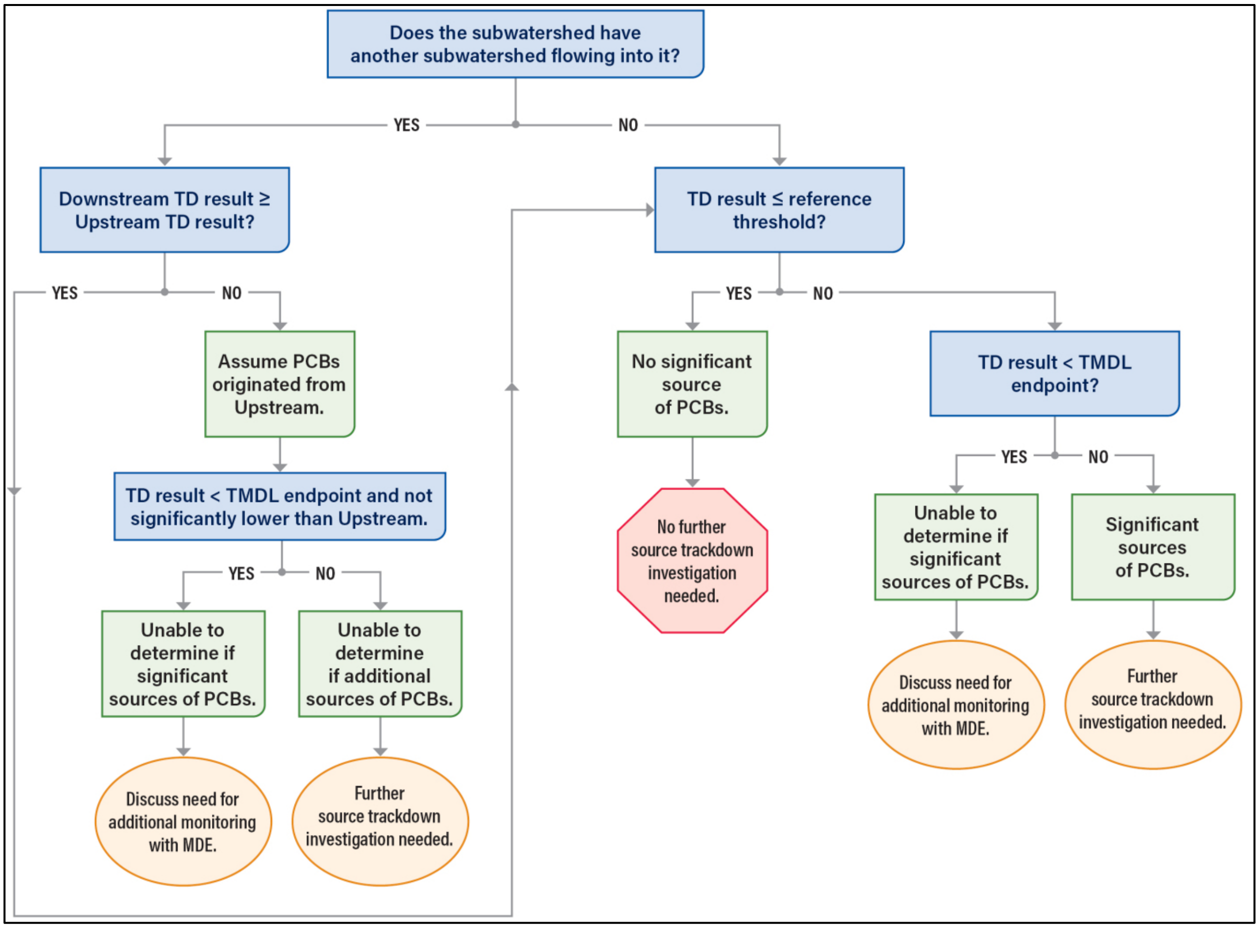


Figure 20. Phase I Source Trackdown Investigation Decision Matrix.

Phase I screening results will be used in conjunction with PCB source assessment results to prioritize the subwatersheds for further investigation under Phase II source trackdown investigation. These steps and the decision matrix allow resources to be spent on higher priority watersheds. Phase I screening results also support new rankings for subwatersheds and will include the source assessment, which identifies the potential for PCB sources, along with the screening data showing actual PCB concentrations.

The results of the Phase I screening will be documented in a data assessment report detailing the results of the Phase I screening. This data assessment report will identify which subwatersheds will undergo the Phase II investigation. These reports will be due by the end of the permit term.

Based on the PCB source assessment, MDE requests that jurisdictions identify potential PCB sources outside of the MS4 area, if possible. MDE would then pursue investigations through other regulatory means. This request applies to watersheds that are not applicable for Phase I investigations. Phase I trackdown investigations are not applicable to subwatersheds with direct areas without a defined stream networks (e.g., overland flow or MS4 outfalls without a stream network) or in subwatersheds where monitoring stations would be tidally influenced. These areas will need Phase III MS4 PCB characterization trackdown monitoring, as discussed later in this subsection (5.2.3).

5.2.2. Phase II: In-stream Subwatershed PCB Characterization

Phase II expands on the information from the Phase I subwatershed screening to identify areas of concern with potential upload PCB sources through additional in-stream monitoring. This phase also helps to determine the potential PCB transport pathways.

PCBs can enter the streams through three main ways:

- Directly from adjacent land areas,
- from upland areas via the MS4 system, or
- from legacy streambed and bank sediment contamination through erosion and resuspension.

Phase II trackdown involves monitoring to *bracket* potential upland PCB loading locations in areas of defined stream networks above the head of tide. This requires monitoring both upstream and downstream of suspected sources to determine if there is a difference in PCB concentrations. The County will prioritize subwatersheds with the greatest potential for PCB contamination to conduct the Phase II characterization trackdown using the Phase II source assessment (desktop) and Phase I trackdown results reported in data assessment reports described earlier.

Monitoring locations and density will vary based on subwatershed size, number of tributaries, stormwater outfalls, and potential PCB sources. If a tributary does not have potential sources identified in the source assessment, then, only an outlet of the stream needs to be monitored. However, if there are potential sources located adjacent to or near tributaries, they will be bracketed during the investigation to help identify the source. A single round of Phase II monitoring might not bracket sources and, thereby, move to Phase III investigations, which entail monitoring MS4 sewersheds and do not include in-stream samples. Additional Phase II monitoring might be needed to bracket stream sections to isolate potential sources of PCBs.

A statistical analysis will be conducted to identify monitoring sites with statistically significant PCB concentrations, which will help identify sources of PCBs upstream of the monitoring location. Statistical significance is established if the PCB concentrations are greater than three standard deviations from the mean for the stream network or an order of magnitude greater than the mean. The standard deviation and mean are determined using all passive and sediment concentrations in the subwatershed. This robust analysis will determine those sites with the most significant upland sources of PCBs. The concentration of dissolved or sediment-sorbed PCBs relative to the reference threshold, TMDL endpoint, and sediment endpoint will dictate additional source trackdown actions.

The next step in Phase II is to compare the relative PCB concentrations between monitoring sites to identify stream sections where there is a significant increase in passive water column or sediment PCB concentrations between the upstream and downstream sites, and the PCB concentrations for the downstream sites exceeding the TMDL water column or sediment endpoints. These conditions indicate significant sources of PCBs are present within the bracketed stream sections requiring further source trackdown investigations.

Figure 20 presents the generalized decision matrix for determining the next steps of the trackdown study, which is summarized below:

- If the Phase II results are lower than the reference threshold, there are likely no significant sources of upload PCB contamination; no further trackdown is necessary.
  - If the downstream result is less than or equal to the reference threshold, but the upstream result is greater than the reference threshold, then potential PCB sources upland of the upstream site are not impacting the downstream site. No further investigation is needed in the bracketed section between the downstream and upstream monitoring locations.
- If the result is higher than the TMDL or sediment endpoints and no upstream monitoring site was established, there could be potential PCB sources that must be bracketed by adding additional monitoring to aid in identifying these sources.
- If the downstream result is greater than the upstream result and the TMDL or sediment endpoint, this condition means that there is a significant PCB source in the bracketed area; therefore, the trackdown should continue.

For bracketed stream portions, two circumstances exist where significant upland or legacy sediment contamination sources are possible. In these cases, the County will evaluate the potential sources identified in the source assessment and review the PCB monitoring results to determine if additional trackdown is needed. These circumstances are:

- A PCB result is higher than the reference threshold, but lower than the TMDL endpoint.
- A PCB result at the downstream site is higher than TMDL or sediment endpoints, but lower than the concentrations at the upstream site.

One Phase II source trackdown investigation sampling round might be sufficient for identifying bracketed stream sections where upland sources of PCBs are present, thus supporting a Phase III source trackdown investigation. However, additional in-stream characterization could be necessary to further isolate potential upland PCB sources if the Phase II monitoring site density is insufficient or water quality data evaluation does not provide definite results from the Phase II source trackdown investigation decision flow matrix.

If the Phase II source trackdown evaluation identifies PCB sources (e.g., contaminated sites, NPDES dischargers) in the direct drainage area of the bracketed stream section, further investigation through MDE regulatory mechanisms could be required. MDE's Watershed Protection, Restoration, and Planning Program will coordinate with the appropriate regulatory authorities within MDE (e.g., Land Restoration Program, NPDES permitting programs) to identify responsible parties for pursuing further investigations at sites identified by the jurisdictions.

The Phase II source trackdown evaluation might not identify discrete PCB sources in the direct drainage area of a bracketed stream section where the water quality data indicates significant sources of PCBs and there are no MS4 discharges to this section. This finding could be potentially due to diffuse contamination in the direct drainage area or due to legacy contamination in the bed sediments of the stream. In these cases, additional investigations or stormwater management/ remediation practices could be required. MDE will work with the County to identify responsible parties and address these sources.

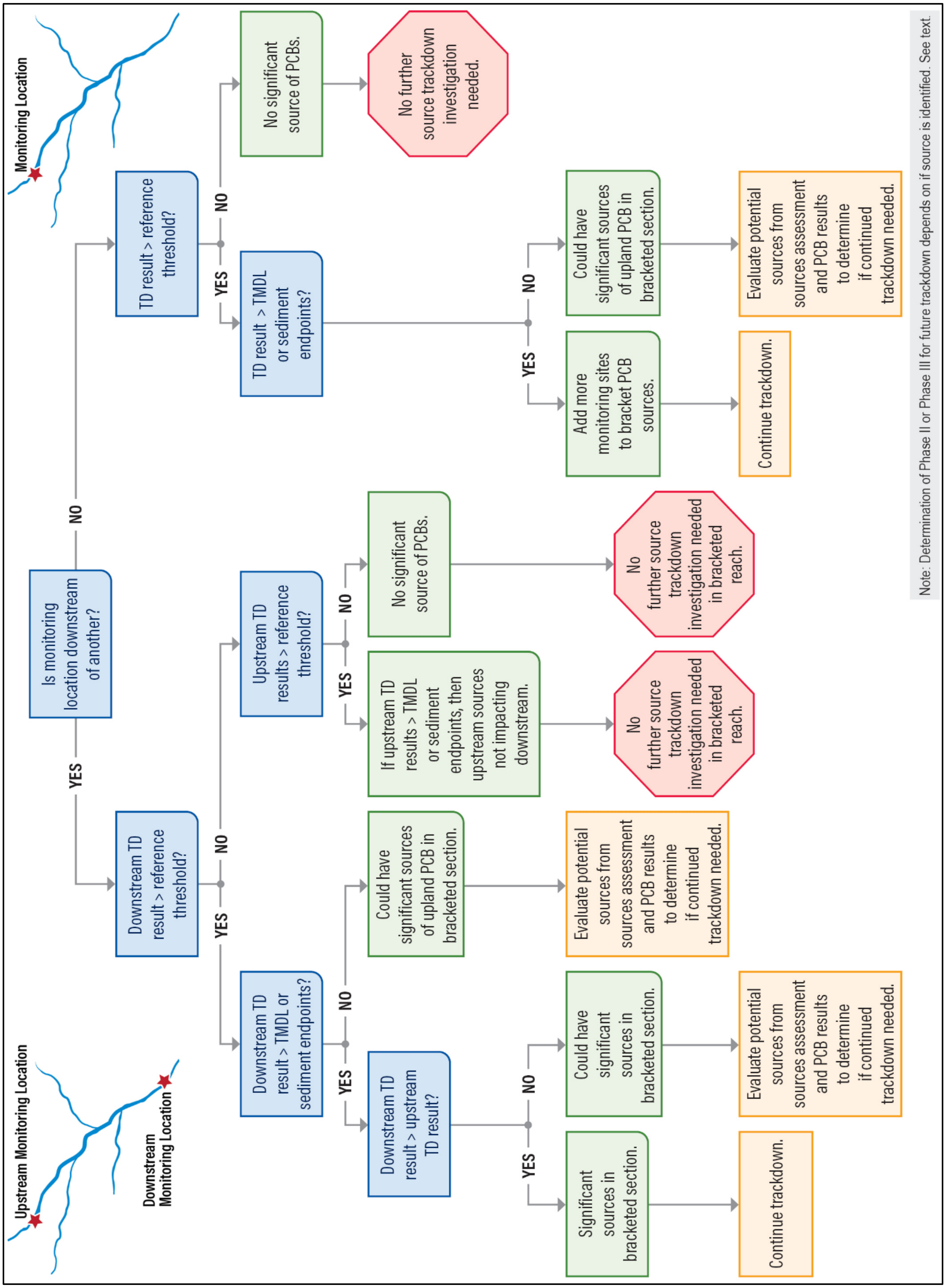


Figure 21. Phase II Source Trackdown Investigation Decision Matrix.

The Phase II in-stream subwatershed characterization outcome will result in a monitoring data assessment report submitted to MDE with a statistical analysis of the monitoring data. The monitoring data assessment report will include a preliminary plan for Phase III source trackdown investigations or additional Phase II source trackdown investigations to further isolate the sources of PCBs. Along with this monitoring data assessment report, a GIS geodatabase of all water quality data points in the subwatershed will be submitted. This GIS geodatabase will support subsequent water quality evaluation(s).

5.2.3. Phase III MS4 PCB Characterization

When Phase II identifies stream sections with possible upland PCB sources, this finding initiates Phase III.

The Phase III MS4 PCB characterization trackdown aims to locate PCB sources contributing to the bracketed stream sections via the County's MS4 sewershed. Phase III trackdown will occur in stream sections identified in Phase II trackdown as having upland PCB sources. Phase III will also be used in cases where Phase I and II investigations were not possible due to tidally influenced streams or because only direct drainages exist in that subwatershed. Only infrastructure regulated by the MS4 permit is required to be monitored.

Phase III investigations are informed by the data from previous source assessments (e.g., location of transformer sites). New or updated information might be needed depending on the accuracy of the initial data. Phase III trackdown activities are adaptive, meaning that monitoring locations, attributes, approaches, and methods can be refined using water quality evaluations. For example, PCB concentrations from outfalls and stormwater BMPs should be compared with TMDL and sediment endpoints. Additionally, these concentrations can be compared to in-stream sediment and water column PCB concentration data from the previous Phase II source trackdown investigations. This iterative approach will allow the County to determine which sewersheds contain upland sources of PCBs or in-pipe PCB contamination.

Phase III monitoring is comprised of two stages, as described below:

- Stage 1: Outfall and Stormwater BMPs
  - All outfalls and stormwater BMPs that discharge to bracketed stream sections are identified in the Phase II investigation.
  - The results are compared to TMDL endpoints and both Phase II water column and sediment PCB results. Monitoring will identify sewersheds that contain upland sources of PCBs or in-pipe PCB contamination, requiring further trackdown (sewer trackback monitoring).
  - Legacy sediment contamination could be a source if no outfall or BMP was identified as PCB sources and no other PCB sources are identified as direct drainage area to the stream segment being evaluated. MDE will work with the County to identify responsible parties to address PCB sources.
- Stage 2: Sewer Trackback Investigation
  - Monitoring at outfall, in-pipe, catch basin, storm drain, and BMP locations to identify PCB contamination sites in the storm sewer network are identified during Stage 1.
  - Outfalls need to be resampled to compare PCB concentrations of outfall to upstream components to comprehensively characterize the storm sewer system. This comparison

will help determine where the sewershed can contain upland PCB sources, rule out sewersheds without significant upland sources, or potentially contain in-pipe PCB contamination due to groundwater infiltration or legacy sediment contamination.

- If the source of PCB contamination is determined to be from groundwater infiltration or legacy sediment contamination trapped within the storm sewer, MDE recommends that the County perform further investigations and remediate the sources.
- MDE will coordinate to identify responsible parties for pursuing further investigations at sites identified by the County.

Phase III trackdown findings are documented in a monitoring data assessment report for each stage of the Phase III trackdown investigation. The Stage 1 report should include the water quality data evaluation, identify which outfalls and stormwater BMPs contain upland sources of PCBs in the sewershed, and provide a preliminary plan for conducting sewer trackback investigations under Stage 2 of Phase III. This Phase 3 report should also identify any streams with legacy contamination of bed sediments, potentially requiring remediation.

The Stage 2 report should include the identification of discrete sources of PCBs within the storm sewershed requiring MDE regulatory enforcement. This report should also identify diffuse sources that could require stormwater management practices.

6. Adaptive Approach and Reporting

The County's MS4 permit groups the County's stormwater program into five main categories to control stormwater discharges and reduce pollutant loadings to the maximum extent practicable. These categories are stormwater management, erosion and sediment control, illicit discharge detection and elimination, property management and maintenance, and public outreach and education. Furthermore, the permit states that:

> [T]hese programs shall be integrated with other permit requirements to promote a comprehensive adaptive approach toward solving stormwater discharge water quality problems. (MDE 2022c)

6.1. Adaptive Management

Strong cooperation among County, MDE, and watershed partners will be essential to success to ensure productive ongoing implementation. Close coordination is especially valuable for adaptive solutions because of the possibility of unanticipated circumstances arising during PCB trackdown implementation.

This document was developed using the best information available at the time the plan was developed. As the desktop source assessment is implemented, an adaptive management approach allows for adjustments to restoration activities as new information becomes available from the state or different stakeholders; additionally, adaptive management can use emerging opportunities to increase effectiveness and reduce costs. The County will use new information as it becomes available to assess the efficacy of its restoration program and adjust the program as needed. During plan implementation, new technologies, models, tools, or information could help increase the rate of strategy implementation.

Implementation plans might face challenges like budget constraints. In addition, there could be delays in identifying responsible parties and enforcing cleanup. The adaptive management frame allows responses or changes to the implementation.

The County will evaluate the above factors and analyze the need for plan updates on a five-year cycle, coinciding with the NPDES permit issuance. The County will assess the effectiveness of the desktop assessment methods and their impact on the subwatershed prioritization, recommending adjustments to the plan for MDE review. Strategy adjustments could increase or decrease the timeline for milestones (Section 6.3) based on regulatory priorities and community needs. Strategy revisions will include new documented data, updated science, and modeling tools and how these affect the plan milestones and final achievement.

For this document, adaptation in this permit term will involve desktop assessment, Phase I SAP and QAPP development, evaluation of applied strategies for trackdown, and incorporation of practical new knowledge into the desktop assessment and subwatershed prioritization activities.

Several aspects of this document support the use of an adaptive approach:

- The County will use adaptive management approaches to prioritize subwatersheds for trackdown. This means that the County will look across the country to determine which trackdown methodologies will be most cost-effective for identifying sources.

- Using water quality monitoring results, DoE can adjust implementation priorities and target areas of high PCB concentrations. A lack of positive response—PCB levels go up or do not go down—will be taken as evidence that additional or more intensive source reduction is necessary to achieve a meaningful PCB load reduction.

The overall success of the PCB strategy will depend on the concerted effort of the County and many others, including MDE. Each partner has an important role to play in the PCB remediation process. Any proposed remediation will require significant time and resources from all those entities. That support will be especially important in addressing impediments to implementing the plan including permitting challenges, technical limitations to monitoring and attribution, and an inability of mitigation options to control PCB loading.

6.2. Strategy Review and Annual Reporting

The County is required by its MS4 permit for all TMDLs and WLA to

> … shall annually document, in one Countywide Stormwater TMDL Implementation Plan, updated progress toward meeting these TMDL WLAs. (Part IV.F.3);

And as per Part V.A of the permit, the County submit

> …Annual progress reports, required under 40 CFR §122.42(c), will facilitate the long-term assessment of Prince George's County's NPDES stormwater program.

As specified in the County's permit, the annual report will include information about the Countywide stormwater TMDL implementation plan, illicit discharge detection and elimination, trash and litter control measures, public outreach and education initiatives, and watershed assessments, among others. This annual report is the chief vehicle for tracking and reporting on programmatic initiatives.

6.3. Submission Timeline Requirements from MDE PCB Guidance

The MDE 2022 PCB WIP guidance does not require timeframes and milestones such as those for nutrient and sediment TMDLs. However, the guidelines require a progress reporting schedule, focused on staged source tracking and planning. The County will follow the reporting schedule identified in the 2022 bacteria guidance, which is summarized in this section:

6.3.1. Year 2 (by August 2024)

Two years from the publication of MDE's PCB WIP Guidance (August 2022), the County is to:

- Submit a WIP (this document) including the following;
  - Phase I Source Trackdown SAP
  - Phase I Source Trackdown QAPP

6.3.2. Year 5 (by December 2027)

By the end of the permit term, the County must submit:

- Phase I Source Trackdown Monitoring Data Report, and
- Phase I Source Trackdown Monitoring Data Assessment Report

  - Can be combined with monitoring data report
  - Summarizes the results of the Phase I source trackdown investigation with a plan for the next phase.

6.3.3. Future Permit Terms

- Phase II consists of in-stream subwatershed PCB characterization
  - SAP and QAPP
  - Source Trackdown Monitoring Data Report
  - Source Trackdown Monitoring Data Assessment Report
- Phase III
  - SAP and QAPP
  - Source Trackdown Monitoring Data Report
  - Source Trackdown Monitoring Data Assessment Report

7. Lower Beaverdam Creek

The 2007 inter-jurisdictional TMDL for PCBs for the tidal portions of the Potomac and Anacostia Rivers established a significant reduction target of over 98 percent for the Maryland segment of the Anacostia River watershed, which includes LBC. Over the past two decades, LBC has been the subject of numerous investigations. Many of these investigations indicate that LBC is an ongoing source of PCB contamination to the tidal Anacostia River.

Since 2019, the MDE and the County have investigated potential sources of PCBs in LBC and its tributaries (Figure 22). The investigations have encompassed the collection and analysis of samples from both surface water and sediment. The purpose of each sampling event was to gain insights into the presence and distribution of PCBs in the environmental components in the creek. The main objective was to pinpoint areas with higher concentrations of PCBs in either sediment or surface water. This effort aids in the identification of potential sources of PCB contamination, which could be impacting the quality of sediment and surface water in LBC. While two main areas of concern have been identified, work continues to isolate the source of PCBs. The County is working with MDE and EPA to better characterize those areas and that effort will continue through FY 2025.

The County's actions towards implementation to date are as follows:

- **2015**: Prince George's County submitted its restoration plan for PCB-impacted water bodies, including the Anacostia and Potomac River watersheds.
- **Spring 2020**: Following previous studies through the Anacostia Watershed indicating the presence of PCBs, the County began collecting stream sediment and aqueous samples. Sampling was focused on the area of LBC and its tributaries where 24 samples were collected. Limited aqueous screening was also performed countywide.
- **Fall 2020**: Areas identified in the previous assessments were targeted with sediment and aqueous sampling for refinement. Mapping of the MS4 and individual outfall screenings were performed at eight locations where elevated levels of PCBs were previously detected.
- **Winter 2020**: Further sampling refinement and identification of areas of concern within LBC. Federal and State enforcement action is underway on one potentially responsible party. The County continued to be engaged with MDE on the trackdown of PCBs near the Landover Metro station.
- **Spring 2022**: Follow up sampling was performed in the LBC, Cabin Branch, and Cattail Branch watersheds. Outfalls to the creek were further characterized.
- **Summer 2023**: The County completed a sediment and PCB reduction plan around the Landover Metro at or near outfalls where elevated PCB concentrations have been identified. The project involved the analysis of the hydrology of the selected areas and the development of a model to select locations for BMPs and their placement to intercept sediment transport, the recommendation of BMP types that are suitable for collecting sediments and filtering PCBs, and the preparation of BMP conceptual designs for four selected sites. This work was partially funded through a grant from the Chesapeake Bay Trust.
- **Spring 2024:** The County submitted to PCB WIP and trackdown results, SAP, and monitoring QAPP to MDE on March 3.

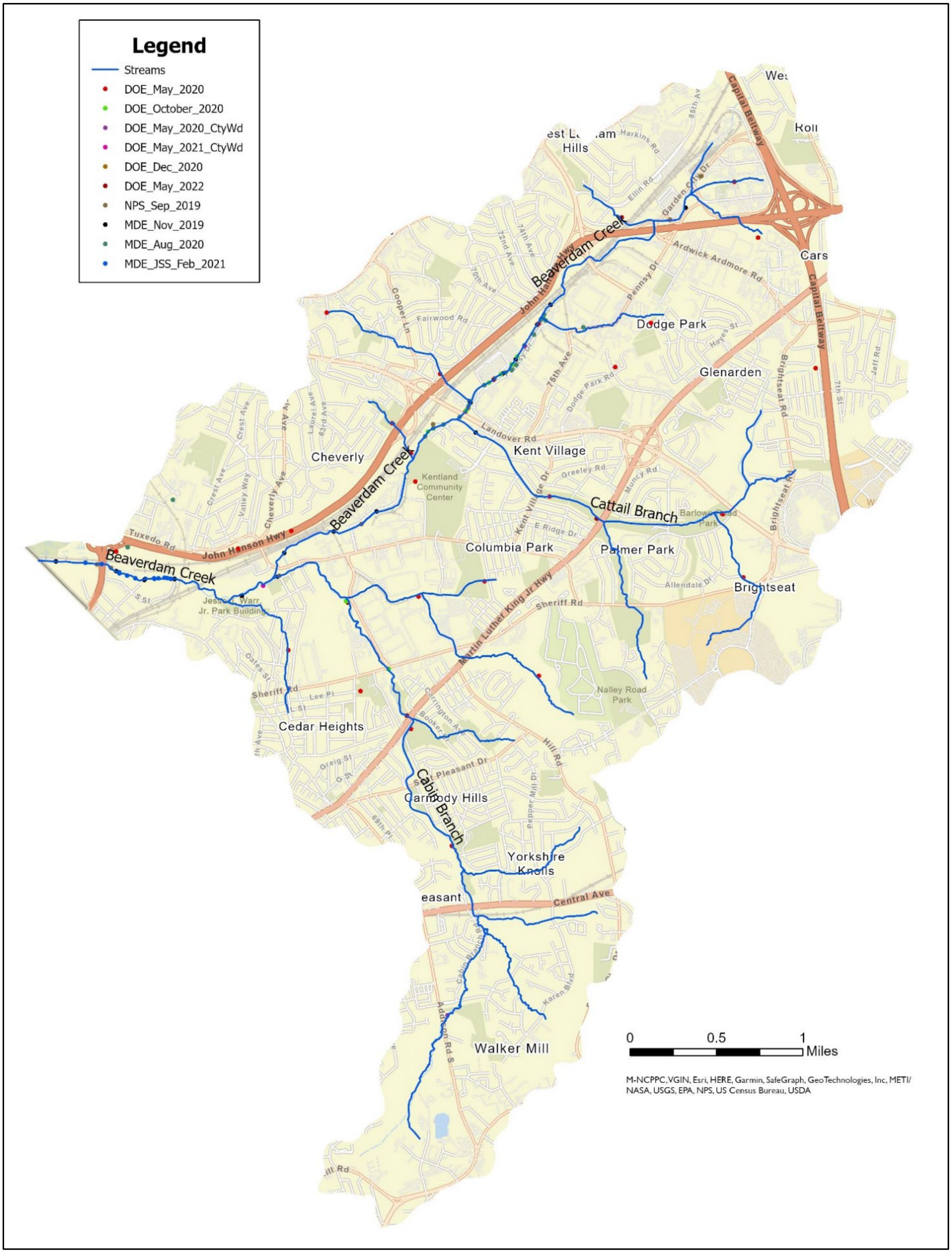


Figure 22. Map of PCB Monitoring Locations in the Lower Beaverdam Creek Watershed.

- **Spring 2024:** The County began Phase I of its trackdown program and has completed the desktop analysis and phased priority PCB sampling locations.
- **Summer 2024:** The County worked with EPA, MDE and their subcontractor to conduct a dye trace analysis and video survey of the conveyance system located in the vicinity of the 3100 Block of Pennsy Drive in Landover, MD (Figure 23, Appendix B). This is in preparation for further work in FY 2025 to include passive sediment samplers in the manhole vaults leading to LBC. Future work in FY 2025 will involve surface soil, in-stream sediment, passive sediment traps, and an evaluation of the dissolved concentrations of PCBs using polyethylene filters to adsorb contaminants for future evaluation.

Figure 23. Dye Trace and Video Study in the Lower Beaverdam Creek Watershed.

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Appendix A: Results of Subwatershed Prioritization

PCB Phase I Source Assessment & Subwatershed Prioritization – Anacostia River Watershed

Introduction

This factsheet presents the results of the PCB Phase I source assessment and subwatershed prioritization for the Anacostia River watershed. For the assessment, the watershed was segmented into 5 to 10 square mile subwatersheds and given a unique ID (Table 1, Figure 1).

This factsheet is separated into two main sections: **PCB Source Assessment** and **Subwatershed Prioritization**. The PCB Source Assessment section includes tables for each of the twelve types of sources identified by MDE in its August 2022 *Guidance for Developing Local PCB TMDL (Total Maximum Daily Load) Stormwater Wasteload Allocation (SW-WLA) Watershed Implementation Plans.* This source assessment section also has an overall map and a map of urban land that was developed during the PCB manufacturing era (1929–1979).

Next, the Subwatershed Prioritization section shows the resulting scoring of the subwatersheds in Table 13 and in a map in Figure 4.

For information on the source assessment and prioritization methodology or the individual types of sources, please see the County's *PCB TMDL Stormwater Wasteload Allocation Watershed Implementation Plan*.

Table 1. List of PCB Subwatersheds in the Anacostia River Watershed.

PCB Impairment Watershed	Subwatershed ID	Area (Acres)	Area (mi^2)
Anacostia – Northeast Branch	AR_NEB_PCB-1	3,828	5.98
	AR_NEB_PCB-2	2,865	4.48
	AR_NEB_PCB-3	4,784	7.48
	AR_NEB_PCB-4	3,304	5.16
	AR_NEB_PCB-5	6,491	10.14
	AR_NEB_PCB-6	4,771	7.46
	AR_NEB_PCB-7	4,164	6.51
	AR_NEB_PCB-8	5,089	7.95
Anacostia – Northwest Branch	AR_NWB_PCB-1	5,911	9.24
Anacostia – Tidal (Lower Beaverdam)	AR_LBC_PCB-1	5,605	8.76
	AR_LBC_PCB-2	4,333	6.77
Anacostia - Tidal	AR_Tidal_PCB-1	1,409	2.20
	AR_Tidal_PCB-2	1,830	2.86

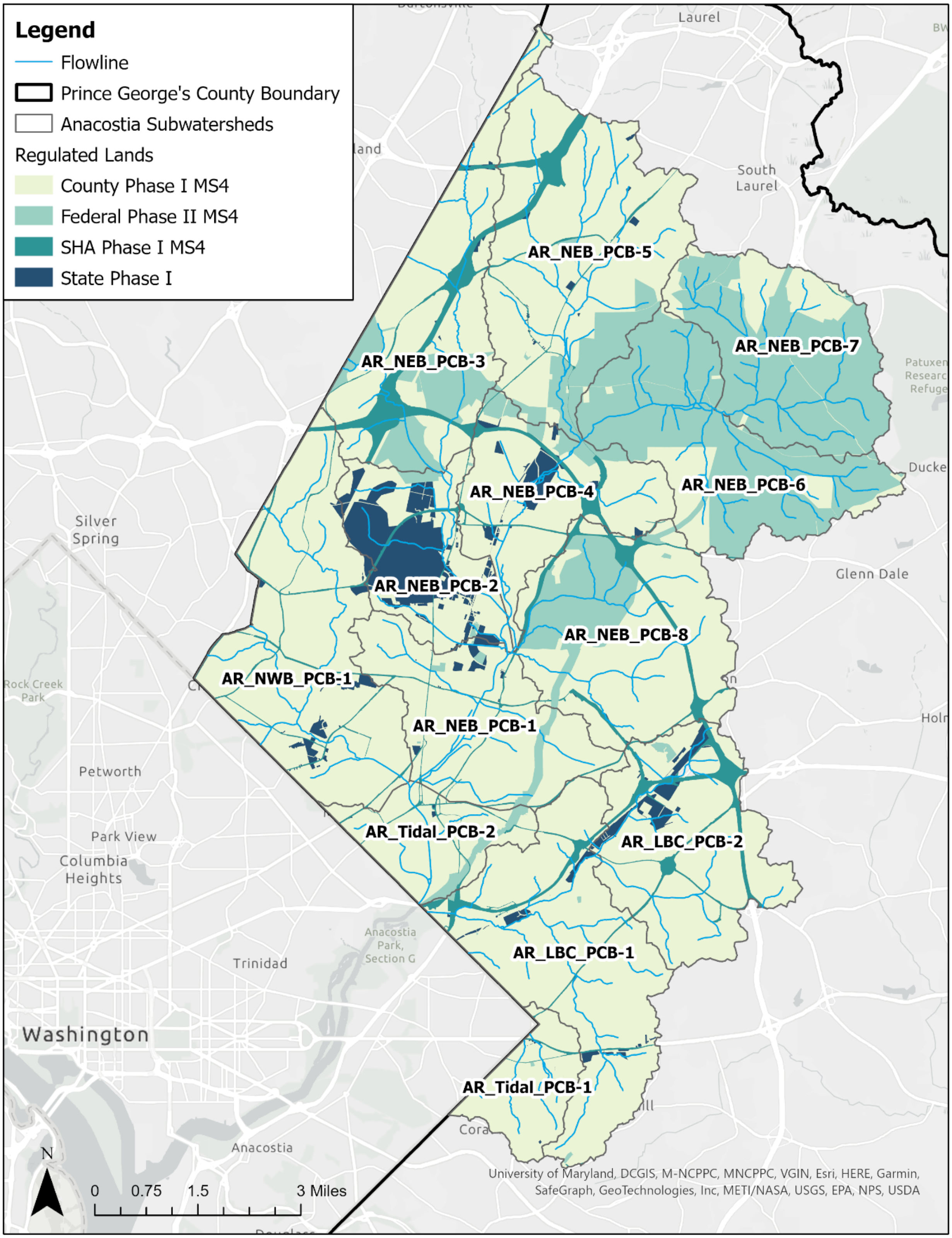


Figure 1. MS4 Entities in the Anacostia River Watershed.

PCB Source Assessment

This section summarizes 12 PCB potential source types and one PCB-era (1929–1979) development contribution based on land use, as listed below:

1. PCB transformers (EPA PCB Transformer Registry Database)
2. PCB activities (EPA PCB Activities Database)
3. Hazardous waste sites (Superfund/CERCLA)
4. NPDES permitted wastewater and stormwater dischargers (active and inactive)
5. Toxics Release Inventory (TRI) facilities (EPA TRI Database)
6. PCB releases (National Response Center [NRC] Database)
7. Historic landfills
8. MDE permitted solid waste acceptance facilities (active and closed)
9. MDE permitted sewage sludge utilization activities
10. Public angler access sites
11. Sanitary sewer overflows
12. Military installations
13. Land use (PCB-era development)

Figure 2 shows the Anacostia watershed and the identified potential sources from the above list that will be used for subwatershed prioritization.

1. PCB Transformers (EPA PCB Transformer Registry Database)

The EPA PCB Transformer Registry Database does not contain any registered transformers in Prince George's County.

2. PCB Activities (EPA PCB Activities Database)

The EPA PCB Activities Database contains two potential sources in the watershed, as shown in Table 2.

Table 2. List of PCB activities from the EPA PCB Activities Database in the Anacostia River Watershed.

Site ID	Site Name	Site Owner	Type	Subwatershed ID
MD0120508940	Beltsville Agricultural Research Center (BARC)	USDA	Generator	AR_NEB_PCB-3
MDD980829873	UMD - Enviro Services Facility	University of Maryland	Generator	AR_NEB_PCB-2

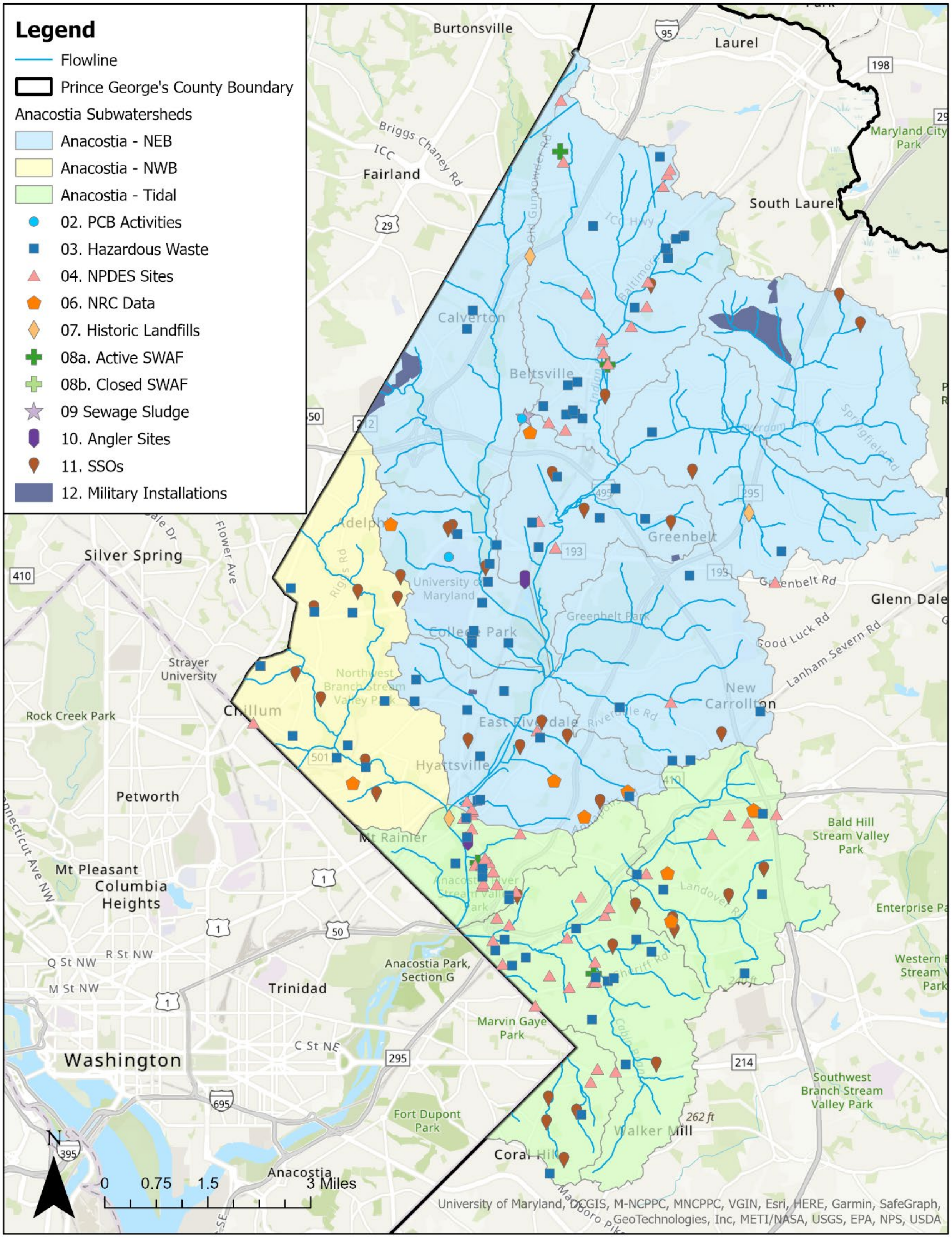


Figure 2. PCB Source Assessment: Potential PCB Sources in the Anacostia River Watershed.

3. Hazardous Waste Sites (Superfund/CERCLA)

These 86 hazardous waste sites were identified in the watershed from various State and Federal programs, as show in Table 3. This table also identifies the programs under which each site is managed.

Table 3. List of Hazardous Waste Sites (Superfund/CERCLA) in the Anacostia River Watershed.

Site Name	BMI #	Acres	Type	Federal?	Known PCBs?	Years	Subwatershed ID
Anacostia River Park	MD0024	100.0	LRP	No	No	X-X	AR_Tidal_PCB-2
Bladensburg Acetylene	MD0039	23.0	CHS	No	No	X-2012	AR_Tidal_PCB-2
Beltsville Agricultural Research Center	MD0053	6,600.0	NPL	Yes	No	X-X	AR_NEB_PCB-6
GSA Bladensburg	MD0054	0.0	Unkn	Yes	No	X-X	AR_Tidal_PCB-2
Capitol Wire & Fence	MD0108	6.9	CHS	No	No	X-2001	AR_Tidal_PCB-2
Denese Mann Property / National Fence Mfg Co Inc	MD0124	3.2	VCP	No	No	2009-X	AR_Tidal_PCB-2
Evans Trail Dump Site	MD0170	0.0	CHS	No	No	X-2007	AR_NEB_PCB-3
Contee Sand and Gravel	MD0182	293.0	CHS	No	No	X-2010	AR_NEB_PCB-5
Hyattsville Gas & Electric	MD0200	4.0	CHS	No	No	X-2005	AR_NEB_PCB-1
United Rigging and Hauling	MD0248	10.0	CHS, LRP	No	No	X-X	AR_NEB_PCB-5
Columbia Park Drum Site	MD0251	1.5	CHS	No	No	X-2001	AR_LBC_PCB-1
Mineral Pigments Corporation	MD0278	3.5	CHS, VCP	No	No	1985-X	AR_NEB_PCB-5
Stone Industrial/JL Clark Mfg Co	MD0291	18.0	LRP, VCP	No	No	X-2023	AR_NEB_PCB-4
Celia Lust	MD0295	2.7	CHS	No	No	X-2012	AR_NEB_PCB-5
London Hills Development	MD0311	13.0	CHS	No	No	X-2001	AR_Tidal_PCB-1
W.P. Ballard/Beltsville Industrial Center	MD0338	0.8	CHS, VCP	No	No	X-X	AR_NEB_PCB-5
NASA Goddard Space Flight Center	MD0368	1,270.0	CHS	Yes	No	1988-2015	AR_NEB_PCB-6
Mid-Atlantic Finishing, Inc.	MD0419	0.5	CHS, LRP	No	No	X-2015	AR_LBC_PCB-1
City of Greenbelt, Department of Public Works	MD0424	3.0	CHS	No	No	X-2005	AR_NEB_PCB-4
Rogers Electric	MD0445	2.0	CHS	No	No	X-2005	AR_LBC_PCB-1
Paint Branch Landfill Area #3	MD0470	16.6	Unkn	No	No	X-X	AR_NEB_PCB-2
Beaverdam Creek PCB	MD0476	0.0	CHS, LRP	No	No	X-2005	AR_LBC_PCB-2
Joseph Smith & Sons, Inc	MD0485	15.8	CHS, LRP	No	No	2004-X	AR_LBC_PCB-1
University Housing Site	MD0494	7.8	Unkn	No	No	X-X	AR_NEB_PCB-2
Nazcon Concrete	MD0495	0.0	Unkn	No	No	X-X	AR_NEB_PCB-4
Peeler's Dry Cleaners	MD0617	0.0	LRP	No	No	X-X	AR_NEB_PCB-1
Takoma Park Shopping Center (off-site plume)	MD0759	0.0	CHS	No	No	X-X	AR_NWB_PCB-1

Site Name	BMI #	Acres	Type	Federal?	Known PCBs?	Years	Subwatershed ID
Wildercroft Shopping Center (Off-Site Plume)	MD0764	0.0	Unkn	No	No	X-X	AR_NEB_PCB-8
Adelphi Plaza	MD0828	4.2	VCP	No	No	2011-2014	AR_NWB_PCB-1
Jara Property	MD0836	4.0	VCP	No	No	2012-2012	AR_NEB_PCB-5
Calverton Shopping Center	MD0863	8.4	VCP	No	No	2012-X	AR_NEB_PCB-3
Campbell Building	MD0872	2.1	VCP	No	No	2001-2002	AR_NEB_PCB-5
Clevenger Corporation Property	MD0902	0.0	CHS	No	No	X-X	AR_NEB_PCB-5
UniFirst Corporation Facility	MD0904	4.6	CHS	No	No	X-2020	AR_LBC_PCB-1
Vermiculite WRG1	MD0950	0.0	Unkn	No	No	X-X	AR_NEB_PCB-5
Lanham Center Property	MD0953	0.8	VCP	No	No	2001-2003	AR_NEB_PCB-8
1600 - 1602 University Boulevard	MD0967	0.3	VCP	No	No	2004-X	AR_NWB_PCB-1
Forest Laundromat	MD0986	1.3	CHS	No	No	2008-2008	AR_Tidal_PCB-1
Wilson Farm	MD0998	303.2	Brwn	No	No	X-X	AR_LBC_PCB-2
Takoma Park Shopping Center Condominium - Land Unit 2	MD1041	9.3	VCP	No	No	2003-X	AR_NWB_PCB-1
Wildercroft Shopping Center	MD1099	2.2	VCP	No	No	2006-2021	AR_NEB_PCB-8
Mini Shopping Center	MD1165	1.8	VCP	No	No	2001-2002	AR_LBC_PCB-1
Chestnut Hills Shopping Center	MD1231	0.0	CHS	No	No	1997-2008	AR_NEB_PCB-5
The Brickyard	MD1236	46.0	CHS, VCP	No	No	2011-X	AR_NEB_PCB-5
Q&S Cleaners	MD1244	0.0	CHS	No	No	1993-2008	AR_NEB_PCB-2
Sargent Road Shopping Center	MD1277	5.0	VCP	No	No	2006-2007	AR_NWB_PCB-1
Addison Road	MD1307	27.0	Brwn	No	No	X-X	AR_LBC_PCB-1
Springhill Lake Cleaners at The Springhill Lake Apartment Property	MD1318	2.3	VCP	No	No	2004-2005	AR_NEB_PCB-4
Riverdale Plaza	MD1372	11.0	VCP	No	No	1998-1999	AR_NEB_PCB-1
Greenway Shopping Center	MD1384	22.7	VCP	No	No	2002-2003	AR_NEB_PCB-8
Transport International Pool, Inc. dba GE Capital/Trailer Fleet Services	MD1427	2.9	VCP	No	No	2009-2012	AR_LBC_PCB-1
Antonio Troiano Tile & Marble Co., Inc. / Beltsville Industrial Center	MD1445	1.3	VCP	No	No	2007-2008	AR_NEB_PCB-5
McDonald Strosnider Transmissions	MD1453	0.8	VCP	No	No	2008-2008	AR_NEB_PCB-8
12307 Conway Road	MD1459	4.4	VCP	No	No	2008-X	AR_NEB_PCB-5
Hyattsville Gas Former MGP	MD1465	13.0	VCP	No	No	1999-2004	AR_NEB_PCB-1
The Brick Yard Parcels C, D, F & G	MD1472	8.6	CHS, VCP	No	No	2018-2018	AR_NEB_PCB-5
2500 Schuster Drive	MD1497	1.7	VCP	No	No	2018-X	AR_Tidal_PCB-2
The Cherokee Sanford Property	MD1545	0.0	Unkn	No	No	2007-2008	AR_NEB_PCB-5

Site Name	BMI #	Acres	Type	Federal?	Known PCBs?	Years	Subwatershed ID
3299 Queens Chapel Road	MD1573	0.3	VCP	No	No	2014-2014	AR_NWB_PCB-1
Griffith Energy Services, Inc.	MD1581	0.0	VCP	No	No	2014-2016	AR_Tidal_PCB-2
Shoppes at Metro Station	MD1599	3.3	CHS, VCP	No	No	2014-2015	AR_NEB_PCB-1
Avalon Laurel	MD1603	16.9	VCP	No	No	2015-2015	AR_NEB_PCB-5
Addison Row	MD1605	18.7	CHS	No	No	2018-X	AR_LBC_PCB-1
Zips Cleaners	MD1656	0.0	CHS	No	No	2016-2016	AR_NEB_PCB-2
Proposed Fairmount Heights High School	MD1659	119.2	CHS	No	No	X-X	AR_LBC_PCB-1
Former Kiplinger Property	MD1688	11.7	CHS, VCP	No	No	2016-2020	AR_NWB_PCB-1
West Hyattsville Metro Property	MD1702	18.5	CHS, VCP	No	No	2016-2017	AR_NWB_PCB-1
Litton Industries	MD1762	12.0	Brwn	No	No	X-1997	AR_NEB_PCB-2
Robey Towing	MD1777	0.0	CHS	No	No	2016-2017	AR_NEB_PCB-1
Finn-Annapolis Road Property	MD1789	0.0	CHS	No	No	2016-2017	AR_NEB_PCB-8
Stadium Station	MD1844	3.7	CHS	No	No	2017-2019	AR_LBC_PCB-2
8907 Baltimore Avenue	MD1857	0.0	CHS	No	No	2017-2017	AR_NEB_PCB-4
3801 Ironwood Place, Landover	MD1858	6.0	CHS	No	No	2017-2017	AR_LBC_PCB-2
Northgate Properties	MD1969	2.1	CHS, VCP	No	No	2019-X	AR_NEB_PCB-2
The Residences at Glenarden Hills 2	MD2000	1.4	CHS, VCP	No	No	2020-2021	AR_LBC_PCB-2
UCAP and Kaboom Playground Project	MD2001	0.0	CHS	No	No	2020-2020	AR_LBC_PCB-1
College Park City Hall	MD2005	0.0	CHS	No	No	2020-2020	AR_NEB_PCB-2
Greenbelt Station Multifamily	MD2016	15.9	CHS, VCP	No	No	2020-2023	AR_NEB_PCB-4
Langley Park Plaza	MD2024	12.3	CHS, VCP	No	No	2020-X	AR_NWB_PCB-1
Washington Gas Light - Chillum Facility	MD2067	21.0	CHS, VCP	No	No	2021-X	AR_NWB_PCB-1
5700 Rivertech Court	MD2092	7.0	VCP	No	No	2022-2023	AR_NEB_PCB-1
PG Plaza Metro	MD2098	3.2	CHS, VCP	No	No	2022-X	AR_NEB_PCB-1
Global Green	MD2110	0.0	Unkn	No	No	2022-X	AR_LBC_PCB-1
5505-5509 Branchville Road	MD2120	0.7	CHS	No	No	2022-X	AR_NEB_PCB-4
8133 Baltimore	MD2133	812.8	VCP	No	No	2022-X	AR_NEB_PCB-2
Landover Hills Shopping Center	MD2137	2.2	CHS	No	No	2023-X	AR_NEB_PCB-1

Notes: **BMI** = LRP's Brownfields Master Inventory. **Brwn** = brownfield under LRP; **CHS** = Controlled Hazardous Substance Enforcement Division; **FUD** = formerly used defense site; **LRP** = Land Restoration Program; **Sed** = sediment; **Unkn** = unknown; **VCP** = Voluntary Cleanup Program

4. NPDES Permitted Wastewater and Stormwater Dischargers (Active and Inactive)

These 65 NDPES permitted wastewater and stormwater dischargers (active and inactive) were identified in the watershed from various State and Federal programs, as shown in Table 4.

Table 4. List of Permitted Wastewater and Stormwater Dischargers (Active and Inactive) in the Anacostia River Watershed.

SIC Code	SIC Code Description	NPDES	Facility Name	Status	Subwatershed ID
5015	motor vehicle parts, used	MD0044Q19	Insurance Auto Auctions, Inc.	History	AR_NEB_PCB-5
5093	scrap and waste materials	MD0067482	NASA Goddard Space Flight Center	Issued	AR_NEB_PCB-6
3295	minerals, ground or treated	MDG491754	The Recycling Center	Admin Ext / No Violation Identified	AR_NEB_PCB-5
3271	concrete block and brick	MDG492092	Ernest Maier - Block*Masonry* Hardscapes	Admin Ext / Noncompliance	AR_Tidal_PCB-2
3273	ready-mixed concrete	MDG493602	Beltsville Ready-Mix Concrete (RMC)	Admin Ext	AR_NEB_PCB-5
3273	ready-mixed concrete	MDG499755	Schuster Concrete Ready Mix, Llc	Admin Ext / No Violation Identified	AR_NEB_PCB-5
3273	ready-mixed concrete	MDG499867	Chaney Enterprises - Seat Pleasant	Admin Ext / Noncompliance	AR_Tidal_PCB-1
4953	refuse systems	MDG499916	Sheriff Road Transfer Station	No Violation Identified	AR_LBC_PCB-1
3271	concrete block and brick	MDG499920	Aggregate & Dirt Solutions, LLC	Admin Ext	AR_LBC_PCB-1
4953	refuse systems	MDG914686	Capital Heights Citgo	No Violation Identified	AR_Tidal_PCB-1
4953	refuse systems	MDG916865	City Of Seat Pleasant	No Violation Identified	AR_Tidal_PCB-1
4953	refuse systems	MDG918514	Former Chevron # 122208	No Violation Identified	AR_NWB_PCB-1
4953	refuse systems	MDG919036	Maryland Transit Administration	Noncompliance	AR_NEB_PCB-1
4953	refuse systems	MDG919059	Publick Playhouse	Noncompliance	AR_Tidal_PCB-2
4953	refuse systems	MDG919123	Holcim-Mar, Inc.	No Violation Identified	AR_Tidal_PCB-2
2655	fiber cans, drums, and similar products	MDR000007	Stone Industrial Precision Products	History	AR_NEB_PCB-4
2813	industrial gases	MDR000008	Airgas East, Inc.	Admin Ext	AR_Tidal_PCB-2
4212	local trucking, without storage	MDR000149	Sheriff Road Processing Facility & Transfer Station	History	AR_LBC_PCB-1
4953	refuse systems	MDR000197	Town of Cheverly	History	AR_LBC_PCB-1
3728	aircraft parts and equipment, nec	MDR000316	Eaton Corporation	Admin Ext	AR_NEB_PCB-5
2851	paints and allied products	MDR000466	Sherwin-Williams #3850		AR_NEB_PCB-5
5093	scrap and waste materials	MDR000648	Prince George's Scrap, Inc.	No Violation Identified	AR_NEB_PCB-4

SIC Code	SIC Code Description	NPDES	Facility Name	Status	Subwatershed ID
5093	scrap and waste materials	MDR000654	Joseph Smith & Sons, Inc	Admin Ext	AR_LBC_PCB-1
4215	courier services, except by air	MDR000740	United Parcel Service - MDDLC	Admin Ext	AR_LBC_PCB-2
4215	courier services, except by air	MDR000858	United Parcel Service - MDLAN	Admin Ext	AR_LBC_PCB-2
4213	trucking, except local	MDR001065	TForce Freight - Washington	Admin Ext	AR_LBC_PCB-1
4212	local trucking, without storage	MDR001093	Lawrence Street Industry, LLC	Admin Ext	AR_Tidal_PCB-2
5093	scrap and waste materials	MDR001357	Metro Re-Uz-It Company, Inc.	History	AR_Tidal_PCB-2
5093	scrap and waste materials	MDR001365	World Recycling Company	History	AR_LBC_PCB-1
5015	motor vehicle parts, used	MDR001366	Kenilworth Foreign Car Parts	Admin Ext	AR_LBC_PCB-1
5015	motor vehicle parts, used	MDR001393	Tremendo Towing and Repair, LLC	Admin Ext	AR_LBC_PCB-1
5015	motor vehicle parts, used	MDR001464	Beltway Used Auto Parts LLC	Admin Ext	AR_LBC_PCB-1
4952	sewerage systems	MDR001735	WSSC-Anacostia Heavy Equipment Shop-4104 Lloyd Street	History	AR_Tidal_PCB-2
4952	sewerage systems	MDR001736	WSSC - Anacostia Garage	History	AR_Tidal_PCB-2
3295	minerals, ground or treated	MDR001745	D C Materials	Admin Ext	AR_Tidal_PCB-2
5012	automobiles and other motor vehicles	MDR001750	Insurance Auto Auctions, Inc.	Admin Ext	AR_NEB_PCB-5
4214	local trucking with storage	MDR001829	Halle Enterprises, Inc.	Admin Ext	AR_NEB_PCB-5
4212	local trucking, without storage	MDR001856	Bates Trucking Company	History	AR_NEB_PCB-1
4213	trucking, except local	MDR001864	Rolling Frito-Lay Sales - Beltsville DC	Admin Ext	AR_NEB_PCB-5
2086	bottled and canned soft drinks	MDR001897	Pepsi Bottling Group, LLC	Admin Ext	AR_Tidal_PCB-2
2097	manufactured ice	MDR001901	Reddy Ice Group #427 - Landover	Issued	AR_LBC_PCB-2
4731	freight transportation arrangement	MDR001936	Yellow Transportation, Inc. - Landover	Admin Ext	AR_LBC_PCB-2
4212	local trucking, without storage	MDR002002	Rodgers Brothers Service, Inc.	Issued	AR_LBC_PCB-1
4953	refuse systems	MDR002144	New Carrollton Public Works	History	AR_NEB_PCB-8
4226	special warehousing and storage, nec	MDR002155	EP Henry	Admin Ext	AR_LBC_PCB-1
4225	general warehousing and storage	MDR002246	QTG CDSD - Landover	Admin Ext	AR_LBC_PCB-1
2075	soybean oil mills	MDR002318	Greenlight Biofuels	History	AR_NEB_PCB-5
4953	refuse systems	MDR002352	Lawrence Street Construction & Demolition Processing Facility	Admin Ext / No Violation Identified	AR_Tidal_PCB-2

SIC Code	SIC Code Description	NPDES	Facility Name	Status	Subwatershed ID
4785	inspection and fixed facilities	MDR002415	Intercounty Connector (Icc) East Operations Facility	No Violation Identified	AR_NEB_PCB-5
4212	local trucking, without storage	MDR002528	Office And Equipment Maintenance Facility	No Violation Identified	AR_LBC_PCB-1
5093	scrap and waste materials	MDR002530	Sun Services on Somerset Ave	History	AR_NEB_PCB-5
4231	trucking terminal facilities	MDR003056	Anchor Construction - 2300 Beaver Road	Admin Ext	AR_LBC_PCB-1
5015	motor vehicle parts, used	MDR003130	East-West Motors	Admin Ext	AR_NEB_PCB-5
5015	motor vehicle parts, used	MDR003138	Cohen Recycling	Admin Ext / NonCompliance	AR_NEB_PCB-1
3446	architectural metalwork	MDR003275	Stephens Pipe & Steel		AR_Tidal_PCB-2
2076	vegetable oil mills, nec	MDR003292	Mahoney Environmental Solutions	Admin Ext	AR_NEB_PCB-5
4212	local trucking, without storage	MDR003335	Bates Trucking Company	Admin Ext	AR_NEB_PCB-1
4212	local trucking, without storage	MDR003346	IESI MD Corp	No Violation Identified	AR_Tidal_PCB-2
5015	motor vehicle parts, used	MDR003355	Kenilworth Foreign Car Parts	No Violation Identified	AR_LBC_PCB-1
4212	local trucking, without storage	MDR003370	SJ and Son, Inc.	Admin Ext	AR_LBC_PCB-2
4212	local trucking, without storage	MDR003371	DCK Trucking	Admin Ext	AR_LBC_PCB-2
3444	sheet metalwork	MDR003401	Stromberg Metal Works	Issued	AR_NEB_PCB-5
3446	architectural metalwork	MDR003447	Action Fabrication And Erectors	No Violation Identified	AR_LBC_PCB-1
4225	general warehousing and storage	MDR003617	Amazon.Com Services Llc Ddw7	No Violation Identified	AR_NEB_PCB-5
4212	local trucking, without storage	MDR003626	Ernest Maier - Bladensburg Maintenance Shop	Admin Ext	AR_NEB_PCB-1
5015	motor vehicle parts, used	MD0044Q19	Insurance Auto Auctions, Inc.	History	AR_NEB_PCB-5
5093	scrap and waste materials	MD0067482	NASA Goddard Space Flight Center	Issued	AR_NEB_PCB-6
3295	minerals, ground or treated	MDG491754	The Recycling Center	Admin Ext / No Violation Identified	AR_NEB_PCB-5
3271	concrete block and brick	MDG492092	Ernest Maier - Block*Masonry* Hardscapes	Admin Ext / NonCompliance	AR_Tidal_PCB-2
3273	ready-mixed concrete	MDG493602	Beltsville Ready-Mix Concrete (RMC)	Admin Ext	AR_NEB_PCB-5
3273	ready-mixed concrete	MDG499755	Schuster Concrete Ready Mix, Llc	Admin Ext / No Violation Identified	AR_NEB_PCB-5
3273	ready-mixed concrete	MDG499867	Chaney Enterprises - Seat Pleasant	Admin Ext / Noncompliance	AR_Tidal_PCB-1
4953	refuse systems	MDG499916	Sheriff Road Transfer Station	No Violation Identified	AR_LBC_PCB-1

SIC Code	SIC Code Description	NPDES	Facility Name	Status	Subwatershed ID
3271	concrete block and brick	MDG499920	Aggregate & Dirt Solutions, LLC	Admin Ext	AR_LBC_PCB-1
4953	refuse systems	MDG914686	Capital Heights Citgo	No Violation Identified	AR_Tidal_PCB-1
4953	refuse systems	MDG916865	City Of Seat Pleasant	No Violation Identified	AR_Tidal_PCB-1

5. TRI Facilities (EPA TRI Database)

The EPA Toxic Release Inventory (TRI) Database does not contain any registered facilities in Prince George's County.

6. PCB Releases (NRC Database)

The National Response Center (NRC) Database (1990–2022), which contains ten PCB releases in the watershed, are listed here by case, as shown in Table 5.

Table 5. List of PCB Releases from the NRC Database in the Anacostia River Watershed.

SEQNOS	21112	Incident Date	5/9/1990 8:30:00 AM	Type of Incident	Fixed
Description of Incident	Capacitor failure.				
Location	2800 Metzerott Rd., Adelphi, MD (AR_NEB_PCB-2)				
Amount of Material & Unit	2.5 gallon	Reach Water?	Yes	Amount to Reach Water & Unit	Zero
Responsible Company	Potomac Electric Power Co	Responsible Org Type	Public Utility	Location	Washington, DC 20068

SEQNOS	69417	Incident Date	4/25/1991 8:30:00 AM	Type of Incident	Fixed
Description of Incident	Capacitor ruptured due to overheating.				
Location	10301 Baltimore Blvd, Building No.9, Basement, Beltsville, MD 20705 (AR_NEB_PCB-4)				
Amount of Material & Unit	0.1 gallons	Reach Water?	Yes	Amount to Reach Water & Unit	Zero
Responsible Company	Beltsville Agricultural Research	Responsible Org Type	Federal Government	Location	Beltsville, MD 20705

SEQNOS	87254	Incident Date	9/5/1991 1:00:00 PM	Type of Incident	Fixed
Description of Incident	Transformer leaking.				
Location	Capital Plaza Mall, Landover Hills, MD (AR_NEB_PCB-1)				
Amount of Material & Unit	2 gallons	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown amount
Responsible Company	Unknown	Responsible Org Type	Unknown	Location	Unknown

SEQNOS	31877	Incident Date	10/25/1995 10:30:00 AM	Type of Incident	Fixed
Description of Incident	Transformer struck by vehicle.				
Location	3820 Ironwood Place, Lanham, MD (AR_LBC_PCB-2)				
Amount of Material & Unit	50 gallons	Reach Water?	Yes	Amount to Reach Water & Unit	Zero
Responsible Company	Baltimore Gas & Electric	Responsible Org Type	Public Utility	Location	Odenton, MD 21113

SEQNOS	608126	Incident Date	6/3/2002 1:49:00 AM	Type of Incident	Fixed
Description of Incident	The material spilled out of a pole mounted transformer due to the pole being knocked down by a tractor trailer truck.				
Location	2600 Queens Chapel Rd., Hyattsville, MD (AR_NWB_PCB-1)				
Amount of Material & Unit	Unknown	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown
Responsible Company	Potomac Electric Power Co	Responsible Org Type	Public Utility	Location	Washington DC

SEQNOS	617803	Incident Date	7/25/2002 9:30:00 AM	Type of Incident	Fixed
Description of Incident	The caller reports a leak of material from a pad mounted transformer due to a vehicle striking it.				
Location	3906 Ironwood Place, Hyattsville, MD (AR_LBC_PCB-2)				
Amount of Material & Unit	Unknown	Reach Water?	No	Amount to Reach Water & Unit	Zero
Responsible Company	Baltimore Gas & Electric	Responsible Org Type	Public Utility	Location	Baltimore, MD 21207

SEQNOS	754661	Incident Date	4/3/2005 4:15:00 PM	Type of Incident	Fixed
Description of Incident	A transformer failed releasing materials onto the ground and into a storm drain. It is unknown if the oil contains PCBs.				
Location	7109 E. Chesapeake Street, Landover, MD (AR_LBC_PCB-2)				
Amount of Material & Unit	Unknown	Reach Water?	Unknown	Amount to Reach Water & Unit	Unknown amount
Responsible Company	Baltimore Gas & Electric	Responsible Org Type	Public Utility	Location	Baltimore, MD 21207

SEQNOS	1003962	Incident Date	2/25/2012 4:20:00 PM	Type of Incident	Fixed
Description of Incident	Caller reported a tree fell and knocked down a pole with two transformers. Caller stated the material went into a storm drain and it is unknown if the material contains PCBs.				
Location	5030 57th Ave, Gladensburg, MD (AR_NEB_PCB-1)				
Amount of Material & Unit	Unknown	Reach Water?	Unknown	Amount to Reach Water & Unit	Unknown amount
Responsible Company	Potomac Electric Power Co	Responsible Org Type	Public Utility	Location	Washington DC

SEQNOS	1016678	Incident Date	7/4/2012 6:00:00 AM	Type of Incident	Fixed

Description of Incident	Caller is reporting a discharge of mineral oil from a pole mounted transformer due to recent storm damage. Caller does not know if the transformer contains PCB at this time.				
Location	4809 70th Place, Hyattsville, MD (AR_NEB_PCB-1)				
Amount of Material & Unit	Unknown	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown
Responsible Company	Potomac Electric Power Co	Responsible Org Type	Public Utility	Location	Washington DC

SEQNOS	1238521	Incident Date	2/24/2019 4:00:00 PM	Type of Incident	Fixed
Description of Incident	Transformer oil discharged from a pad mounted transformer that was hit by a third party vehicle. It is unknown if the transformer contains PCB at this time. Caller states there was also a power outage in the area as a result of the incident.				
Location	3201 75th Ave, Lanham, MD (AR_LBC_PCB-2)				
Amount of Material & Unit	Unknown	Reach Water?	Unknown	Amount to Reach Water & Unit	Unknown
Responsible Company	Unknown	Responsible Org Type	Unknown	Location	Unknown

7. Historic Landfills

The MDE Historic Landfill Initiatives (HLI) Report contained three historic landfills in the watershed, as shown in Table 6.

Table 6. List of Historic Landfills in the Anacostia River Watershed.

Site Name	Estimated Size	Subwatershed ID
Spicknall RF	Unknown	AR_NEB_PCB-3
Greenbelt Town LF	5 Acres	AR_NEB_PCB-6
Anacostia Flats	Uknown	AR_Tidal_PCB-2

8. MDE Permitted Solid Waste Acceptance Facilities (Active and Closed)

Five active or closed solid waste acceptance facilities were identified in the watershed using state permit data, as shown in Table 7.

Table 7. List of Solid Waste Acceptance Facilities (Active and Closed) in the Anacostia River Watershed.

Permit Number	AI Number	Site Name	Type	Permit End Date	Active/ Closed	Owner Type	Subwatershed ID
2023-WPT-0218	20211	Sheriff Road PF&TS	WPT	4/26/2028	Active	Private	AR_Tidal_PCB-2
2021-WPF-0639	21791	Sun Services PF	WPF	3/30/2026	Active	Private	AR_LBC_PCB-1
2023-NWW-0006	66631	Grant County Mulch, Inc.	NWWR	5/17/2028	Active	Unknown	AR_NEB_PCB-5
2019-WPT-0647	28954	Recycle One PF&TS	WPT	8/22/2024	Active	Private	AR_NEB_PCB-5
Unknown	Unknown	Brandywine / Cross Trails Road Rubble Landfill	Unknown	Unknown	Closed	Unknown	AR_LBC_PCB-1

Notes: **NWWR** = natural wood waste recycling facility; **WPF** = processing facility; **WPT** = processing facility & transfer station

9. MDE Permitted Sewage Sludge Utilization Activities

One permitted sewage sludge utilization activity was identified in the watershed using state permit data, as shown in Table 8.

Table 8. List of Permitted Sewage Sludge Utilization Activities in the Anacostia River Watershed.

Permit Number	AI Number	Site Name	Type	Subwatershed ID
2020-SAG-4345	10963	USDA Beltsville Agriculture Research Center	Land Application	AR_NEB_PCB-4

10. Public Angler Access Sites

Two public angler access sites were identified in the watershed, as shown in Table 9.

Table 9. List of Public Angler Access Sites in the Anacostia River Watershed.

Subwatershed ID	Park Name	Operator
AR_NEB_PCB-2	Lake Artemesia Park	Maryland-National Capital Park and Planning Commission
AR_Tidal_PCB-2	Bladensburg Waterfront Park	Maryland-National Capital Park and Planning Commission

11. Sanitary Sewer Overflows

MDE has records for 39 sanitary sewer overflows (SSOs) since 2005 in the watershed, as shown in Table 10.

Table 10. List of Sanitary Sewer Overflows in the Anacostia River Watershed.

Incident Date	Responsible Entity	Cause	Gallons	Subwatershed ID
12/10/2005	WSSC	other	500	AR_LBC_PCB-1
11/10/2008	WSSC	roots	1,005	AR_LBC_PCB-1
11/2/2012	WSSC	grease	1,065	AR_LBC_PCB-1
11/22/2021	WSSC	unknown hard obstruction	3,600	AR_LBC_PCB-1
12/13/2011	WSSC	grease	678	AR_LBC_PCB-2
11/7/2012	WSSC	unknown	5	AR_LBC_PCB-2
11/23/2012	WSSC	roots & grease	115	AR_LBC_PCB-2
11/5/2020	WSSC	grease	454	AR_LBC_PCB-2
11/5/2008	WSSC	grease	20	AR_NEB_PCB-1
11/2/2009	WSSC	2976	297	AR_NEB_PCB-1
11/18/2013	WSSC	unknown	401	AR_NEB_PCB-1
11/26/2016	WSSC	roots & grease	660	AR_NEB_PCB-1
11/4/2017	WSSC	grease, debris	510	AR_NEB_PCB-1
11/12/2008	WSSC	debris	480	AR_NEB_PCB-2
11/29/2021	WSSC	grease	223	AR_NEB_PCB-2
12/13/2021	WSSC	roots and grease	2,693	AR_NEB_PCB-2
11/4/2005	WSSC	physical defect	720	AR_NEB_PCB-4
11/7/2007	WSSC	unknown	20	AR_NEB_PCB-4
11/14/2016	WSSC	roots	1	AR_NEB_PCB-4
12/10/2007	WSSC	grease	144	AR_NEB_PCB-5
11/15/2012	United States Department of Agriculture	loose hose connection	50	AR_NEB_PCB-5

Incident Date	Responsible Entity	Cause	Gallons	Subwatershed ID
11/16/2019	WSSC	roots and grease	212	AR_NEB_PCB-6
12/14/2008	WSSC	grease	797	AR_NEB_PCB-7
11/8/2016	WSSC	grease	120	AR_NEB_PCB-7
11/27/2016	WSSC	grease	1,482	AR_NEB_PCB-7
11/17/2012	WSSC	unknown	898	AR_NEB_PCB-8
11/19/2012	WSSC	debris	83	AR_NEB_PCB-8
12/12/2007	WSSC	unknown	24	AR_NWB_PCB-1
11/7/2009	WSSC	debris	200	AR_NWB_PCB-1
11/14/2010	WSSC	roots	61	AR_NWB_PCB-1
11/19/2010	WSSC	unknown	200	AR_NWB_PCB-1
11/26/2011	WSSC	other	2	AR_NWB_PCB-1
11/5/2013	WSSC	grease	313	AR_NWB_PCB-1
11/5/2019	WSSC	sewer main damaged by contractor while installing a utility pole	2,370	AR_NWB_PCB-1
11/20/2019	WSSC	grease	912	AR_NWB_PCB-1
11/13/2006	WSSC	rocks & mud	321	AR_Tidal_PCB-1
11/22/2009	WSSC	unknown	134	AR_Tidal_PCB-1
11/26/2009	WSSC	grease	1,614	AR_Tidal_PCB-1
11/29/2010	WSSC	grease	5,185	AR_Tidal_PCB-1
12/10/2005	WSSC	other	500	AR_LBC_PCB-1
11/10/2008	WSSC	roots	1,005	AR_LBC_PCB-1

12. Military Installations

Five military installations were identified in the watershed, as shown in Table 11.

Table 11. List of Military Installations in the Anacostia River Watershed.

Facility	Subwatershed ID(s)
Adelphi Laboratory Center	AR_NEB_PCB-3
Army Reserve Center	AR_NEB_PCB-1
Greenbelt Readiness Center	AR_NEB_PCB-8
Beltsville Information Management Center	AR_NEB_PCB-7
Maryland Army National Guard Recruiting	AR_NEB_PCB-7

13. Land use (PCB-Era Development)

Figure 3 presents both urban and non-urban land uses by PCB era (i.e., Prior, Post, and PCB Era). The PCB manufacturing era is 1929–1979. Table 12 summarizes these two land-use groupings and three eras by subwatershed in the watershed. This analysis uses two sources: The Maryland Department of Planning (MDP) 2010 land use and County property geospatial data.

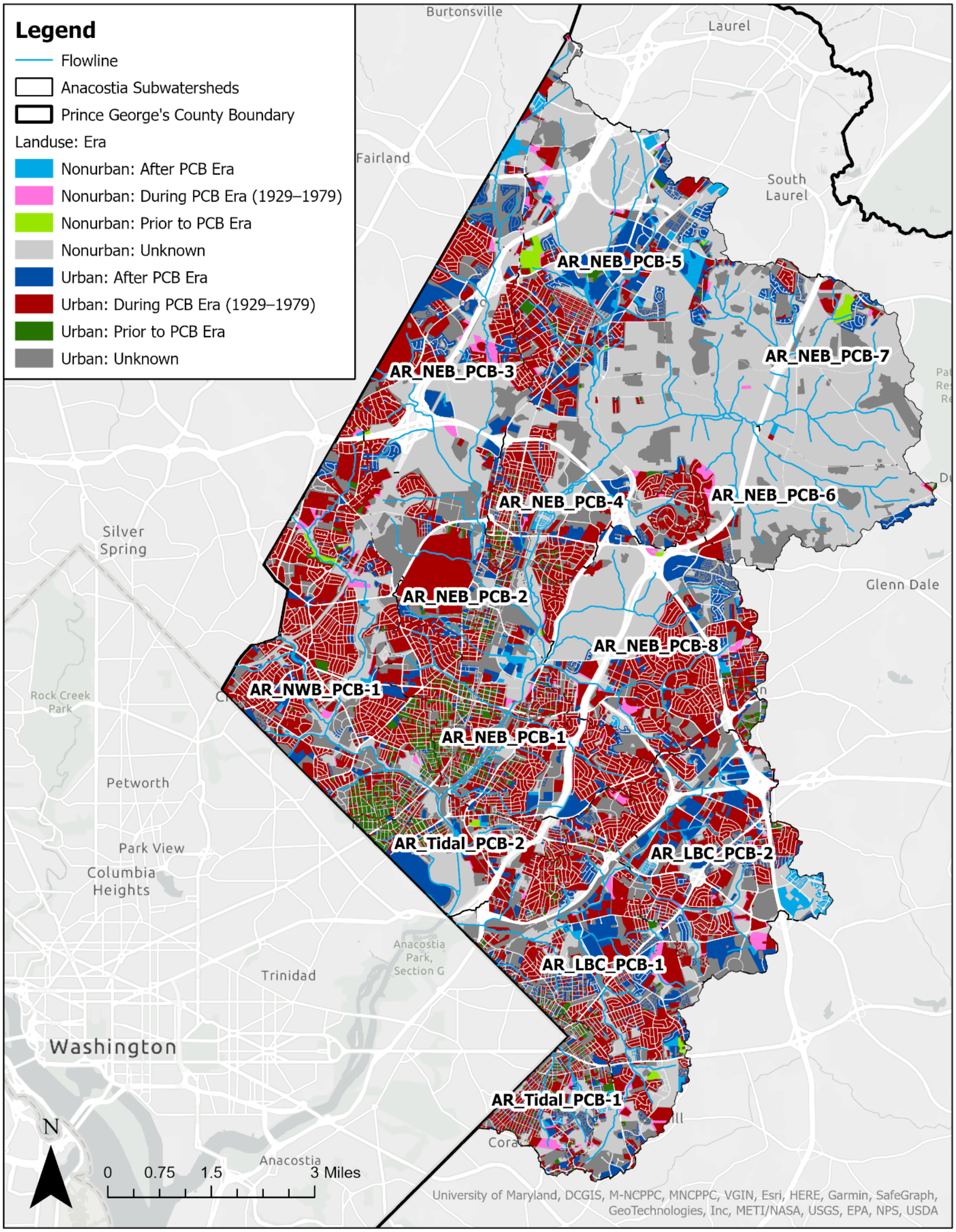


Figure 3. Urban/Non-Urban Land Use by Era in the Anacostia River Watershed.

Table 12. Urban/Non-Urban Land Use by Era in the Anacostia River Watershed.

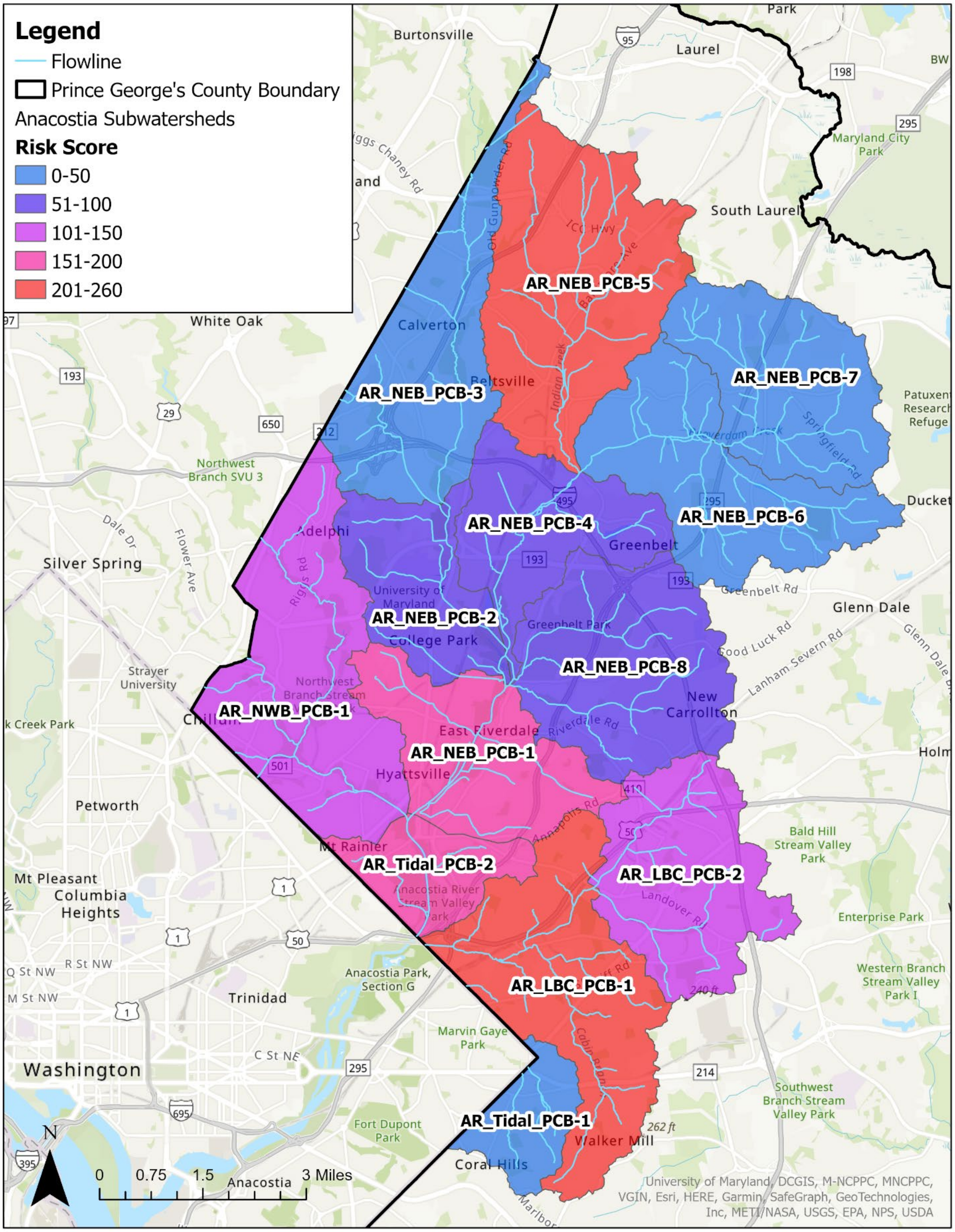
Subwatershed ID	Land use	Pre-PCB Era (acres)	PCB Era (acres)	Post-PCB Era (acres)	Unknown Era (acres)	% PCB Era
AR_LBC_PCB-1	**Total**	120.2	1,931.9	721.0	1,884.9	41%
AR_LBC_PCB-1	Nonurban	22.1	114.1	67.5	747.4	12%
AR_LBC_PCB-1	Urban	98.0	1,817.8	653.5	1,137.5	49%
AR_LBC_PCB-2	**Total**	21.3	1,318.7	777.6	1,316.8	38%
AR_LBC_PCB-2	Nonurban	0.3	76.6	174.3	435.7	11%
AR_LBC_PCB-2	Urban	21.0	1,242.1	603.4	881.1	45%
AR_NEB_PCB-1	**Total**	219.3	1,537.5	365.9	864.0	51%
AR_NEB_PCB-1	Nonurban	0.0	15.9	47.6	244.4	5%
AR_NEB_PCB-1	Urban	219.3	1,521.6	318.3	619.5	57%
AR_NEB_PCB-2	**Total**	50.1	1,069.0	185.8	1,271.0	41%
AR_NEB_PCB-2	Nonurban	0.0	16.7	22.8	427.5	4%
AR_NEB_PCB-2	Urban	50.1	1,052.2	163.0	843.4	50%
AR_NEB_PCB-3	**Total**	12.3	1,141.9	622.9	2,078.9	30%
AR_NEB_PCB-3	Nonurban	3.0	101.7	87.3	1,428.8	6%
AR_NEB_PCB-3	Urban	9.3	1,040.2	535.6	650.1	47%
AR_NEB_PCB-4	**Total**	78.2	1,077.1	230.0	1,302.6	40%
AR_NEB_PCB-4	Nonurban	1.8	17.3	24.7	723.4	2%
AR_NEB_PCB-4	Urban	76.4	1,059.9	205.3	579.2	55%
AR_NEB_PCB-5	**Total**	149.6	987.0	1,082.8	3,343.0	18%
AR_NEB_PCB-5	Nonurban	72.1	63.7	223.8	2,519.1	2%
AR_NEB_PCB-5	Urban	77.5	923.3	859.0	823.9	34%
AR_NEB_PCB-6	**Total**	3.0	184.3	68.4	4,355.6	4%
AR_NEB_PCB-6	Nonurban	0.1	43.6	2.8	3,599.9	1%
AR_NEB_PCB-6	Urban	2.9	140.8	65.6	755.6	15%
AR_NEB_PCB-7	**Total**	51.2	148.7	167.0	3,550.2	4%
AR_NEB_PCB-7	Nonurban	45.9	13.4	23.7	2,969.4	0%
AR_NEB_PCB-7	Urban	5.3	135.3	143.3	580.9	16%
AR_NEB_PCB-8	**Total**	50.3	1,670.9	450.8	1,821.4	42%
AR_NEB_PCB-8	Nonurban	4.8	71.9	34.4	1,240.3	5%
AR_NEB_PCB-8	Urban	45.5	1,599.0	416.4	581.1	61%
AR_NWB_PCB-1	**Total**	308.9	2,569.6	363.0	1,601.0	53%
AR_NWB_PCB-1	Nonurban	28.6	83.1	43.4	673.4	10%
AR_NWB_PCB-1	Urban	280.3	2,486.4	319.6	927.6	62%
AR_Tidal_PCB-1	**Total**	97.4	466.9	164.1	470.9	39%
AR_Tidal_PCB-1	Nonurban	2.1	48.2	28.9	180.9	19%
AR_Tidal_PCB-1	Urban	95.3	418.8	135.1	290.1	45%
AR_Tidal_PCB-2	**Total**	118.7	410.4	296.5	598.7	29%
AR_Tidal_PCB-2	Nonurban	7.9	8.8	31.3	348.3	2%
AR_Tidal_PCB-2	Urban	110.9	401.6	265.2	250.5	39%

Subwatershed Prioritization

The 2022 MDE PCB Guidance provided instructions on how to calculate a PCB risk score for each subwatershed. This method is described in the County's *PCB TMDL Stormwater Wasteload Allocation Watershed Implementation Plan*. Table 13 presents risk scores for each subwatershed, displayed from highest to lowest risk (lower numbers mean lower risk; higher numbers mean higher risk). The totals (far right column) can be used to compare the relative PCB risks between watersheds in the County. Figure 4 shows the geospatial distribution of the risk scores.

Table 13. List of PCB Risk Scores by Subwatershed in the Anacostia River Watershed.

Subwatershed	Risk Score for each Source Assessment Number												Total
	1	2	3	4	5	6	7	8	9	10	11	12	
AR_LBC_PCB-1	0	0	120	121	0	0	0	10	0	0	4	0	255
AR_LBC_PCB-2	0	0	50	35	0	20	0	0	0	0	4	0	109
AR_NEB_PCB-1	0	0	90	35	0	15	0	0	0	0	5	10	155
AR_NEB_PCB-2	0	1	80	0	0	5	0	0	0	1	3	0	90
AR_NEB_PCB-3	0	1	20	0	0	0	5	0	0	0	0	10	36
AR_NEB_PCB-4	0	0	70	15	0	5	0	0	5	0	3	0	98
AR_NEB_PCB-5	0	0	160	88	0	0	0	10	0	0	2	0	260
AR_NEB_PCB-6	0	0	20	10	0	0	5	0	0	0	1	0	36
AR_NEB_PCB-7	0	0	0	0	0	0	0	0	0	0	3	20	23
AR_NEB_PCB-8	0	0	60	10	0	0	0	0	0	0	2	10	82
AR_NWB_PCB-1	0	0	100	10	0	5	0	0	0	0	8	0	123
AR_Tidal_PCB-1	0	0	20	21	0	0	0	0	0	0	4	0	45
AR_Tidal_PCB-2	0	0	70	86	0	0	5	5	0	1	0	0	167



Note: Lower risk scores mean lower risk; higher risk scores mean higher risk

Figure 4. PCB Risk Scores by Subwatershed in the Anacostia River Watershed.

PCB Phase I Source Assessment & Subwatershed Prioritization – Patuxent River Watershed

Introduction

This factsheet presents the results of the PCB Phase I source assessment and subwatershed prioritization for the Patuxent River watershed. For the assessment, the watershed was segmented into 5 to 10 square mile subwatersheds and given a unique ID (Table 1, Figure 1).

This factsheet is separated into two main sections: **PCB Source Assessment** and **Subwatershed Prioritization**. The PCB Source Assessment section includes tables for each of the twelve types of sources identified by MDE in its August 2022 *Guidance for Developing Local PCB TMDL (Total Maximum Daily Load) Stormwater Wasteload Allocation (SW-WLA) Watershed Implementation Plans.* The source assessment section also has an overall map and a map of urban land that was developed during the PCB manufacturing era (1929–1979).

Next, the Subwatershed Prioritization section shows the resulting scoring of the subwatersheds in Table 12 and Figure 4.

For information on the source assessment and prioritization methodology or the individual types of sources, please see the County's *PCB TMDL Stormwater Wasteload Allocation Watershed Implementation Plan*.

Table 1. List of PCB watersheds in the Patuxent River Watershed.

PCB Impairment Watershed	Subwatershed ID	Area (Acres)	Area (mi^2)
Patuxent River Tidal Fresh (PAXTF)	PAXTF_PCB-1	2,753	4.3
	PAXTF_PCB-2	7,553	11.8
	PAXTF_PCB-3	6,822	10.6
	PAXTF_PCB-4	2,322	3.6
	PAXTF_PCB-5	2,493	3.9
	PAXTF_PCB-6	5,840	9.1
	PAXTF_PCB-7	5,228	8.2
	PAXTF_PCB-8	6,926	10.8
	PAXTF_PCB-9	3,037	4.7
	PAXTF_PCB-10	4,336	6.8
	PAXTF_PCB-11	4,845	7.6
	PAXTF_PCB-12	4,097	6.4
	PAXTF_PCB-13	6,223	9.7
	PAXTF_PCB-14	3,439	5.4
	PAXTF_PCB-15	4.090	6.4
	PAXTF_PCB-16	554	0.9
	PAXOH_PCB-4	5,458	8.5
	PAXOH_PCB-5	2,232	3.5

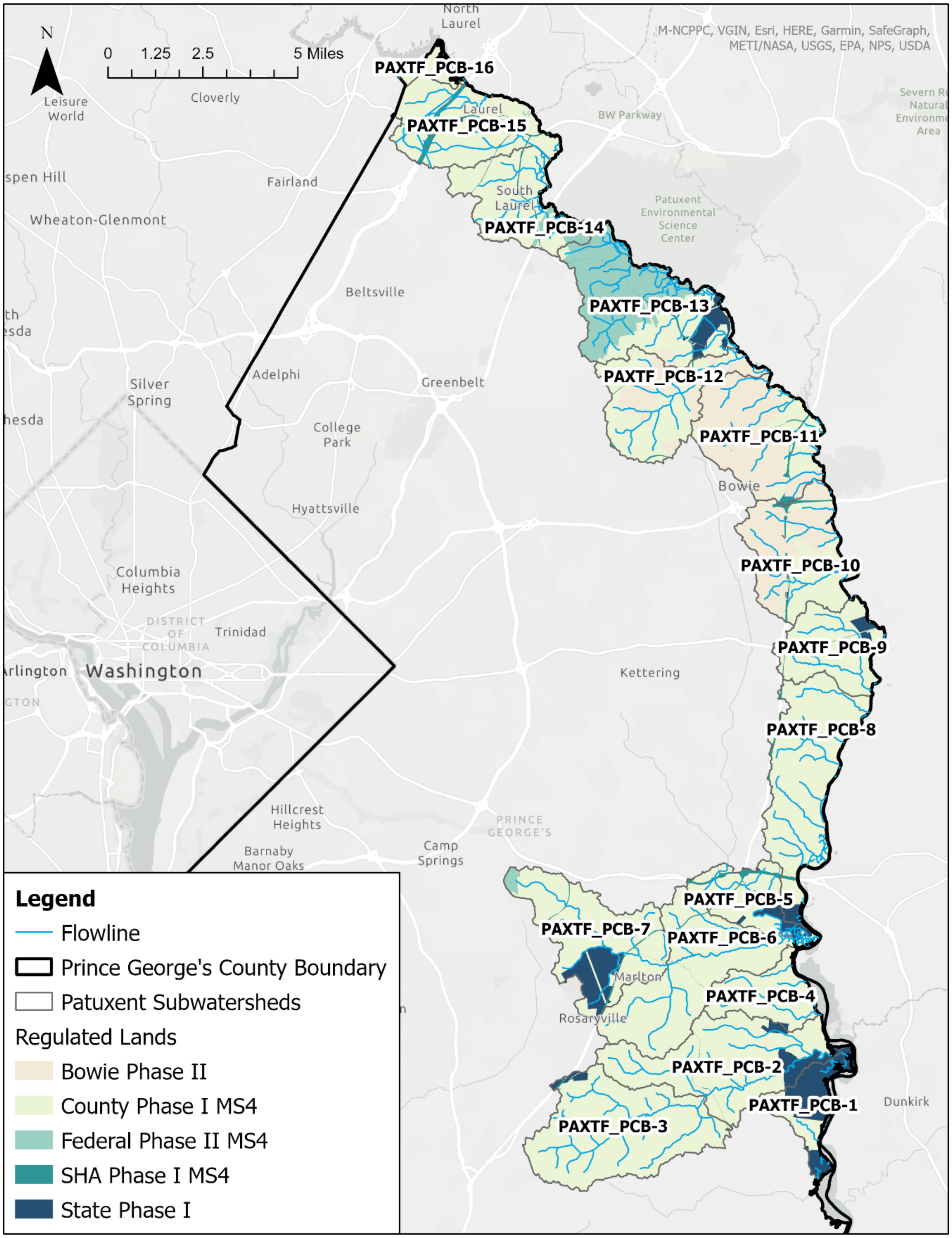


Figure 1. MS4 Entities in the Patuxent River Watershed.

PCB Source Assessment

This section summarizes 12 PCB potential source types and one PCB-era (1929–1979) development contributions, based on land use, as listed below:

1. PCB transformers (EPA PCB Transformer Registry Database)
2. PCB activities (EPA PCB Activities Database)
3. Hazardous waste sites (Superfund/CERCLA)
4. NPDES permitted wastewater and stormwater dischargers (active and inactive)
5. Toxics Release Inventory (TRI) facilities (EPA TRI Database)
6. PCB releases (National Response Center [NRC] Database)
7. Historic landfills
8. MDE permitted solid waste acceptance facilities (active and closed)
9. MDE permitted sewage sludge utilization activities
10. Public angler access sites
11. Sanitary sewer overflows
12. Military installations
13. Land use (PCB-era development)

Figure 2 shows the Patuxent watershed and the identified potential sources from the above list that will be used for subwatershed prioritization.

1. PCB Transformers (EPA PCB Transformer Registry Database)

The EPA PCB Transformer Registry Database does not contain any registered transformers in Prince George's County.

2. PCB Activities (EPA PCB Activities Database)

The EPA PCB Activities Database does not contain activities in the watershed.

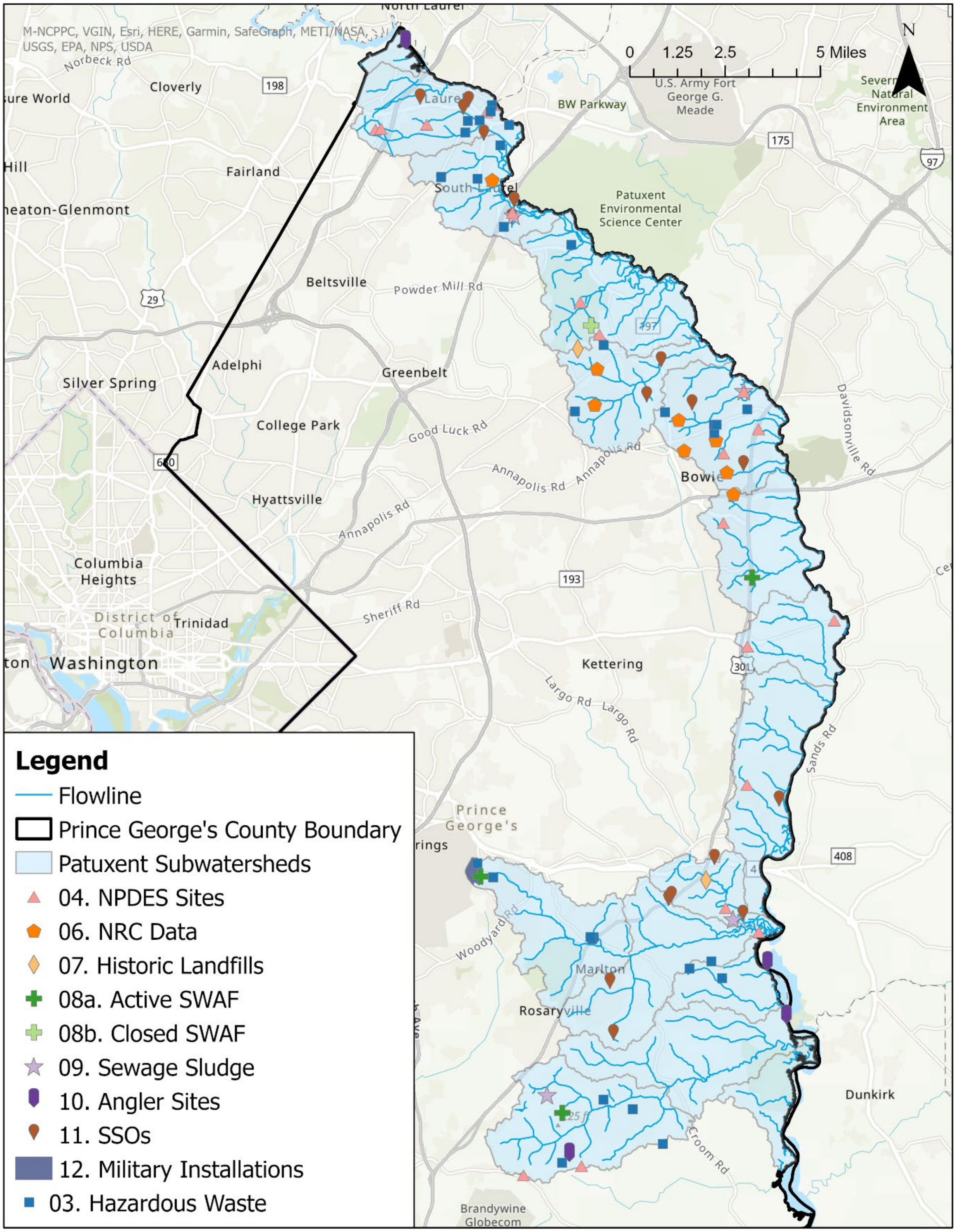


Figure 2. PCB Source Assessment: Potential PCB Sources in the Patuxent River Watershed.

3. Hazardous Waste Sites (Superfund/CERCLA)

These 31 hazardous waste sites were identified in the watershed from various State and Federal programs, as show in Table 2. This table also identifies the programs under which each site is managed.

Table 2. List of Hazardous Waste Sites (Superfund/CERCLA) in the Patuxent River Watershed.

Site Name	BMI #	Acres	Type	Federal?	Known PCBs?	Years	Subwatershed ID
Bowie-Belair Landfill	MD0090	120	LRP	No	No	X-2005	PAXTF_PCB-11
Free State Shopping Center	MD0750	28.42	VCP	No	No	2008-2019	PAXTF_PCB-11
Bowie Market Place	MD0994	20.23	VCP	No	No	2006-2017	PAXTF_PCB-11
Bowie Plaza Shopping Center	MD1241	10.8	VCP	No	No	2005-2006	PAXTF_PCB-11
Diplomat Cleaners	MD1500	19.97	LRP	No	No	X-1995	PAXTF_PCB-11
Bevard Landfill	MD1814	0	LRP	No	No	X-X	PAXTF_PCB-12
Glenn Dale Golf Club	MD1973	124	CHS	No	No	2019-2022	PAXTF_PCB-12
Patuxent Wildlife Research Center	MD0267	12,800	Unkn	Yes	No	X-X	PAXTF_PCB-13
Koppers Co. Dumpsite - Laurel	MD0040	2	LRP	No	No	X-2012	PAXTF_PCB-14
Koppers Co Laurel	MD0134	0	CHS	No	No	X-2012	PAXTF_PCB-14
14415 Greenview Drive Property	MD1502	191.8	CHS, VCP	No	No	2018-X	PAXTF_PCB-14
Laurel Town Center	MD1567	9.3	VCP	No	No	2014-X	PAXTF_PCB-14
Pheasant Run Shopping Center	MD2165	0	CHS	No	No	2023-X	PAXTF_PCB-14
Laurel City Landfill	MD0183	22	CHS	No	No	X-X	PAXTF_PCB-15
Laurel Building Supply	MD1037	2.35	VCP	No	No	2000-2000	PAXTF_PCB-15
Office Depot Shopping Center	MD1296	3.7	VCP	No	No	2005-2006	PAXTF_PCB-15
Laurel Shopping Center	MD1367	32.6	VCP	No	No	2001-X	PAXTF_PCB-15
Industrial Towel Supply, Inc.	MD1407	2.45	Brwn, VCP	No	No	2005-2013	PAXTF_PCB-15
Laurel Commerce Center	MD1613	0	CHS	No	No	2014-2014	PAXTF_PCB-15
Croom/Brandywine - Launch	MD0228	21	FUD	No	No	X-X	PAXTF_PCB-3
Brandywine - Control	MD0229	15.16	FUD	Yes	No	X-X	PAXTF_PCB-3
Windsor Manor Road Site	MD0393	4.09	Brwn	No	No	X-2005	PAXTF_PCB-3
North Keys	MD2013	0	LRP	No	No	2020-X	PAXTF_PCB-3
Croom - Launch	MD0230	13.27	FUD	Yes	No	X-2012	PAXTF_PCB-4
Croom - Control	MD0231	13	FUD	Yes	No	X-X	PAXTF_PCB-6
Croom Military Housing	MD0468	3.5	FUD	No	No	X-2008	PAXTF_PCB-6
Zeal Scrap Tire Site	MD0489	0	Unkn	No	No	X-X	PAXTF_PCB-7

Site Name	BMI #	Acres	Type	Federal?	Known PCBs?	Years	Subwatershed ID
Osborne Shopping Center Parcel E	MD0852	3.0268	VCP	No	No	2012-2013	PAXTF_PCB-7
Osborne Shopping Center Parcel G	MD0853	17.6	VCP	No	No	2012-2013	PAXTF_PCB-7
Osborne Shopping Center	MD1105	1.76	VCP	No	No	2005-2006	PAXTF_PCB-7
Dower Employment Center	MD2045	59.432	CHS	No	No	2021-X	PAXTF_PCB-7

Notes: **BMI** = LRP's Brownfields Master Inventory. **Brwn** = Brownfield under LRP; **CHS** = Controlled Hazardous Substance Enforcement Division; **FUD** = formerly used defense site; **LRP** = Land Restoration Program; **Unkn** = unknown; **VCP** = Voluntary Cleanup Program

4. NPDES Permitted Wastewater and Stormwater Dischargers (Active and Inactive)

These 20 NPDES permitted wastewater and stormwater dischargers (active and inactive) were identified in the watershed from various State and Federal programs, as shown in Table 3.

Table 3. List of Permitted Wastewater and Stormwater Dischargers (Active and Inactive) in the Patuxent River Watershed.

SIC Code	SIC Code Description	NPDES	Facility Name	Status	Subwatershed ID
4952	sewerage systems	MD0021628	The City of Bowie Wastewater Treatment Plant	Violation Identified	PAXTF_PCB-11
4952	sewerage systems	MD0021725	Parkway Water Resource Recovery Facility	Violation Identified	PAXTF_PCB-14
4952	sewerage systems	MD0021741	Western Branch WWTP	Violation Identified	PAXTF_PCB-5
4953	refuse systems	MD0054836	Nrg Md - Brandywine Flyash Management Site	Violation Identified	PAXTF_PCB-3
5093	scrap and waste materials	MD0065111	Prince George's County Yard Waste Composting Facility	Issued	PAXTF_PCB-5
4952	sewerage systems	MD0065358	National Wildlife Visitors Center WWTP	No Violation Identified	PAXTF_PCB-13
5171	petroleum bulk stations and terminals	MDG343976	Carroll Ind. Fuel Co, Inc. Laurel	No Violation Identified	PAXTF_PCB-15
5171	petroleum bulk stations and terminals	MDG344261	Laurel Fuel Oil & Heating Co, I	No Violation Identified	PAXTF_PCB-15
4941	water supply	MDG679477	Utilities Inc Of Maryland WTP	No Violation Identified	PAXTF_PCB-8
4941	water supply	MDG679557	City of Bowie Water System	Issued	PAXTF_PCB-11
4953	refuse systems	MDR000314	Sandy Hill Municipal Landfill	Admin Ext	PAXTF_PCB-13
5015	motor vehicle parts, used	MDR000841	Central Small Car Salvage	History	PAXTF_PCB-9
5015	motor vehicle parts, used	MDR000846	Bowie Used Auto Parts, Inc	History	PAXTF_PCB-11
4215	courier services, except by air	MDR000857	United Parcel Service	Admin Ext	PAXTF_PCB-15
4215	courier services, except by air	MDR000859	United Parcel Service - MDBUR	Admin Ext	PAXTF_PCB-15
5015	motor vehicle parts, used	MDR001120	B & B Auto Salvage, Ltd.	Admin Ext	PAXTF_PCB-9

SIC Code	SIC Code Description	NPDES	Facility Name	Status	Subwatershed ID
4953	refuse systems	MDR001841	City of Laurel DPW Maintenance Facility	History	PAXTF_PCB-15
4952	sewerage systems	MDR002525	City of Bowie WWTP	Admin Ext	PAXTF_PCB-10
2752	commercial printing, lithographic	MDR003215	Westland Printers	Issued	PAXTF_PCB-15
4911	electric services	MDR003342	Parkway Generation Keys Energy Center LLC - Keys Energy Center	Admin Ext / No Violation Identified	PAXTF_PCB-3

5. TRI Facilities (EPA TRI Database)

The EPA Toxic Release Inventory (TRI) Database does not contain any registered facilities in Prince George's County.

6. PCB Releases (NRC Database)

The National Response Center (NRC) Database (1990–2022), which contains eight PCB releases in the watershed, are listed here by case in Table 4.

Table 4. List of PCB Releases from the NRC Database in the Patuxent River Watershed.

SEQNOS	80711	Incident Date	7/24/1991 6:00:00 AM	Type of Incident	Fixed
Description of Incident	Transformer overheated and exploded.				
Location	3521 Moylan Dr, Bowie, MD 20715 (PAXTF_PCB-11)				
Amount of Material & Unit	2 gallons	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown
Responsible Company	Baltimore Gas & Electric	Responsible Org Type	Public Utility	Location	Annapolis, MD 21401

SEQNOS	91382	Incident Date	10/7/1991 4:41:00 PM	Type of Incident	Fixed
Description of Incident	Pole mounted transformer ruptured.				
Location	12802 Kernal Circle, Bowie, MD (PAXTF_PCB-10)				
Amount of Material & Unit	1,5 gallons	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown
Responsible Company	Baltimore Gas & Electric	Responsible Org Type	Public Utility	Location	Annapolis, MD 21401

SEQNOS	130250	Incident Date	8/4/1992 12:30:00 AM	Type of Incident	Fixed
Description of Incident	Transformer exploded.				
Location	Rear of 12709 Bermuda Ln, Bowie, MD (PAXTF_PCB-11)				
Amount of Material & Unit	75 gallons	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown

Responsible Company	Baltimore Gas & Electric	Responsible Org Type	Public Utility	Location	Annapolis, MD 21401

SEQNOS	185687	Incident Date	7/11/1993 3:30:00 PM	Type of Incident	Fixed
Description of Incident	Transformer top blew off due to electrical failure.				
Location	12323 Lanham Severn Rd, Lanham, MD (PAXTF_PCB-12)				
Amount of Material & Unit	2 gallons	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown
Responsible Company	Baltimore Gas & Electric	Responsible Org Type	Public Utility	Location	Annapolis, MD 21401

SEQNOS	191043	Incident Date	8/6/1993 1:00:00 PM	Type of Incident	Fixed
Description of Incident	Transformer leaked due to an electrical failure.				
Location	12304 Shafer Lane, Bowie, MD (PAXTF_PCB-12)				
Amount of Material & Unit	2 gallons	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown
Responsible Company	Baltimore Gas & Electric	Responsible Org Type	Public Utility	Location	Annapolis, MD 21401

SEQNOS	205937	Incident Date	11/1/1993 8:00:00 PM	Type of Incident	Fixed
Description of Incident	Transformer overheated causing a release through the top of it.				
Location	3006 Tyson Lane, Bowie, MD (PAXTF_PCB-11)				
Amount of Material & Unit	1 gallon	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown
Responsible Company	Baltimore Gas & Electric	Responsible Org Type	Public Utility	Location	Annapolis, MD 21401

SEQNOS	293215	Incident Date	5/27/1995 12:30:00 PM	Type of Incident	Fixed
Description of Incident	Pad mounted transformer electrical failure.				
Location	Rear of 3103 Superior St., Bowie, MD 21401 (PAXTF_PCB-11)				
Amount of Material & Unit	20 gallons	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown
Responsible Company	Baltimore Gas & Electric	Responsible Org Type	Public Utility	Location	Annapolis, MD 21401

SEQNOS	641056	Incident Date	4/1/2003 4:30:00 PM	Type of Incident	Fixed
Description of Incident	Materials released from a pad-mounted transformer due to unknown causes.				
Location	13029 Old Coach Rd, Laurel, MD (PAXTF_PCB-14)				
Amount of Material & Unit	Unknown	Reach Water?	No	Amount to Reach Water & Unit	-
Responsible Company	Baltimore Gas & Electric	Responsible Org Type	Public Utility	Location	Ellicott City, MD 21042

7. Historic Landfills

The MDE Historic Landfill Initiatives (HLI) Report contained one historic landfill in the watershed, as shown in Table 5.

Table 5. List of Historic Landfills in the Patuxent River Watershed.

Site Name	Estimated Size	Subwatershed ID
Bevard LF (Sandy Hill LF)	Unknown	PAXTF_PCB-12, PAXTF_PCB-13

8. MDE Permitted Solid Waste Acceptance Facilities (Active and Closed)

Four active or closed solid waste acceptance facilities were identified in the watershed using state permit data, as shown in Table 6.

Table 6. List of Solid Waste Acceptance Facilities (Active and Closed) in the Patuxent River Watershed.

Permit Number	AI Number	Site Name	Type	Permit End Date	Active/ Closed	Owner Type	Subwatershed ID
2021-GWD-2052	37442	Brandywine Rubble Landfill	GW	7/6/2026	Active	Private	PAXTF_PCB-3
2023-NWW-GP01	177291	Patuxent Nursery, LLC	NWWR	2/26/2028	Active	Unknown	PAXTF_PCB-10
2020-WPF-0563	37589	Dower House PF	WPF	10/26/2025	Active	Private	PAXTF_PCB-7
Unknown	Unknown	Sandy Hill MSW Landfill*	Unknown	Unknown	Closed	Unknown	PAXTF_PCB-12, PAXTF_PCB-13

Notes: * = Contained in the MDE Historic Landfill Initiatives (HLI) Report; NWWR = natural wood waste recycling facility; GW = groundwater disposal; WPF= processing facility

9. MDE Permitted Sewage Sludge Utilization Activities

Four permitted sewage sludge utilization activities were identified in the watershed, using state permit data, as shown in Table 7.

Table 7. List of Permitted Sewage Sludge Utilization Activities in the Anacostia River Watershed.

Permit Number	Site Name	Type	Subwatershed ID
2016-SAG-5939	Lee Pit, PG-175	Land Application	PAXTF_PCB-3
2014-STF-5827; 2019-STF-5827	WSSC Parkway WRRF	Treatment Facility	PAXTF_PCB-14
2019-STF-5829	City of Bowie WWTP	Treatment Facility	PAXTF_PCB-11
2021-STF-6115	WSSC Western Branch WRRF	Treatment Facility	PAXTF_PCB-5

10. Public Angler Access Sites

Four public angler access sites were identified in the watershed, as shown in Table 8.

Table 8. List of Public Angler Access Sites in the Patuxent River Watershed.

Subwatershed ID	Park Name	Operator
PAXTF_PCB-2	Selbys Landing	Maryland-National Capital Park and Planning Commission
PAXTF_PCB-3	Brandywine-North Keys Park	Maryland-National Capital Park and Planning Commission
PAXTF_PCB-4	Jacksons Landing	Maryland-National Capital Park and Planning Commission

Subwatershed ID	Park Name	Operator
PAXTF_PCB-16	Supplee Landing Ramp	Washington Suburban Sanitary Commission

11. Sanitary Sewer Overflows

MDE has records for 21 sanitary sewer overflows (SSOs) since 2005 in the watershed, as shown in Table 9.

Table 9. List of Sanitary Sewer Overflows in the Patuxent River Watershed.

Incident Date	Responsible Entity	Cause	Gallons	Subwatershed ID
11/30/2012	WSSC	unknown	500	PAXTF_PCB-8
11/30/2009	WSSC	unknown	10	PAXTF_PCB-11
11/24/2017	City of Bowie WWTP	sewage backed up in line	6,000	PAXTF_PCB-11
12/10/2009	WSSC	unknown	30	PAXTF_PCB-12
12/15/2012	WSSC	debris	1	PAXTF_PCB-12
11/30/2009	WSSC	other	4,200	PAXTF_PCB-14
11/18/2015	WSSC	debris	278	PAXTF_PCB-14
11/19/2018	WSSC	defective material.	5,550	PAXTF_PCB-14
12/1/2009	WSSC	grease	80	PAXTF_PCB-15
11/28/2010	WSSC	debris	5	PAXTF_PCB-15
11/18/2013	WSSC	roots	5	PAXTF_PCB-15
11/16/2006	Western Branch WWTP	precipitation	0	PAXTF_PCB-5
11/30/2006	Western Branch WWTP	precipitation	0	PAXTF_PCB-5
12/16/2005	Western Branch WWTP	precipitation	50,000	PAXTF_PCB-6
11/17/2006	Prince George's County DPW	heavy rain	0	PAXTF_PCB-6
11/29/2006	WSSC	grease	226	PAXTF_PCB-6
11/17/2009	WSSC	roots	5	PAXTF_PCB-6
12/16/2018	WSSC	excessive amounts of rainfall caused high flows at plant	50,000	PAXTF_PCB-6
12/16/2018	WSSC	excessive amounts of rainfall caused high flows at plant	40,000	PAXTF_PCB-6
12/16/2018	WSSC	excessive amounts of rainfall caused high flows at plant	75,000	PAXTF_PCB-6
11/12/2020	WSSC	heavy rainfall.	1,500	PAXTF_PCB-6

12. Military Installations

One military installation was identified in the watershed, as shown in Table 10. Joint Base Andrews occupies portions of multiple watersheds (Patuxent, Piscataway, Potomac).

Table 10. List of Military Installations in the Potomac River Watershed.

Facility	Subwatershed ID
Joint Base Andrews	PAXTF_PCB-7

13. Land use (PCB-Era Development)

Figure 3 presents both the urban and non-urban land uses by PCB era (i.e., Prior, Post, and PCB Era). The PCB manufacturing era is 1929–1979. Table 11 summarizes these two land-use groupings and three eras by subwatershed in the watershed. This analysis uses two sources: Maryland Department of Planning (MDP) 2010 land use and County property geospatial data.

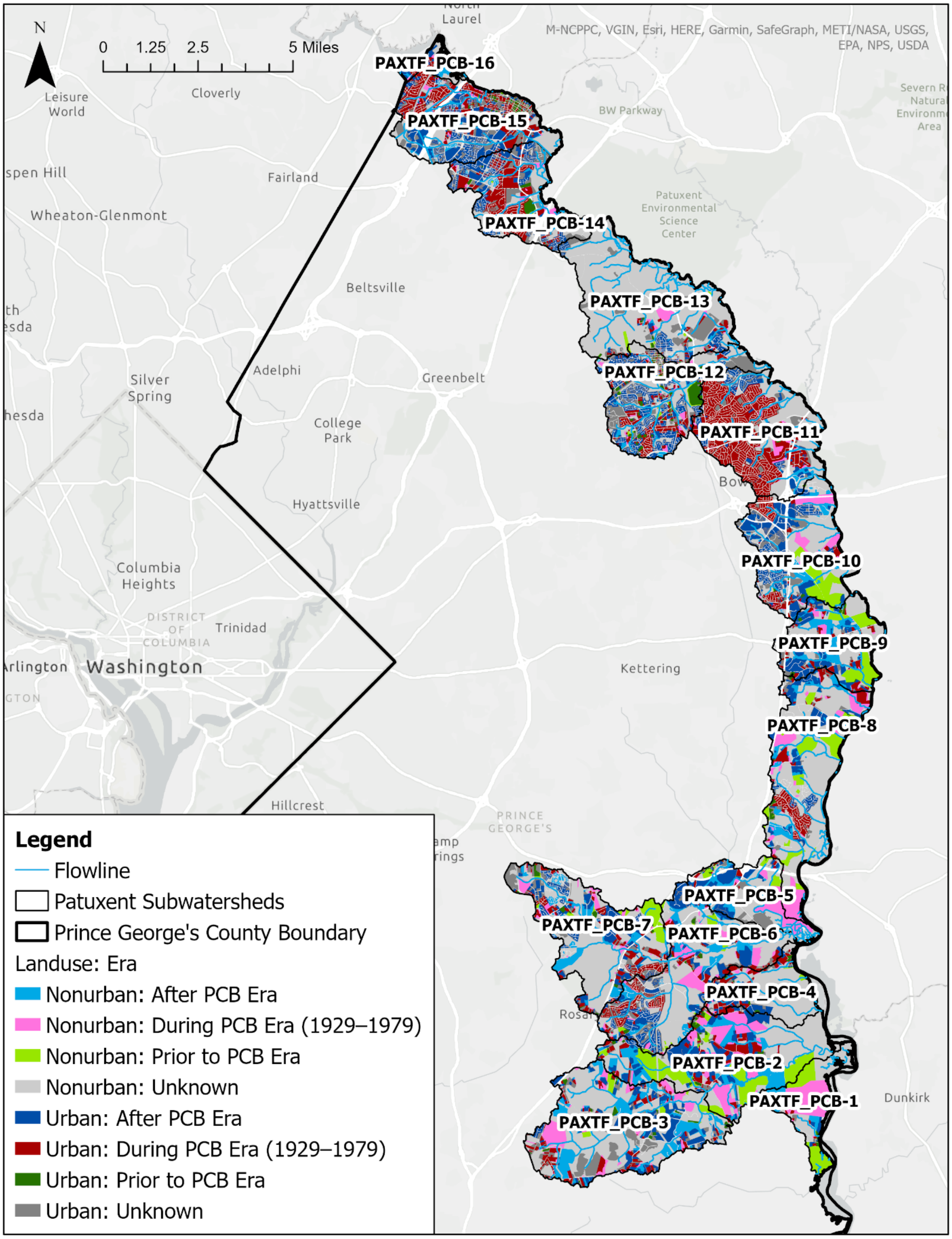


Figure 3. Urban/Non-Urban Land Use by Era in the Patuxent River Watershed.

Table 11. Urban/Non-Urban Land Use by Era in the Patuxent River Watershed.

Subwatershed ID	Land use	Pre-PCB Era (acres)	PCB Era (acres)	Post-PCB Era (acres)	Unknown Era (acres)	% PCB Era
PAXTF_PCB-1	**Total**	403.4	618.9	289.0	563.6	33%
PAXTF_PCB-1	Nonurban	385.2	573.5	242.8	544.3	33%
PAXTF_PCB-1	Urban	18.2	45.4	46.2	19.3	35%
PAXTF_PCB-10	**Total**	460.2	637.6	1,191.4	1,890.1	15%
PAXTF_PCB-10	Nonurban	442.6	327.4	245.7	1,455.7	13%
PAXTF_PCB-10	Urban	17.6	310.2	945.7	434.5	18%
PAXTF_PCB-11	**Total**	14.9	2,267.5	462.0	1,802.8	50%
PAXTF_PCB-11	Nonurban	0.5	131.0	67.0	1,377.5	8%
PAXTF_PCB-11	Urban	14.4	2,136.4	395.0	425.3	72%
PAXTF_PCB-12	**Total**	330.0	642.5	1,129.1	1,935.4	16%
PAXTF_PCB-12	Nonurban	61.5	96.1	104.6	1,078.7	7%
PAXTF_PCB-12	Urban	268.5	546.3	1,024.6	856.8	20%
PAXTF_PCB-13	**Total**	87.8	236.6	307.1	5,554.5	4%
PAXTF_PCB-13	Nonurban	57.4	102.6	49.6	5,002.1	2%
PAXTF_PCB-13	Urban	30.4	134.1	257.5	552.3	14%
PAXTF_PCB-14	**Total**	88.5	989.1	658.1	1,461.4	31%
PAXTF_PCB-14	Nonurban	10.5	100.8	52.0	881.9	10%
PAXTF_PCB-14	Urban	78.0	888.3	606.2	579.6	41%
PAXTF_PCB-15	**Total**	98.1	1,121.5	1,056.0	1,368.0	31%
PAXTF_PCB-15	Nonurban	5.2	65.5	121.4	669.1	8%
PAXTF_PCB-15	Urban	92.9	1,056.1	934.7	698.9	38%
PAXTF_PCB-16	**Total**	0.0	98.7	186.0	223.6	19%
PAXTF_PCB-16	Nonurban	0.0	16.8	106.6	188.4	5%
PAXTF_PCB-16	Urban	0.0	81.9	79.4	35.3	42%
PAXTF_PCB-2	**Total**	1,122.1	1,395.0	1,626.3	1,980.2	23%
PAXTF_PCB-2	Nonurban	1,024.4	947.0	733.4	1,820.2	21%
PAXTF_PCB-2	Urban	97.7	448.0	892.9	160.0	28%
PAXTF_PCB-3	**Total**	235.5	978.4	1,672.7	3,876.5	14%
PAXTF_PCB-3	Nonurban	156.6	516.3	806.5	3,173.9	11%
PAXTF_PCB-3	Urban	78.9	462.1	866.2	702.7	22%
PAXTF_PCB-4	**Total**	64.8	328.8	321.4	1,506.6	15%
PAXTF_PCB-4	Nonurban	26.9	31.2	11.8	1,393.2	2%
PAXTF_PCB-4	Urban	38.0	297.6	309.7	113.4	39%
PAXTF_PCB-5	**Total**	143.5	494.4	517.6	1,019.4	23%
PAXTF_PCB-5	Nonurban	111.2	418.3	123.1	795.2	29%
PAXTF_PCB-5	Urban	32.3	76.1	394.5	224.2	10%
PAXTF_PCB-6	**Total**	192.7	901.8	1,406.8	3,202.0	16%
PAXTF_PCB-6	Nonurban	138.4	414.7	450.7	2,671.9	11%
PAXTF_PCB-6	Urban	54.3	487.1	956.1	530.1	24%
PAXTF_PCB-7	**Total**	351.3	662.1	1,322.1	2,741.7	13%

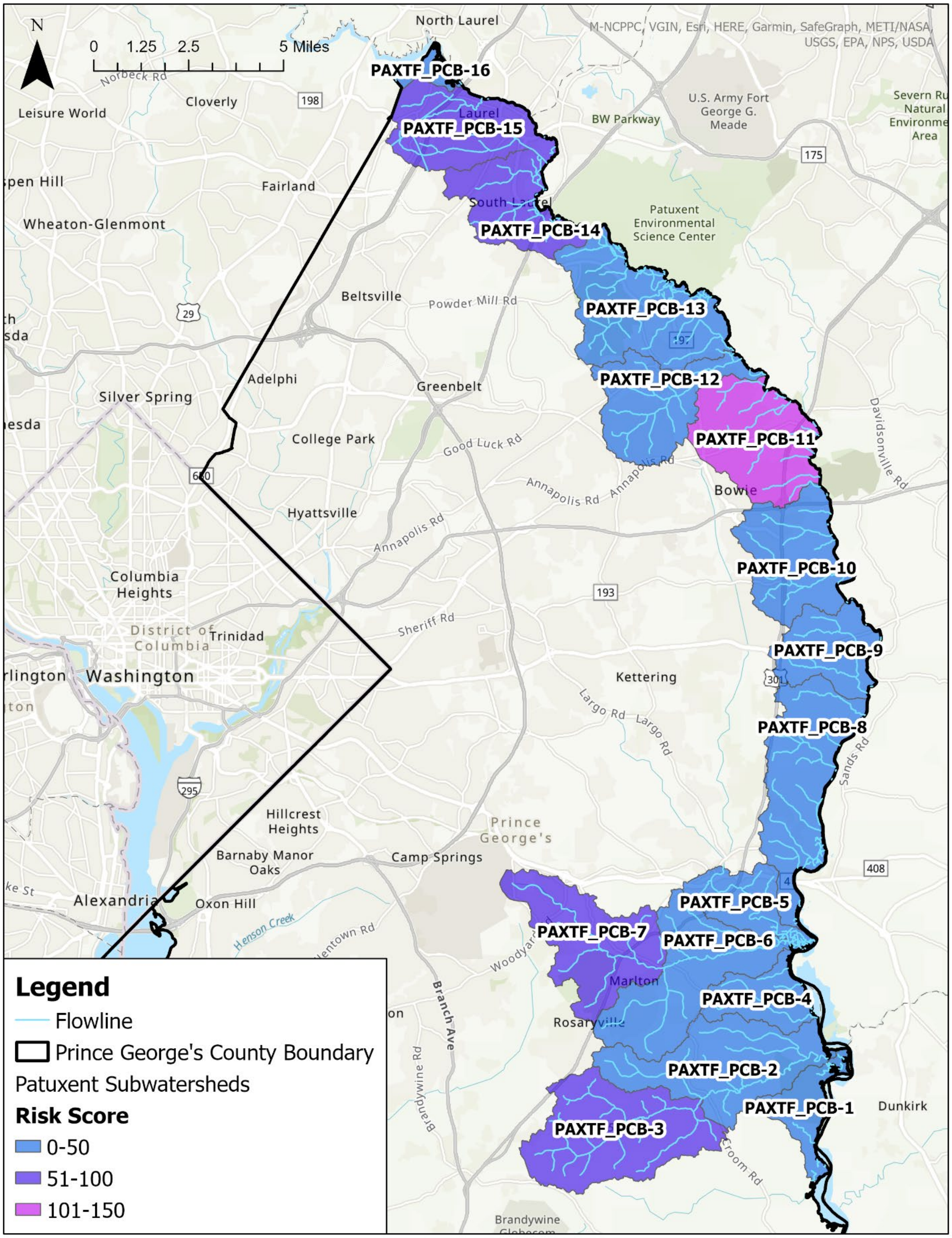
Subwatershed ID	Land use	Pre-PCB Era (acres)	PCB Era (acres)	Post-PCB Era (acres)	Unknown Era (acres)	% PCB Era
PAXTF_PCB-7	Nonurban	282.2	189.3	457.6	2,227.3	6%
PAXTF_PCB-7	Urban	69.1	472.8	864.6	514.4	25%
PAXTF_PCB-8	**Total**	575.2	1,120.3	958.0	3,168.7	19%
PAXTF_PCB-8	Nonurban	532.2	679.5	448.5	2,984.6	15%
PAXTF_PCB-8	Urban	43.0	440.8	509.4	184.0	37%
PAXTF_PCB-9	**Total**	504.4	366.6	941.6	1,194.1	12%
PAXTF_PCB-9	Nonurban	454.1	130.0	381.8	1,044.3	6%
PAXTF_PCB-9	Urban	50.3	236.6	559.7	149.7	24%

Subwatershed Prioritization

The 2022 MDE PCB Guidance provided instructions on how to calculate a PCB risk score for each subwatershed. This method is described in the County's *PCB TMDL Stormwater Wasteload Allocation Watershed Implementation Plan*. Table 13 presents risk scores for each subwatershed, displayed from highest to lowest risk (lower numbers mean lower risk; higher numbers mean higher risk). The totals (far right column) can be used to compare the relative PCB risk between watersheds in the County. Figure 4 shows the geospatial distribution of the risk scores.

Table 12. List of PCB Risk Scores by Subwatershed in the Patuxent River Watershed.

	Risk Score for each Source Assessment Number												
Subwatershed	1	2	3	4	5	6	7	8	9	10	11	12	Total
PAXTF_PCB-1	0	0	0	0	0	0	0	0	0	0	0	0	0
PAXTF_PCB-2	0	0	0	0	0	0	0	0	0	1	0	0	1
PAXTF_PCB-3	0	0	40	20	0	0	0	5	5	1	0	0	71
PAXTF_PCB-4	0	0	10	0	0	0	0	0	0	1	0	0	11
PAXTF_PCB-5	0	0	0	20	0	0	0	0	5	0	2	0	27
PAXTF_PCB-6	0	0	20	0	0	0	0	0	0	0	8	0	28
PAXTF_PCB-7	0	0	50	0	0	0	0	5	0	0	0	10	65
PAXTF_PCB-8	0	0	0	10	0	0	0	0	0	0	1	0	11
PAXTF_PCB-9	0	0	0	20	0	0	0	0	0	0	0	0	20
PAXTF_PCB-10	0	0	0	10	0	5	0	5	0	0	0	0	20
PAXTF_PCB-11	0	0	50	30	0	20	0	0	5	0	2	0	107
PAXTF_PCB-12	0	0	20	0	0	10	5	0	0	0	2	0	37
PAXTF_PCB-13	0	0	10	20	0	0	0	5	0	0	0	0	35
PAXTF_PCB-14	0	0	50	10	0	5	0	0	5	0	3	0	73
PAXTF_PCB-15	0	0	60	35	0	0	0	0	0	0	3	0	98
PAXTF_PCB-16	0	0	0	0	0	0	0	0	0	1	0	0	1



Note: Lower risk scores mean lower risk; higher risk scores mean higher risk

Figure 4. PCB Scores by Subwatershed in the Patuxent River Watershed.

PCB Phase I Source Assessment & Subwatershed Prioritization – Potomac River Watershed

Introduction

This factsheet presents the results of the PCB Phase I souece assessment and subwatershed prioritization for the Potomac River watershed. For the assessment, the watershed was segmented into 5 to 10 square mile subwatersheds and given a unique ID (Table 1, Figure 1).

This factsheet is separated into two main sections: **PCB Source Assessment** and **Subwatershed Prioritization**. The PCB Source Assessment section includes tables for each of the twelve types of sources identified by MDE in its August 2022 *Guidance for Developing Local PCB TMDL (Total Maximum Daily Load) Stormwater Wasteload Allocation (SW-WLA) Watershed Implementation Plans.* This source assessment section also has an overall map and a map of urban land that was developed during the PCB manufacturing era (1929–1979).

Next, the Subwatershed Prioritization section shows the resulting scoring of the subwatersheds in Table 11and as a map in Figure 4.

For information on the source assessment and prioritization methodology or the individual types of sources, please see the County's *PCB TMDL Stormwater Wasteload Allocation Watershed Implementation Plan*.

Table 1. List of PCB segmentsheds in the Potomac River Watershed.

PCB Impairment Watershed	Subwatershed ID	Area (Acres)	Area (mi^2)
Potomac River (PR) – Oxon Run	PR_Ox_PCB-1	1,120	1.8
	PR_Ox_PCB-2	903	1.4
	PR_Ox_PCB-3	1,187	1.9
	PR_Ox_PCB-4	3,112	4.9
Potomac River (PR) – Upper	PR_Up_PCB-1	3,090	4.8
	PR_Up_PCB-2	670	1.0
	PR_Up_PCB-3	1,563	2.4
	PR_Up_PCB-4	184	0.3
	PR_Up_PCB-5	1,339	2.09
	PR_Up_PCB-6	5,581	8.7
	PR_Up_PCB-7	659	1.0
	PR_Up_PCB-8	5,629	8.8
	PR_Up_PCB-9	5,333	8.3

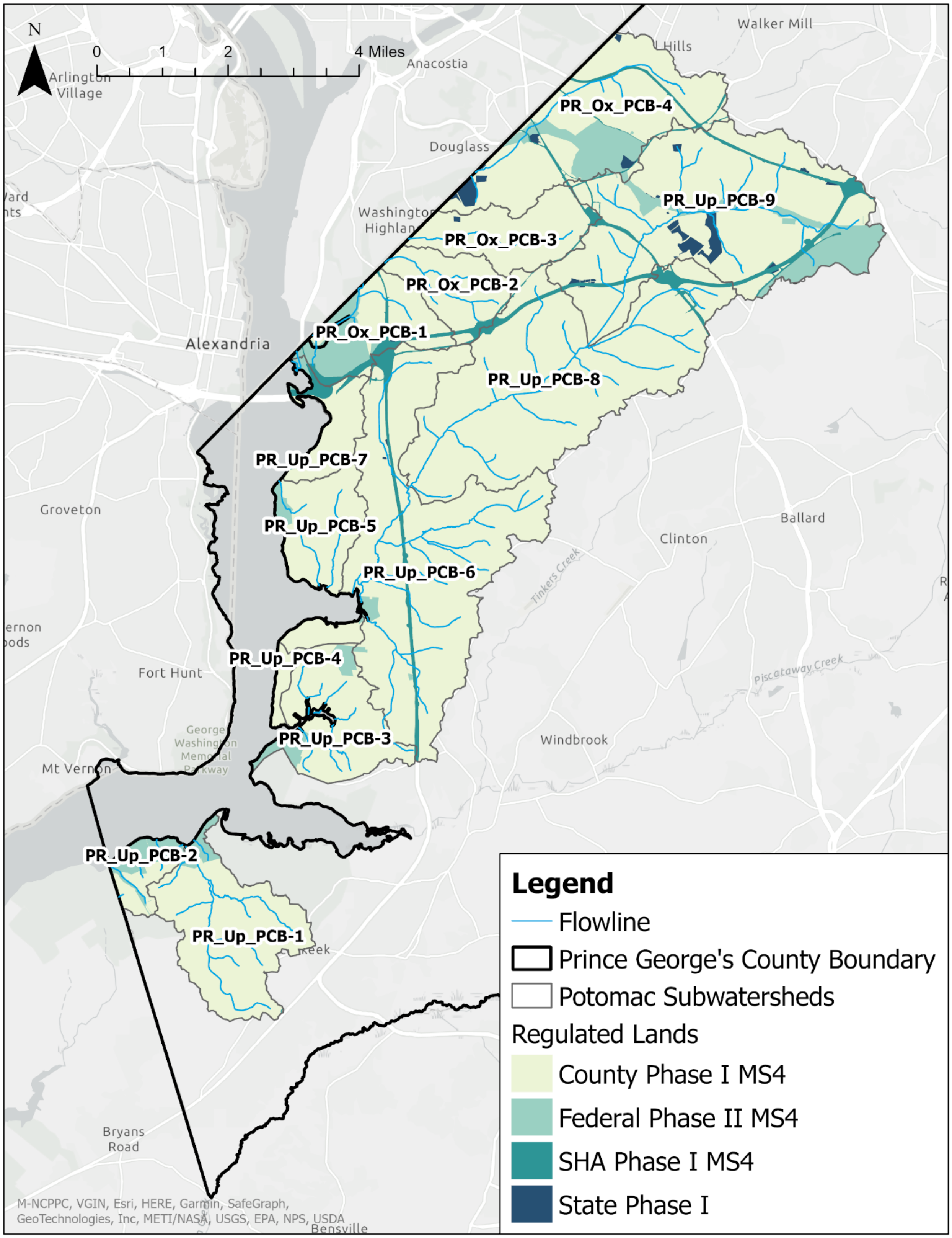


Figure 1. MS4 Entities in the Potomac River Watershed.

PCB Source Assessment

This section summarizes 12 PCB potential source types and one PCB-era development (1929–1979) contributions based on land use, as listed below:

1. PCB transformers (EPA PCB Transformer Registry Database)
2. PCB activities (EPA PCB Activities Database)
3. Hazardous waste sites (Superfund/CERCLA)
4. NPDES permitted wastewater and stormwater dischargers (active and inactive)
5. Toxics Release Inventory (TRI) facilities (EPA TRI Database)
6. PCB releases (National Response Center [NRC] Database)
7. Historic landfills
8. MDE permitted solid waste acceptance facilities (active and closed)
9. MDE permitted sewage sludge utilization activities
10. Public angler access sites
11. Sanitary sewer overflows
12. Military installations
13. Land use (PCB-era development)

Figure 2 shows the Potomac watershed and the identified potential sources from the above list that will be used for subwatershed prioritization.

1. PCB Transformers (EPA PCB Transformer Registry Database)

The EPA PCB Transformer Registry Database does not contain any registered transformers in Prince George's County.

2. PCB Activities (EPA PCB Activities Database)

The EPA PCB Activities Database contained 1 potential source in the watershed, as shown in Table 2.

Table 2. List of PCB activities from the EPA PCB Activities Database in the Potomac River Watershed.

Site ID	Site Name	Site Owner	Type	Subwatershed ID
MDR000527670	Imperial Logistics, LLC	Crasbie Montaque	Transporter	PR_Up_PCB-9

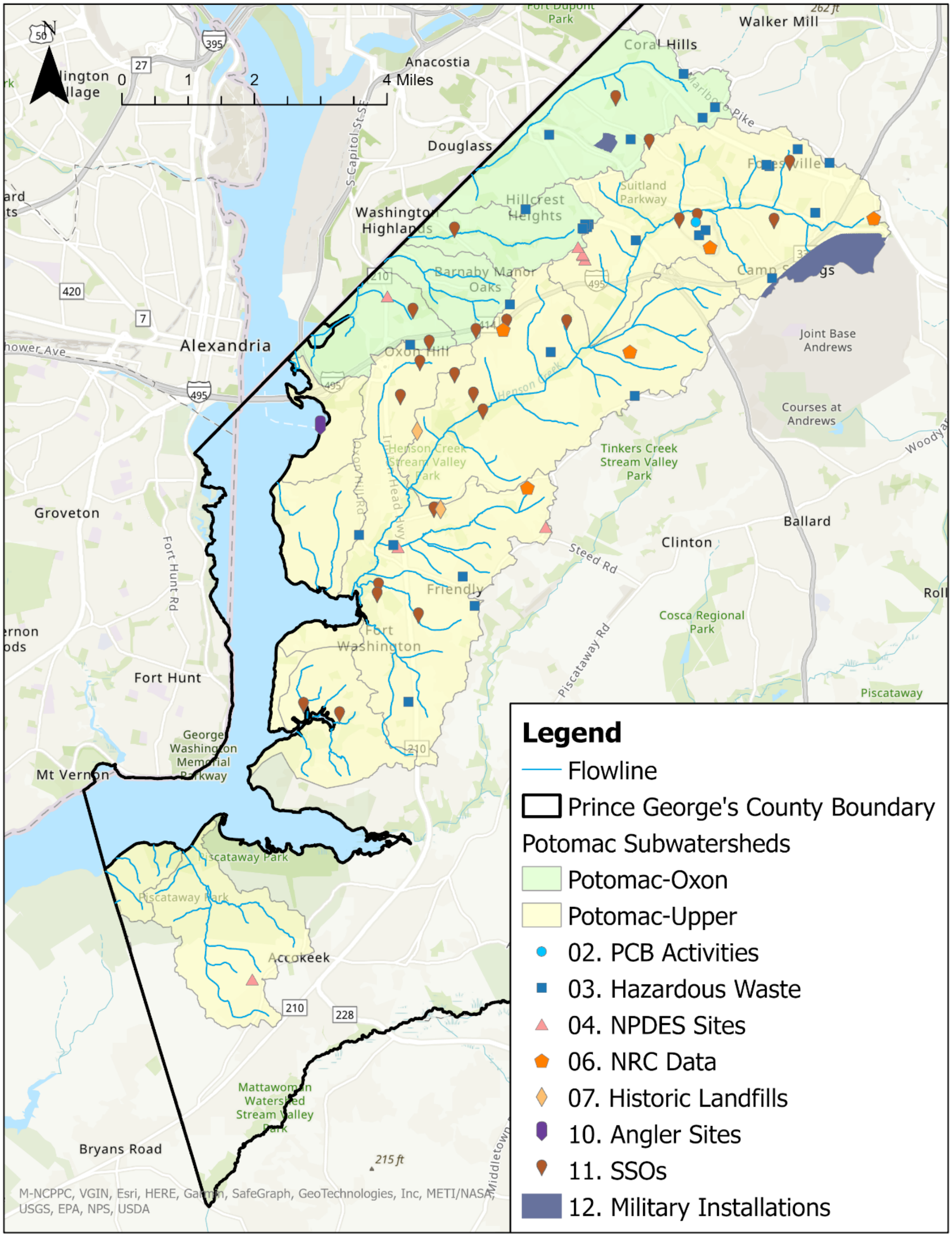


Figure 2. PCB Source Assessment: Potential PCB sources in the Potomac River Watershed.

3. Hazardous Waste Sites (Superfund/CERCLA)

These 29 hazardous waste sites were identified in the watershed from various State and Federal programs, as shown in Table 3. The table also identifies the programs under which each site is managed.

Table 3. List of Hazardous Waste Sites (Superfund/CERCLA) in the Potomac River Watershed.

Site Name	BMI #	Acres	Type	Federal?	Known PCBs?	Years	Subwatershed ID
Oxon Hill Plaza	MD1170	11.43	VCP	No	No	2000-2004	PR_Ox_PCB-1
Marlow Downtown Shopping Center	MD0976	5	CHS, VCP	No	No	2006-X	PR_Ox_PCB-3
Mr. G Cleaning Center	MD0896	0	CHS	No	No	2007-X	PR_Ox_PCB-3
One Price Cleaners (ZIPS)	MD1527	0	CHS	No	No	2007-X	PR_Ox_PCB-3
Scuderi Property	MD1585	0	CHS	No	No	X-X	PR_Ox_PCB-3
4302-4307 Quigley Place	MD2051	0	CHS	No	No	2021-X	PR_Ox_PCB-3
Silver Hill Plaza	MD0833	10.75	VCP	No	No	2001-2003	PR_Ox_PCB-4
5401 Marlboro Pike	MD1111	2.35	CHS, VCP	No	No	1990-2004	PR_Ox_PCB-4
Penn Station Shopping Center	MD1324	23.57	VCP	No	No	2007-2010	PR_Ox_PCB-4
Hillcrest Heights Shopping Center	MD1331	8.17	VCP	No	No	2007-2007	PR_Ox_PCB-4
Anti Aircraft Artillery Site/Census Bureau	MD0790	7.57	FUD	No	No	X-X	PR_Ox_PCB-4
Naylor Station	MD1749	14.8	VCP	No	No	2016-X	PR_Ox_PCB-4
10333 Old Fort Road	MD0963	0.517	VCP	No	No	2006-2007	PR_Up_PCB-6
William Pleasant Site	MD0358	38	LRP	No	No	1985-2012	PR_Up_PCB-6
Old Forte Village Shopping Center	MD1112	16	VCP	No	No	2001-2001	PR_Up_PCB-6
Fort Foote Center Dry Cleaners	MD1160	2.88	LRP	No	No	1997-1998	PR_Up_PCB-6
9405 Livingston Road Property	MD2102	17.4803	VCP	No	No	2022-X	PR_Up_PCB-6
Rosecroft Shopping Center	MD0935	9.3	VCP	No	No	2003-2013	PR_Up_PCB-8
BP Station - Temple Hills	MD1491	0	CHS	No	No	2007-X	PR_Up_PCB-8
Sunrise Shopping Center	MD1582	7.484	VCP	No	No	2014-2015	PR_Up_PCB-8
Alta Branch II	MD0716	10.52	VCP	No	No	2005-2006	PR_Up_PCB-9
Penn Forest Shopping Center	MD0913	2.92	VCP	No	No	2004-2014	PR_Up_PCB-9
Alta Branch - Phase I	MD0932	10	VCP	No	No	2004-2005	PR_Up_PCB-9
Penn Forest Shopping Center Off-Site Plume	MD0979	0	CHS	No	No	2004-2008	PR_Up_PCB-9
Andrews Manor Shopping Center	MD1400	12.36	VCP	No	No	2004-2011	PR_Up_PCB-9
White Oak Petroleum Facility #24640	MD1549	0	unknown	No	No	2011-X	PR_Up_PCB-9
Penn-Mar Shopping Center	MD1625	40.4	CHS	No	No	1996-1996	PR_Up_PCB-9
Wawa Store No 8527	MD2060	1.639	CHS	No	No	2021-X	PR_Up_PCB-9

Site Name	BMI #	Acres	Type	Federal?	Known PCBs?	Years	Subwatershed ID
Suit Road Property	MD2119	13.81	VCP	No	No	2022-X	PR_Up_PCB-9

Notes: **BMI** = LRP's Brownfields Master Inventory. **CHS** = Controlled Hazardous Substance Enforcement Division; **FUD** = formerly used defense site; **LRP** = Land Restoration Program; **VCP** = Voluntary Cleanup Program

4. NPDES Permitted Wastewater and Stormwater Dischargers (Active and Inactive)

These 8 NPDES permitted wastewater and stormwater dischargers (active and inactive) were identified in the watershed from various State and Federal programs, as shown in Table 4.

Table 4. List of Permitted Wastewater and Stormwater Dischargers (Active and Inactive) in the Potomac River Watershed.

SIC Code	SIC Code Description	NPDES	Facility Name	Status	Subwatershed ID
3295	minerals, ground or treated	MDG491720	Barnabas Road Associates, LLC	No Violation Identified	PR_Ox_PCB-3
3273	ready-mixed concrete	MDG499777	Woodrow Wilson Brg Proj		PR_Ox_PCB-1
5015	motor vehicle parts, used	MDR000839	Save More Used Parts, Inc	History	PR_Up_PCB-6
5015	motor vehicle parts, used	MDR003123	Chuck's Used Auto Parts	Admin Ext	PR_Up_PCB-9
5015	motor vehicle parts, used	MDR003157	A & B Trucking, LLC	Admin Ext	PR_Up_PCB-9
5015	motor vehicle parts, used	MDR003161	Friendly Auto Parts	Admin Ext	PR_Up_PCB-6
5015	motor vehicle parts, used	MDR003162	Friendly Trucks Inc	Admin Ext / No Violation Identified	PR_Up_PCB-1
2047	dog and cat food	MDR003519	Aunt Jeni's Home Made LLC	No Violation Identified	PR_Up_PCB-9
3295	minerals, ground or treated	MDG491720	Barnabas Road Associates, LLC	No Violation Identified	PR_Ox_PCB-3

5. TRI Facilities (EPA TRI Database)

The EPA Toxic Release Inventory (TRI) Database does not contain any registered facilities in Prince George's County.

6. PCB Releases (NRC Database)

The National Response Center (NRC) Database (1990–2022), which contains 5 PCB releases in the watershed, listed here by case, as shown in Table 5.

Table 5. List of PCB Releases from the NRC Database in the Potomac River Watershed.

SEQNOS	431117	Incident Date	12/31/1997 11:00:00 AM	Type of Incident	Fixed
Description of Incident	Transformers improperly stowed, noticed leakage onto soil.				
Location	3001 Tucker Road, Oxon Mill, MD (PR_Up_PCB-9)				
Amount of Material & Unit	Unknown	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown

Responsible Company	John Kelly & Son Electric	Responsible Org Type	Private Enterprise	Location	Upper Marlboro, MD 20772

SEQNOS	547819	Incident Date	11/9/2000 1:09:00 PM	Type of Incident	Fixed
Description of Incident	The caller is reporting that there was a discovery of PCB contaminated soil due to unknown causes.				
Location	Rear of 12709 Bermuda Ln, Bowie, MD (PR_Up_PCB-6)				
Amount of Material & Unit	Unknown (Concentration of 1300 PPM)	Reach Water?	No	Amount to Reach Water & Unit	-
Responsible Company	PEPCO	Responsible Org Type	Public Utility	Location	Washington, DC 20068

SEQNOS	608263	Incident Date	6/3/2002 9:42:00 PM	Type of Incident	Fixed
Description of Incident	Due to an unknown cause a pole mounted transformer fell to the ground and spilled transformer oil (unknown PCB content) onto the asphalt and into a storm drain.				
Location	2440 Corning Ave, Fort Washington, MD (PR_Up_PCB-8)				
Amount of Material & Unit	Unknown	Reach Water?	Yes	Amount to Reach Water & Unit	Unknown
Responsible Company	PEPCO	Responsible Org Type	Public Utility	Location	Washington, DC 20068

SEQNOS	949712	Incident Date	8/2/2010 9:30:00 PM	Type of Incident	Fixed
Description of Incident	Caller is reporting a discharge of transformer oil from a bad vaulted transformer. Caller stated it is unknown if the material contained PCB's.				
Location	6300 Harley Place, Temple Hills, MD (PR_Up_PCB-8)				
Amount of Material & Unit	Unknown	Reach Water?	Unknown	Amount to Reach Water & Unit	Unknown
Responsible Company	PEPCO	Responsible Org Type	Private Enterprise	Location	Washington, DC 21401

SEQNOS	1225469	Incident Date	9/5/2018 7:00:00 AM	Type of Incident	Fixed
Description of Incident	Caller stated during a construction project, the excavation discovered dumped materials that contained PCB's (such as contaminated soil and tires). The age of the dumping is unknown but believed to be from the 1970's or earlier. The material is being clea[…]				
Location	5900 Auth Way, Campspring, MD 20746 (PR_Up_PCB-9)				
Amount of Material & Unit	Unknown (concentration 210 PPM)	Reach Water?	No	Amount to Reach Water & Unit	-
Responsible Company	One Town Center LLC	Responsible Org Type	Private Enterprise	Location	Potomac, MD

7. Historic Landfills

The MDE Historic Landfill Initiatives (HLI) Report contained 2 historic landfills in the watershed, as shown in Table 6.

Table 6. List of Historic Landfills in the Potomac River Watershed.

Site Name	Estimated Size	Subwatershed ID
Accorocco RF	Unknown	PR_Up_PCB-6
Hutchinson RF (Liberty Dump)	12.5 acres	PR_Up_PCB-6

8. MDE Permitted Solid Waste Acceptance Facilities (Active and Closed)

There were no active or closed solid waste acceptance facilities identified in the watershed.

9. MDE Permitted Sewage Sludge Utilization Activities

There were no permitted sewage sludge utilization activities identified in the watershed.

10. Public Angler Access Sites

One public angler access site was identified in the watershed, as shown in Table 7.

Table 7. List of Public Angler Access Sites in the Potomac River Watershed.

Subwatershed ID	Park Name	Operator
PR_UP_PCB-7	National Harbor	Unknown

11. Sanitary Sewer Overflows

MDE has records for 26 sanitary sewer overflows (SSOs) since 2005 in the watershed, as shown in Table 8.

Table 8. List of Sanitary Sewer Overflows in the Potomac River Watershed.

Incident Date	Responsible Entity	Cause	Gallons	Subwatershed ID
11/21/2010	WSSC	unknown	94	PR_Ox_PCB-1
11/20/2013	WSSC	debris	60	PR_Ox_PCB-2
12/11/2006	WSSC	grease	124	PR_Ox_PCB-3
12/10/2019	WSSC	inoperable ball valve	830	PR_Ox_PCB-4
11/22/2013	WSSC	grease	5	PR_Up_PCB-3
12/10/2013	WSSC	grease	464	PR_Up_PCB-3
11/12/2005	WSSC	grease	165	PR_Up_PCB-6
12/13/2005	WSSC	blockage	120	PR_Up_PCB-6
12/16/2005	WSSC	grease	120	PR_Up_PCB-6
11/16/2006	WSSC	high flow	1,699,923	PR_Up_PCB-6
12/10/2015	WSSC	debris	43	PR_Up_PCB-6
12/12/2015	WSSC	unknown	198	PR_Up_PCB-6
11/5/2018	WSSC	excess flow	170,000	PR_Up_PCB-6
11/6/2018	WSSC	excess flow	81,000	PR_Up_PCB-6
12/15/2018	WSSC	excess flow	690,000	PR_Up_PCB-6
11/29/2020	WSSC	grease.	915	PR_Up_PCB-6

Incident Date	Responsible Entity	Cause	Gallons	Subwatershed ID
11/28/2005	WSSC	grease	360	PR_Up_PCB-8
11/14/2006	WSSC	pipe failure	1,120	PR_Up_PCB-8
12/16/2013	WSSC	grease	374	PR_Up_PCB-8
12/13/2018	WSSC	debris	177	PR_Up_PCB-8
11/14/2019	WSSC	grease	264	PR_Up_PCB-8
11/3/2008	WSSC	grease	156	PR_Up_PCB-9
12/11/2013	WSSC	debris	9	PR_Up_PCB-9
11/3/2015	WSSC	tampering	73	PR_Up_PCB-9
11/2/2017	WSSC	unknown	6	PR_Up_PCB-9
11/26/2019	WSSC	unknown	894	PR_Up_PCB-9

12. Military Installations

Two military installations were identified in the watershed, as shown in Table 9. Joint Base Andrews occupies portions of multiple watersheds (Patuxent, Piscataway, Potomac).

Table 9. List of Military Installations in the Potomac River Watershed.

Facility	Subwatershed ID
NMIC Suitland	PR_Ox_PCB-4
Joint Base Andrews	PR_Up_PCB-9

13. Land use (PCB-Era Development)

Figure 3 presents both urban and non-urban land uses by PCB era (i.e., Prior, Post, and PCB Era). The PCB manufacturing era is 1929–1979. Table 10 summarizes these two land-use groupings and three eras by subwatershed in the watershed. This analysis uses two sources: Maryland Department of Planning (MDP) 2010 land use and County property geospatial data.

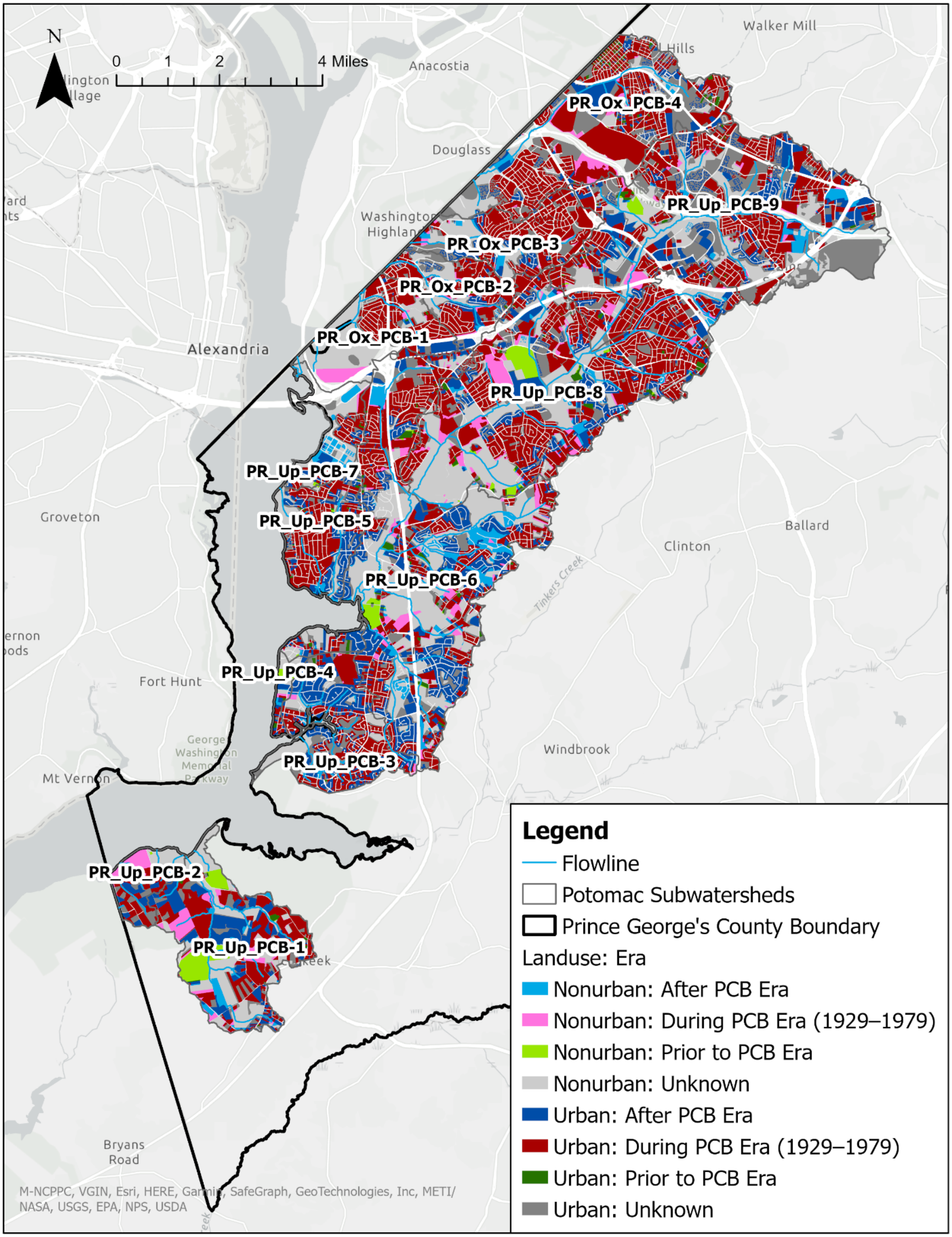


Figure 3. Urban/Non-Urban Land Use by Era in the Potomac River Watershed.

Table 10. Urban/Non-Urban Land Use by Era in the Potomac River Watershed.

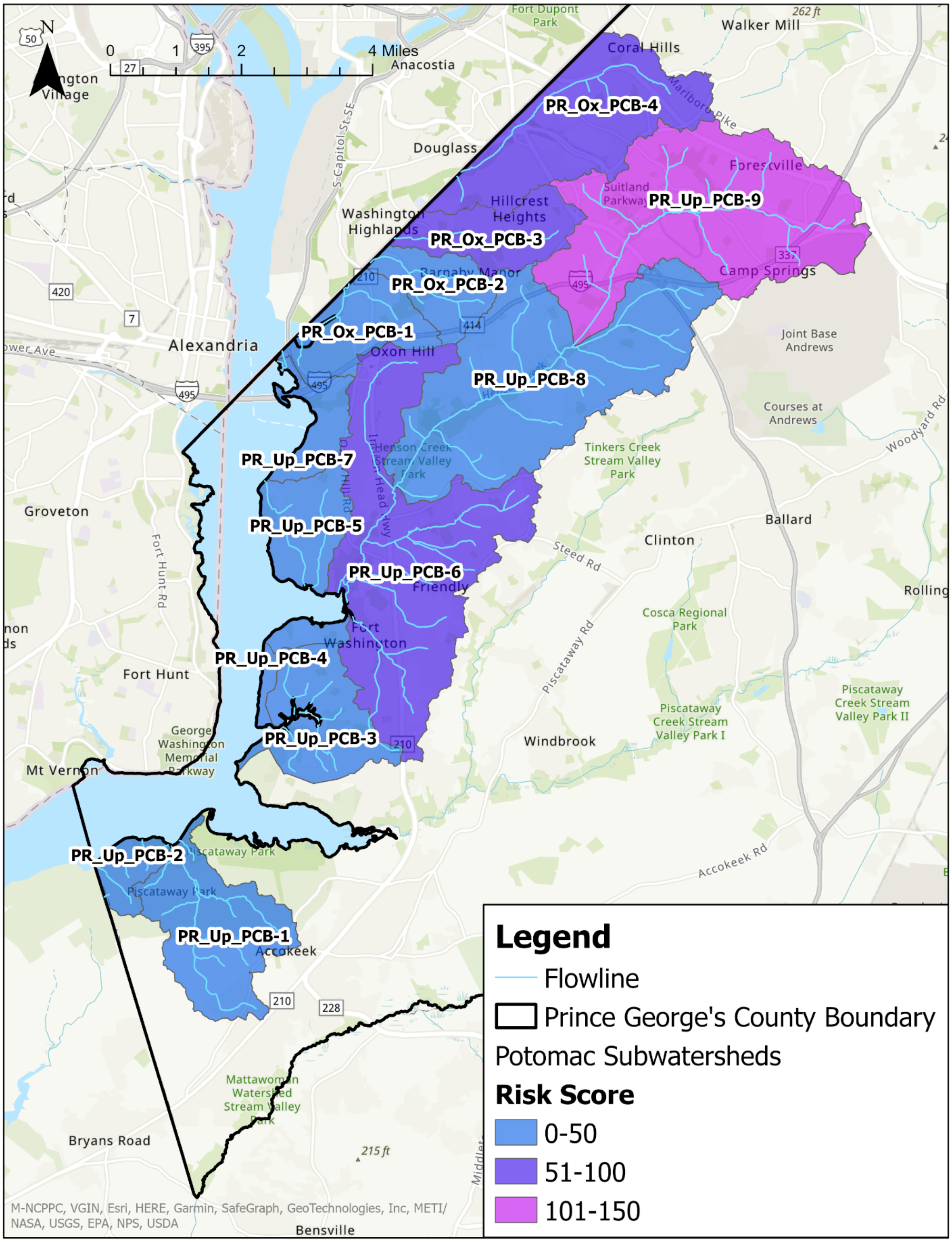
Subwatershed ID	Land use	Pre-PCB Era (acres)	PCB Era (acres)	Post-PCB Era (acres)	Unknown Era (acres)	% PCB Era
PR_Ox_PCB-1	**Total**	1.8	445.6	57.8	559.4	42%
PR_Ox_PCB-1	Nonurban	0.0	82.6	1.9	472.7	15%
PR_Ox_PCB-1	Urban	1.8	363.0	55.9	86.7	72%
PR_Ox_PCB-2	**Total**	16.2	474.0	105.6	294.6	53%
PR_Ox_PCB-2	Nonurban	11.6	23.0	6.9	152.2	12%
PR_Ox_PCB-2	Urban	4.5	451.0	98.6	142.3	65%
PR_Ox_PCB-3	**Total**	1.4	570.3	149.6	428.7	50%
PR_Ox_PCB-3	Nonurban	0.0	24.5	41.0	245.7	8%
PR_Ox_PCB-3	Urban	1.4	545.8	108.6	183.0	65%
PR_Ox_PCB-4	**Total**	42.7	1,409.1	353.0	959.0	51%
PR_Ox_PCB-4	Nonurban	0.2	102.7	24.7	267.2	26%
PR_Ox_PCB-4	Urban	42.5	1,306.4	328.3	691.7	55%
PR_Up_PCB-1	**Total**	249.2	814.2	535.2	833.0	33%
PR_Up_PCB-1	Nonurban	224.1	172.5	95.6	626.6	15%
PR_Up_PCB-1	Urban	25.2	641.7	439.6	206.4	49%
PR_Up_PCB-2	**Total**	1.0	256.8	67.8	205.0	48%
PR_Up_PCB-2	Nonurban	1.0	129.7	3.5	120.4	51%
PR_Up_PCB-2	Urban	0.0	127.1	64.3	84.7	46%
PR_Up_PCB-3	**Total**	4.1	543.6	544.7	456.4	35%
PR_Up_PCB-3	Nonurban	0.1	17.6	37.9	221.3	6%
PR_Up_PCB-3	Urban	4.0	526.1	506.8	235.1	41%
PR_Up_PCB-4	**Total**	32.7	31.2	42.7	64.1	18%
PR_Up_PCB-4	Nonurban	28.8	8.0	9.0	57.9	8%
PR_Up_PCB-4	Urban	3.9	23.2	33.8	6.3	34%
PR_Up_PCB-5	**Total**	18.7	565.0	346.8	388.8	43%
PR_Up_PCB-5	Nonurban	2.8	3.7	30.0	229.8	1%
PR_Up_PCB-5	Urban	15.9	561.3	316.8	159.0	53%
PR_Up_PCB-6	**Total**	160.5	1,647.2	1,380.1	2,097.1	31%
PR_Up_PCB-6	Nonurban	79.2	191.2	320.8	1,524.6	9%
PR_Up_PCB-6	Urban	81.3	1,456.0	1,059.2	572.5	46%
PR_Up_PCB-7	**Total**	4.8	152.9	158.7	277.7	26%
PR_Up_PCB-7	Nonurban	2.2	6.8	93.1	220.3	2%
PR_Up_PCB-7	Urban	2.5	146.1	65.6	57.4	54%
PR_Up_PCB-8	**Total**	189.3	2,401.2	772.0	1,885.6	46%
PR_Up_PCB-8	Nonurban	129.1	253.3	117.5	1,333.7	14%
PR_Up_PCB-8	Urban	60.2	2,147.9	654.5	551.9	63%
PR_Up_PCB-9	**Total**	63.1	1,713.1	847.0	2,306.1	35%
PR_Up_PCB-9	Nonurban	33.5	108.2	117.7	918.7	9%
PR_Up_PCB-9	Urban	29.5	1,604.9	729.3	1,387.4	43%

Subwatershed Prioritization

The 2022 MDE PCB Guidance provided instructions on how to calculate a PCB risk score for each subwatershed. This method is described in the County's *PCB TMDL Stormwater Wasteload Allocation Watershed Implementation Plan*. Table 11 presents risk scores for each subwatershed, displayed from highest to lowest risk (lower numbers mean lower risk; higher numbers mean higher risk). The totals (far right column) can be used to compare the relative PCB risks between watersheds in the County. Figure 4 shows the geospatial distribution of the risk scores.

Table 11. List of PCB Risk Scores by Subwatershed in the Potomac River Watershed.

	Risk Score for each Source Assessment Number												
Subwatershed	1	2	3	4	5	6	7	8	9	10	11	12	Total
PR_Ox_PCB-1	0	0	10	1	0	0	0	0	0	0	1	0	12
PR_Ox_PCB-2	0	0	0	0	0	0	0	0	0	0	1	0	1
PR_Ox_PCB-3	0	0	50	1	0	0	0	0	0	0	1	0	52
PR_Ox_PCB-4	0	0	60	0	0	0	0	0	0	0	1	10	71
PR_Up_PCB-1	0	0	0	10	0	0	0	0	0	0	0	0	10
PR_Up_PCB-2	0	0	0	0	0	0	0	0	0	0	0	0	0
PR_Up_PCB-3	0	0	0	0	0	0	0	0	0	0	2	0	2
PR_Up_PCB-4	0	0	0	0	0	0	0	0	0	0	0	0	0
PR_Up_PCB-5	0	0	0	0	0	0	0	0	0	0	0	0	0
PR_Up_PCB-6	0	0	50	20	0	5	10	0	0	0	10	0	95
PR_Up_PCB-7	0	0	0	0	0	0	0	0	0	1	0	0	1
PR_Up_PCB-8	0	0	30	0	0	10	0	0	0	0	5	0	45
PR_Up_PCB-9	0	1	90	25	0	10	0	0	0	0	5	10	141



Note: Lower risk scores mean lower risk; higher risk scores mean higher risk

Figure 4. PCB Risk Scores by Subwatershed in the Potomac River Watershed.

Appendix B: Other Agency Activity in Lower Beaverdam Creek

February 21, 2024

Ms. Dawn Fulsher
Site Assessment Manager
U.S. Environmental Protection Agency, Region 3
Four Penn Center
1600 John F. Kennedy Boulevard
Philadelphia, Pennsylvania 19103

Subject: **Dye Trace and Video Survey Plan (DTVSP) – Revision 2**
Beaverdam Creek Polychlorinated Biphenyl Site
EPA Contract No. 68HE0320D0003
Technical Direction (TD) No. T603-22-05-001
Document Tracking No. 0564

Dear Ms. Fulsher,

For your review and approval, Tetra Tech, Inc. (Tetra Tech) is submitting the enclosed plan for a dye trace and video survey of the Maryland Municipal Separate Storm Sewer System (MS4) as part of an expanded site investigation for the Beaverdam Creek Polychlorinated Biphenyl (PCB) Site with objective of determining the source of PCB contamination in Beaverdam Creek from the Maryland MS4 System. Specially, the data from dye tracing and video survey will be used to identify potential sources of PCBs in Beaverdam Creek from the Pennsy Drive area to support source control efforts in the Beaverdam Creek area and the Anacostia River. The plan was prepared in response to TD No. T603-22-05-001, which directs Tetra Tech to perform a dye tracing and video studies of the MS4 system leading to Beaverdam Creek. This revision reflects the addition of PCB concentrations detected in Beaverdam Creek sediment within the area of the Site during a Beaverdam Creek PCB investigation conducted by the Maryland Department of the Environment (MDE) in 2019.

If you have any questions regarding this plan, please contact me at (302) 283-2269 or via e-mail at jackie.seguin@tetratech.com.

Sincerely,

ALICIA SHULTZ for

Jackie Séguin
Project Manager

Enclosure (1)

cc: TD file
Loni King, Tetra Tech
Gene Nance, Tetra Tech
Angela Whitley, Tetra Tech

Tetra Tech, Inc.
240 Continental Drive, Suite 200, Newark, DE 19713
Tel 302.738.7551 Fax 302.454.5988 tetratech.com

TITLE AND APPROVAL PAGE

DYE TRACE AND VIDEO SURVEY PLAN
BEAVERDAM CREEK POLYCHLORINATED BIPHENYL (PCB) SITE
EXPANDED SITE INVESTIGATION (ESI)
LANDOVER, PRINCE GEORGE'S COUNTY, MARYLAND

REVISION 2

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Superfund and Emergency Management Division
Region 3
Four Penn Center
1600 John F. Kennedy Boulevard
Philadelphia, PA 19103-2029

TECHNICAL DIRECTION NO.	T603-22-05-001	
EPA SITE ASSESSMENT MANAGER	Dawn Fulsher	
SITE NAME	Beaverdam Creek Polychlorinated Biphenyl (PCB)	
SITE LOCATION	Landover, Prince George's County, Maryland	
ASSESSMENT/INVESTIGATIVE ACTIVITIES	Storm sewer investigation, dye tracing, and video survey	
SURVEY DATES	To be determined	
FSP PREPARER	Courtney Watts	
SIGNATURE/DATE		02/21/2024
QUALITY ASSURANCE REVIEWER	Kevin Scott	
SIGNATURE/DATE		02/21/2024
EPA SAM APPROVAL SIGNATURE/DATE		02/23/2024
EPA REGION 3 APPLIED SCIENCE AND QUALITY ASSURANCE BRANCH (ASQAB) DELEGATED APPROVING OFFICAL (DAO) SIGNATURE/DATE		
DOCUMENT TRACKING NO.	0564	

CONTENTS

FIGURES

ATTACHMENTS

1.0 INTRODUCTION

Under the Superfund Technical Assessment and Response Team (START) Contract No. 68HE0320D0003, Technical Direction (TD) No. T603-22-05-001, the U.S. Environmental Protection Agency (EPA) Region 3 tasked Tetra Tech, Inc. (Tetra Tech) to perform a dye tracing and video studies of the Maryland Municipal Separate Storm Sewer System (MS4) leading to Beaverdam Creek at the Beaverdam Creek Polychlorinated Biphenyl (PCB) Site (the Site). The Site is located adjacent to Beaverdam Creek with the area of focus being the Pennsy Drive Area Industrial Park in Landover, Prince George's County, Maryland. The Maryland MS4 system receives runoff from areas of possible PCB contamination and flows to outfalls into Beaverdam Creek. EPA provided location data to Tetra Tech for the outfalls and MS4 locations of interest used to define the Site, and the locations where the dye trace test is to be performed and the video survey is to be conducted. The dye trace and video survey will identify sources of inflows into Beaverdam Creek, locations of sediment deposition, and the physical conditions of the MS4 system.

The investigation focuses on gathering information to identify PCB source areas and legacy sites contributing to Beaverdam Creek PCB contamination. PCBs have been designated as a hazardous substance pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and as a toxic chemical under Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 (EPA 2022a). Upon identifying potential sources contributing to PCB contamination in Beaverdam Creek, the analysis will determine the need for further action under CERCLA.

This plan specifies procedures for conducting dye tracing and a video survey of the MS4 stormwater system. Tetra Tech developed the plan in accordance with the provisions of the EPA Region 3 START VI Program Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) (Tetra Tech 2022a). The QAPP lists key personnel and provides an organizational chart, QAPP distribution list, and communication list. Key personnel will be identified at the time of investigation.

This plan outlines objectives in Section 2.0; presents Site background information in Section 3.0; describes field procedures, and measurement of data quality objectives in Sections 4.0, and provides the proposed schedule and deliverables for the project in Section 5.0. References cited in the plan are listed in Section 6.0.

2.0 OBJECTIVES

To discuss the project and determine the data quality objectives in accordance with the QAPP, EPA and Tetra Tech held planning and scoping meetings (Tetra Tech 2022a). This plan outlines procedures for a comprehensive evaluation of the MS4 sewer system pipes and connections within the MS4 system in the

Pennsy Drive area, including completing a dye trace and video survey of the sewer system pipes leading to outfalls in the Pennsy Drive area to identify potential sources of PCBs to support source control efforts in the lower Beaverdam Creek area and the Anacostia River.

Data collected from the dye trace and video survey will be used to identify sampling locations for the expanded site inspection (ESI) of Beaverdam Creek. The ESI will include the collection of surface water, stormwater outfall effluent water, passive sediment collection in the MS4 storm sewers, and instream sediment samples. In conjunction with historic PCB research conducted by Tetra Tech provided under a separate report to EPA, the ESI data are intended to be used to identify potential sources of PCBs in the Pennsy Drive area to support source control efforts in the lower Beaverdam Creek area and the Anacostia River.

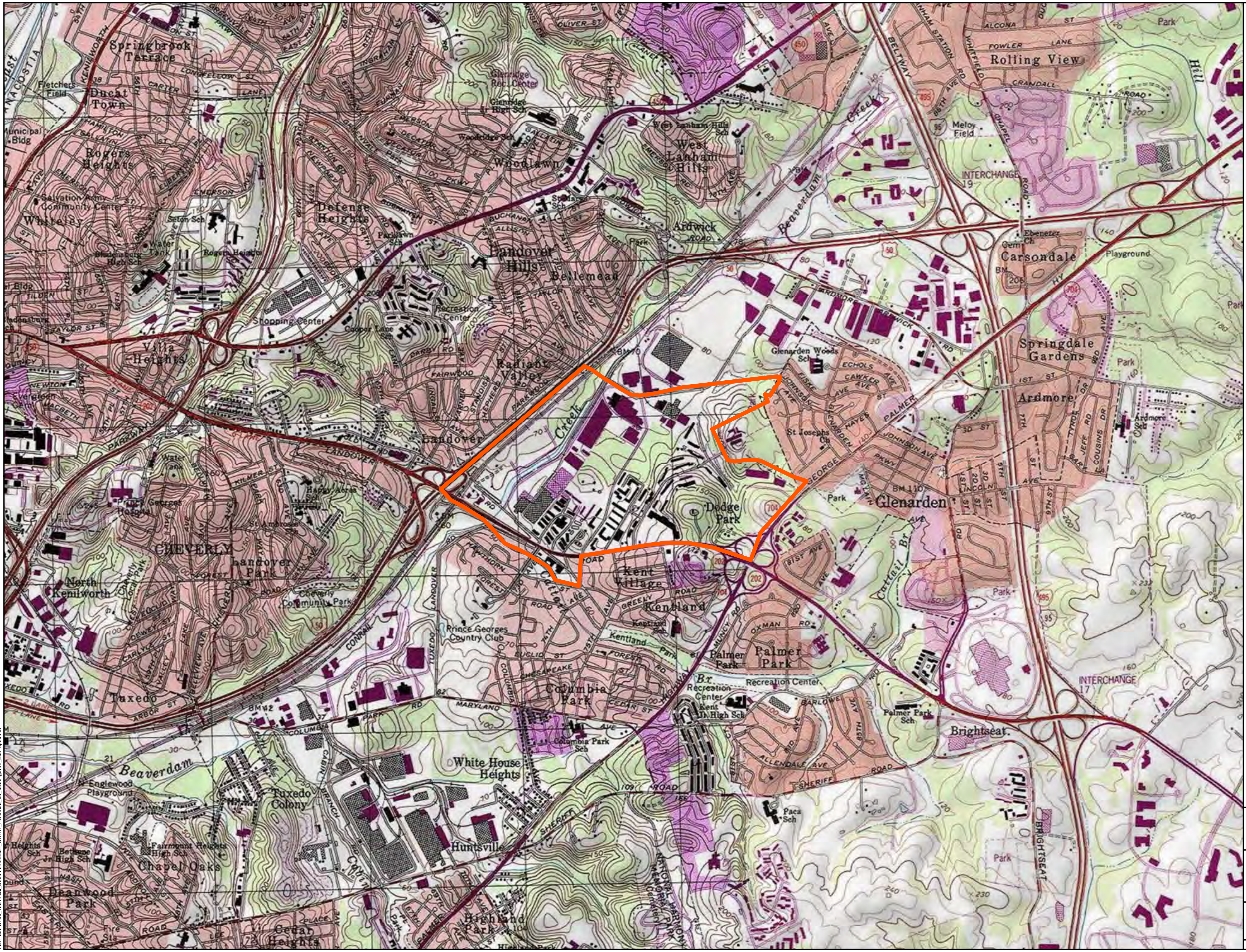
3.0 BACKGROUND

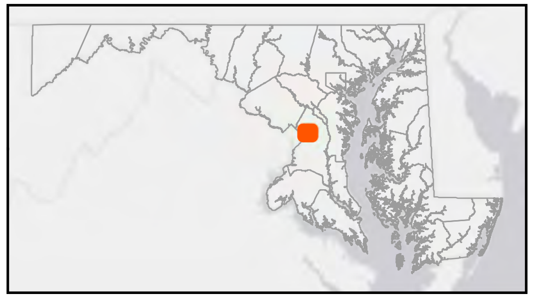
This section describes the Site location, presents a description of the Site, summarizes the Site history, and depicts characteristics of the Site and the surrounding area.

3.1 SITE LOCATION AND DESCRIPTION

The extent of the Beaverdam Creek PCB Site is unknown. It is adjacent to Beaverdam Creek in Landover, Prince George's County, Maryland at 38.93256 degrees latitude and -76.88814 degrees longitude as measured from the center of the study area (Figure 1). EPA and Tetra Tech conducted research to identify potential sources of PCB contamination to Beaverdam Creek, with a focus on the Pennsy Drive area, by reviewing Beaverdam Creek PCB contamination investigative reports, aerial photographs, database searches, city directories, storm drain and sewer maps, and other resources, as well as conducting two site reconnaissance's. The research identified the locations where the dye tracing and video survey should be conducted. A report summarizing the research will be submitted to EPA under separate cover.

The study area includes areas that drain to Beaverdam Creek and may have contributed to the PCB contamination in the creek as well as those that drain to the MS4 storm sewer system and associated outfalls as shown in Figure 2. The study area is bound to the northwest by US Highway 50, Metrorail railroad tracks, Washington Metrorail Landover Station and Landover Metro Station Park and Ride; to the northeast by the MS4 conveyance system and Pennsy Drive; to the east by State Highway 704; and to the south by State Highway 202. Beaverdam Creek and Pennsy Drive are parallel to each other, and, within the study area, Beaverdam Creek flows from the northeast to the southwest along the northwest side of Pennsy Drive





Site Boundary

N

2,000 0 2,000

Feet

Beaverdam Creek PCB Site
Landover, Prince George's County, Maryland

Figure 1
Investigation Area

TETRA TECH

Prepared For: EPA R3 START VI | Prepared By: K. Orzada

Coordinate System: NAD 1983 2011 StatePlane Maryland FIPS 1900 Ft US

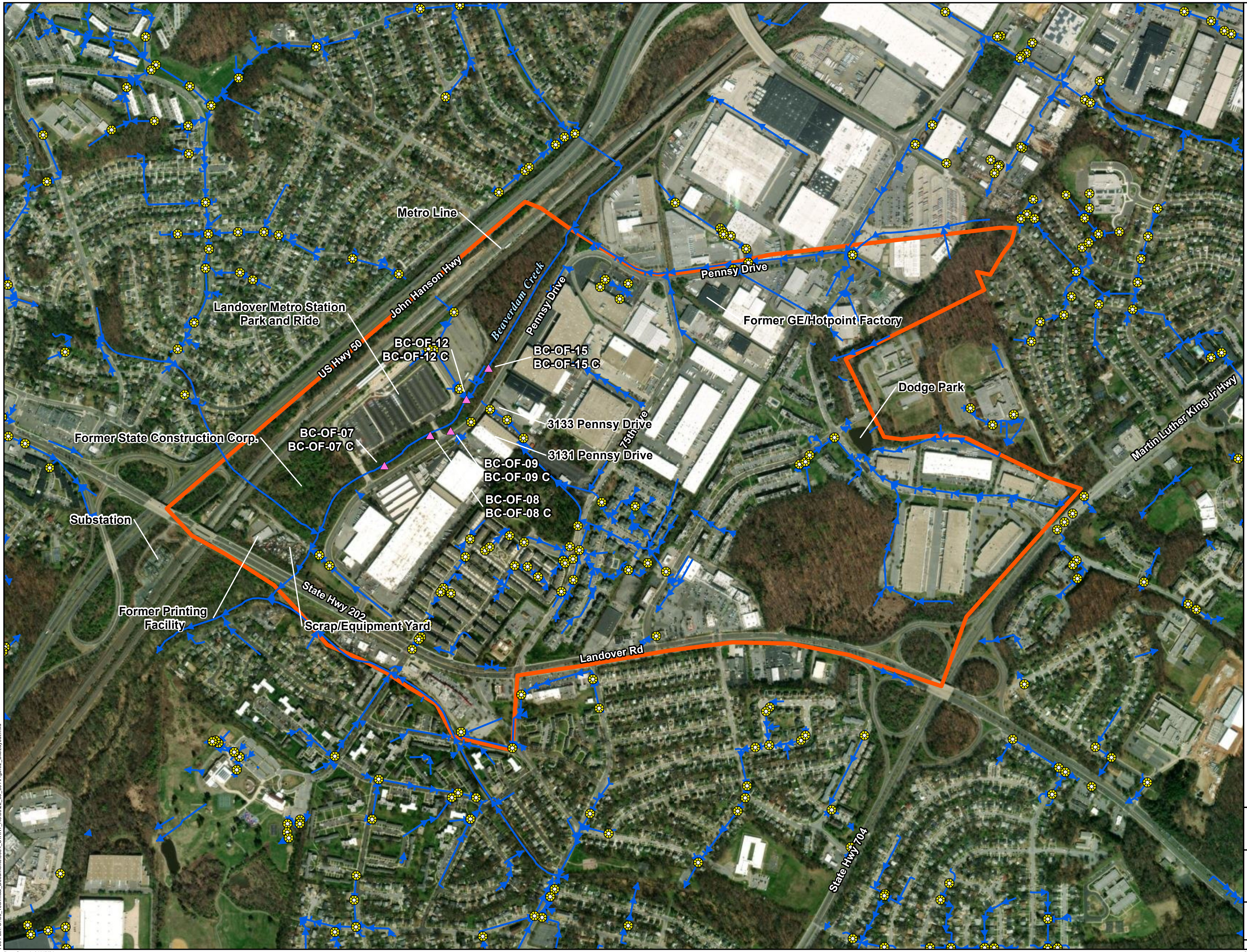
File Path: S:\06_Technical_Documents\9034_START_R3\03\22_05_001\Figure1_SiteTopo.mxd

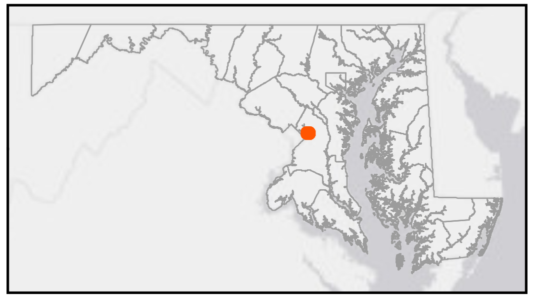
Date Saved: 12/12/23

EPA Contract No: 68-HE-032-D0003

TD No: T603-22-05-001

Source: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community





Manhole

Outfall

Conveyance

Site Boundary

N

800 0 800

Feet

Beaverdam Creek PCB Site
Landover, Prince George's County, Maryland

Figure 2
Site Layout

TETRA TECH

Prepared For: EPA R3 START VI	Prepared By: K. Orzada

Coordinate System: NAD 1983 2011 StatePlane Maryland FIPS 1900 Ft US

File Path: S:\06_Technical_Documents\9034_START_R3\0322_05_001\Figure2_SiteLayout.mxd

Date Saved: 01/17/24

EPA Contract No: 68-HE-032-D0003 TD No: T603-22-05-001

Source: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

(Figures 1 and 2). Land use in the study area is primarily commercial with mixed multifamily units, a childcare center, and Dodge Park.

Investigations described in Section 3.3 of this plan identified areas of known and suspected sources of PCB contamination to Beaverdam Creek, which therefore are part of the study area. PCBs are known to be associated with the Pennsy Drive area, which is comprised of Jack Stone Sign Company, and Jack Stone Electric Sites. Other possible sources of PCB contamination include Former GE/Hotpoint Factory, Former State Construction Corporation, Former Printing Facility, Scrap/Equipment Yard, Electrical Substation, and the Metro line (Figure 2).

Beaverdam Creek flows southwest approximately four miles from the Carmen E. Turner Maintenance and Training Facility at 3500 Pennsy Drive, Landover, Maryland 20785 to the confluence with the Anacostia River (Google Earth Pro 2022).

3.2 SITE OWNERSHIP

The study area consists of numerous parcels owned historically by various entities. Prior to conducting site activities, Tetra Tech will determine ownership of parcels where study activities are planned and obtain property access.

3.3 PREVIOUS INVESTIGATIONS

In 2010, Maryland Department of the Environment (MDE) first identified Beaverdam Creek PCB sediment contamination. To document levels of contamination in Beaverdam Creek, MDE collected samples from nine stations (STA) along Beaverdam Creek from Beaver Road, south of the Site, to the Metro Crossing east of Landover Station, within the boundaries of the Site. Samples were collected sequentially from downstream to upstream locations. PCBs were detected in sediments at sampling locations along Beaverdam Creek from Beaver Road to the Metro Crossing east of Landover Station, indicating a potential source upgradient of these stations, which were identified as STA 4, 5, and 6.In a report, MDE indicated that PCBs are likely emanating from Pennsy Drive, which is within the boundaries of the Site (MDE 2010).

On September 20 and 21, 2011, MDE conducted an ESI, which included sampling to characterize the 3133 Pennsy Drive area located within the study area. MDE collected ten surface soil samples, ten subsurface soil samples, three groundwater samples, three sediment samples, and three surface water samples. No PCBs were detected in the groundwater and surface water samples. PCBs were detected in soil and sediment samples. PCBs were detected in soil samples S-1 (Aroclor-1254 at 140 micrograms per kilogram [µg/kg]), S-4 (Aroclor-1260 at 70J µg/kg), S-5 (Aroclor-1260 at 190J µg/kg), S-6 (Aroclor-1260 at 52J µg/kg), S-13

(Aroclor-1260 at 73J µg/kg), SS-4 (Aroclor-1248 at 380 µg/kg), and SS-5 (Aroclor-1260 at 94J µg/kg). (J = estimated concentration). Sample S-1 was collected from a wood lot southeast of the historic Jack Stone property, all other samples were obtained from a storage yard behind the historic Jack Stone property. Attachment 1, an excerpt from the ESI, includes a figure of the soil sampling locations (MDE 2012).

The sediment samples were collected from three transect locations along Beaverdam Creek. The first transect was at the old Landover Road crossing (SED-1), the second at the Landover Metro upper crossing (SED-2), and the third transect was collected upstream of outfall 16 and above the unnamed tributary to Beaverdam Creek (SED-3). Samples were a composite of three 6-inch core samples collected at discrete locations across the stream width. All sediment samples were analyzed for pesticides, PCBs, and metals. PCBs were detected in all sediment samples, including Aroclor-1248 at 22.0 J micrograms per kilogram (µg/kg) in SED-1, Aroclor-1248 at 35.0 µg/kg in SED-2, and Aroclor-1254 in background sediment sample SED-3 at 1,100 µg/kg. The locations of the sediment samples are shown in Attachment 1 (MDE 2012).

In 2017, when it was identified as a significant source of PCB contamination to the Anacostia River, Beaverdam Creek became of interest to EPA, MDE, and District of Columbia Department of Energy and the Environment. For 2017, total PCB loads to the Anacostia River were estimated at 820 grams (g), with approximately 7 percent (60 g) from Northeast Branch Anacostia River, approximately 12 percent (95 g) from Northwest Branch Anacostia River, approximately 72 percent (590 g) from Beaverdam Creek, approximately 3 percent (25 g) from Watts Branch, and approximately 2 percent (19 g) from Hickey Run. PCB toxicity totaled 3.8×10^{-3} µg/kg, with the largest contribution (72 percent) derived from Beaverdam Creek (USGS 2019).

Between 2019 and 2021, MDE conducted a PCB source track down study in Beaverdam Creek. The study identified two areas with the highest PCB sediment concentrations: the I-295/US-50 interchange approximately 2.73 miles southwest of the study area and Landover Metro Station/Pennsy Drive area within the area of the Site (MDE 2021b). (Note: MDE refers to Beaverdam Creek as Lower Beaverdam Creek [LBC]). The highest PCB sediment concentrations in Beaverdam Creek were found approximately 0.40 and 0.81 mile southwest of the Joseph Smith & Sons Site and Pennsy Drive area. The concentrations include a maximum total PCB concentration detected in sediment sample SED-12 at 2,510 µg/kg, near the Kentland Community Center, south of where Landover Road crosses Beaverdam Creek and in sediment sample SED-14 at 2,330 µg/kg, north side of Pennsy Drive, south of the Metro Station (MDE 2020). Both these sampling locations are located within the boundaries of the Site. Beaverdam Creek flows along the northwest side of Pennsy Drive and Joseph Smith & Sons Site is located on the southeast side of Pennsy Drive.

In 2020, MDE collected sediment samples adjacent to outfalls (OF) in the Pennsy Drive area within the boundaries of the Site. Based on sampling data, several outfalls of concern were identified: OF-07, OF-08, OF-09, and OF-12. Outfalls OF-07 and OF-08 had the highest concentrations of PCBs in sediment, including Aroclor-1254 at 82 µg/kg and Aroclor-1248 at 300 µg/kg in OF-07 and Aroclor-1254 at 230 µg/kg and Aroclor-1248 at 650 µg/kg in OF 08. Sediment sample SED-14 L had the highest concentration of PCBs (Aroclor-1248 at 730 µg/kg) in stream bed sediment samples during the sampling events in 2020 (MDE 2021b). To determine the source of PCB contamination, samples will be collected from these outfalls during the second phase of this investigation.

MDE conducted investigations of the Jack Stone Electric Site at 3133 Pennsy Drive within the boundaries of the Site. PCB contaminated transformers and PCB contaminated debris were being stored on the property. A waste inspection of the Jack Stone Sign Company located within the study area identified mercury contamination in soil (MDE 2014).

3.4 SITE RECONNAISSANCE

A trip report summarizing the September 28, 2022, site reconnaissance conducted by START will be provided under separate cover. During the site reconnaissance, START used apparent public thoroughfares at the Site, such as sidewalks, roadways, parking lots, and paths. Focus areas were adjacent to Beaverdam Creek and observable outfall areas. START also observed areas that appeared to be for potential offloading of discarded materials (dumping), areas adjacent to outfalls, areas of concern identified in historical aerial photographs, and three additional outfalls not previously identified leading into Beaverdam Creek.

On August 25, 2023, START met with Elisabeth Green, Maryland Department of Environment (MDE), to identify additional manholes not listed on the MS4 network map and prior fish collection areas, relevant to the Beaverdam Creek PCB track down study. START met at Joseph Smith & Sons, a recycling facility, located at 2001 Kenilworth Avenue, Capitol Heights, MD. The facility had prior documented PCB contamination. The meeting location at Joseph Smith & Sons is outside of the area of investigation and served as a starting point. The team met on the north side of the Beaverdam Creek bank along outfalls of interest, closest to the Metro Station on Pennsy Drive, Landover, MD. The team walked over the parking area of the Metro Station and Manholes of interest were discovered near the outfalls of interest in Beaverdam Creek. The next manhole of interest was discovered by the team on the corner of Old Landover Road and Pennsy Drive, near a street sign. Manholes were not observed south of the intersection of Old Landover Road and Pennsy Drive, between the intersection and 7100 Old Landover Road.

4.0 FIELD PROCEDURES

This section describes the scope of work for dye tracing and video survey of the MS4 system.

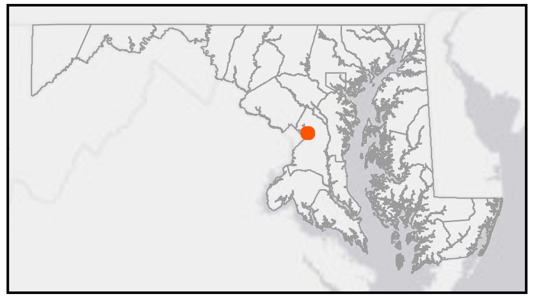
4.1 DYE TRACING

As part of the track down survey, Tetra Tech will procure the services of subcontractors to conduct a dye tracing and video survey of the MS4 storm sewer. Dye tracing will be conducted to determine if surface runoff/stormwater from locations identified as potential sources of PCB contamination is draining and discharging into Beaverdam Creek via the outfalls of interest. Dye tracing will attempt to identify the source or connection producing a discharge within the storm drain network to the outfalls of interest. To identify lateral sewer connections and how they can be accessed, before commencing dye tests, Tetra Tech will review storm drain and sewer maps. In addition, to obtain entry permission, property owners must be notified. To ensure that any dye released to the storm drain is not mistaken for a spill or pollution episode, Tetra Tech will identify and communicate the proposed dye tracing actions to local agencies. To ensure there is flow in the system and access to the locations where the dye will be released, prior to the dye tracing study, a site reconnaissance will be conducted with the subcontractor.

Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments, which is published by the Center of Watershed Protection and funded wholly or in part by the EPA, states that the test should start by introducing the dye into the manhole closest to the discharge of interest and moving from the most downstream or downflow manhole upward. Specially, "Crews can work progressively up the trunk from the outfall and test manholes along the way (Center for Watershed Protection 2004)." In consultation with the subcontractor, Tetra Tech will follow this procedure. Dye will be poured into the most downstream manhole of each outfall of interest and may also be poured into storm drain inlets into which surface stormwater runoff from potential PCB contamination sources drains into the MS4 stormwater system. Monitoring will be performed to determine/verify the probable point(s) of entry (PPE) into Beaverdam Creek. This information will be used to identify potential additional stormwater and sediment sampling locations at manholes in the MS4 system, upstream of the outfall for Phase II (Figure 3). Note that dye tracing is not effective in finding indirect discharges to the storm drain network.

4.2 VIDEO SURVEY

A comprehensive video survey will be performed by a subcontractor of the MS4 stormwater system associated with the outfalls of interest, OF-07, OF-08, OF-09, OF-12, and OF-15, and, potentially, other locations of interest (Figure 2). Figure 3 shows the location of the dye tracer and video camera investigative area which includes Old Landover Road and Pennsy Drive near that Road which extends up to the GE Hotpoint property. Data obtained as part of the video survey as well as the dye tracer data will be used to prepare a map of the stormwater lines and will be compared to maps of the MS4 system provided by MDE and illustrated in Figure 2. The equipment used to perform the video survey will be capable of proceeding over or through areas with small buildups of sediment and debris, if encountered. The video survey will



Manhole

Outfall / Outfall Composite Samples

Dye Tracer and Video Camera Investigative Area

Conveyance

Site Boundary

N

500 0 500

Feet

Beaverdam Creek PCB Site
Landover, Prince George's County, Maryland

Figure 3 - Dye Trace and Video Camera Investigation Area

TETRA TECH

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Coordinate System: NAD 1983 2011 StatePlane Maryland FIPS 1900 Ft US

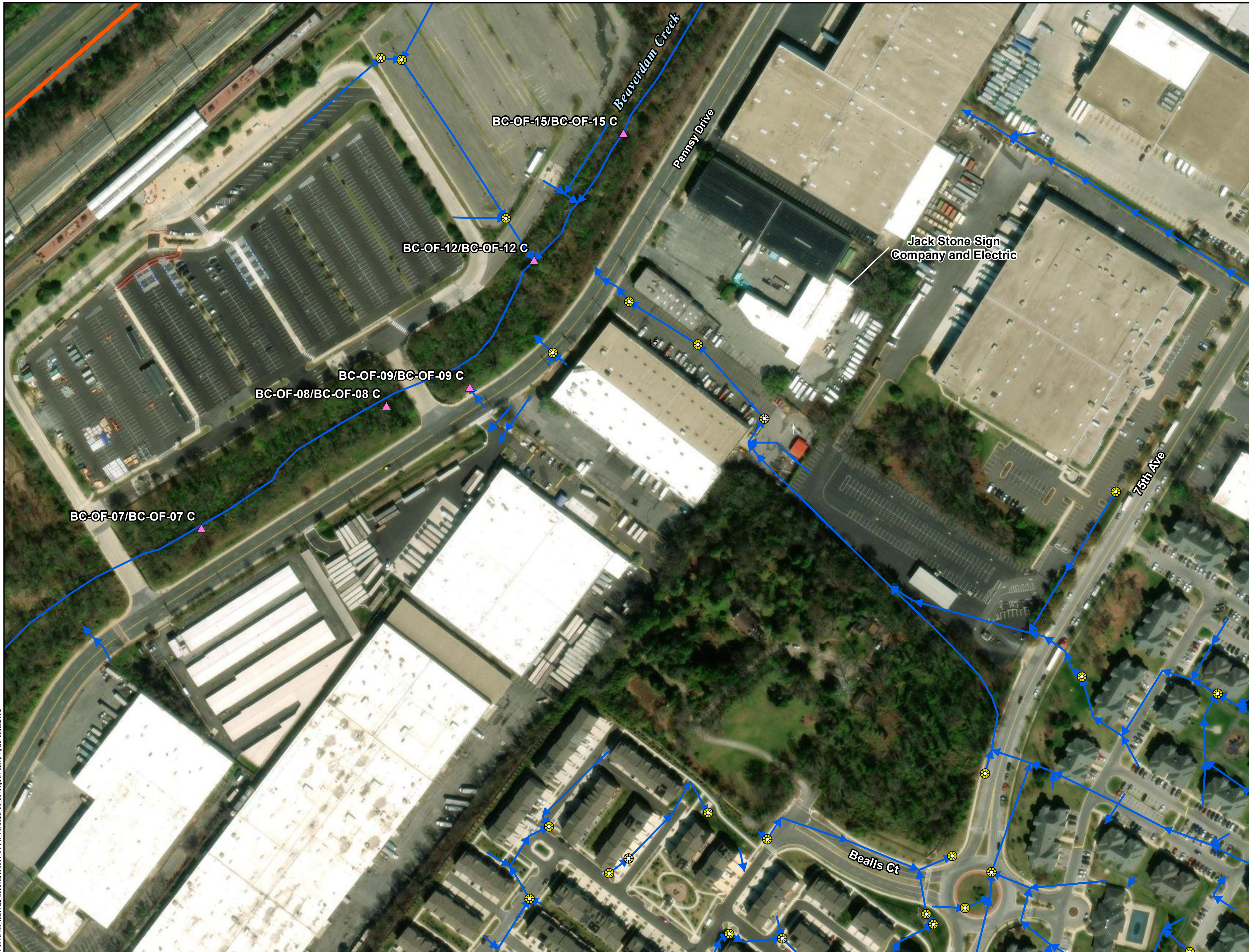
File Path: S:\06_Technical_Documents\0034_START_R3\0322_05_001\Figure3_FSP SurfaceSoil.mxd

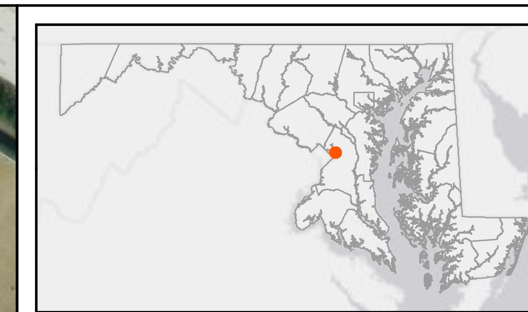
Date Saved: 01/17/24

EPA Contract No: 68-HE-032-D0003

TD No: T603-22-05-001

Source: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community





Manhole

Outfall / Outfall Composite Samples

Conveyance

Site Boundary

N

200 0 200

Feet

Beaverdam Creek PCB Site
Landover, Prince George's County, Maryland

Figure 4
Outfall Locations

TETRA TECH

Prepared For: EPA R3 START VI | Prepared By: K. Orzada

Coordinate System: NAD 1983 2011 StatePlane Maryland FIPS 1900 Ft US

File Path: S:\06_Technical_Documents\9034_START_R3\03\22_05_001\Figure4 Sampling SurfaceSoil.mxd

Date Saved: 01/17/24 EPA Contract No: 68-HE-032-D0003 TD No: T603-22-05-001 Source: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

identify manholes with sediment buildup from which passive sediment sampling device could be inserted into the storm sewer systems to collect sediment inside the storm sewer system during Phase II. The survey equipment may be used to obtain the sediment samples during the next phase of the ESI, if needed.

Common types of video survey equipment include sewer inspection crawlers which navigate through sewers to provide operators with a view of pipe condition. A crawler's camera can give operators a detailed view of pipe walls. While these crawlers deliver up-close inspection footage, they may be more costly and require more specialized skills to operate than other kinds of inspection gear. Crawler inspections go more smoothly when pipes have been cleaned beforehand. Lateral launch crawler systems are crawlers with a secondary camera that is propelled into a lateral from an adjoining mainline. With lateral launch abilities, laterals can be inspected directly from mainlines. Zoom assessment cameras, pole mounted cameras, inspect sewers using a camera with long-range zoom optics and powerful lights mounted at the end of a pole. Unlike crawlers, zoom cameras don't enter into pipes. Instead, they are lowered into a manhole or other access point for use. It doesn't deliver as detailed footage as crawler inspection does, and only works in straight, larger diameter pipes.

5.0 DATA REPORTING/SCHEDULE

It is anticipated that this investigation will be conducted in Spring 2024, depending on the availability of a subcontractors to perform dye tracing/video survey and obtaining property access. A report documenting the investigation will be submitted within two months following the field activities and will include the results from the dye tracing and video survey as well as a copy of the video footage. Tetra Tech will finalize the report following receipt of comments from EPA.

6.0 REFERENCES

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ATTACHMENT 1

Figures 11 to 14: Excerpt from Expanded Site Inspection of the 3100 Block Pennsy Drive Area Beaverdam Creek PCB Study MD-476, March 26, 2012

Figure 11 – PCBs in Sediment

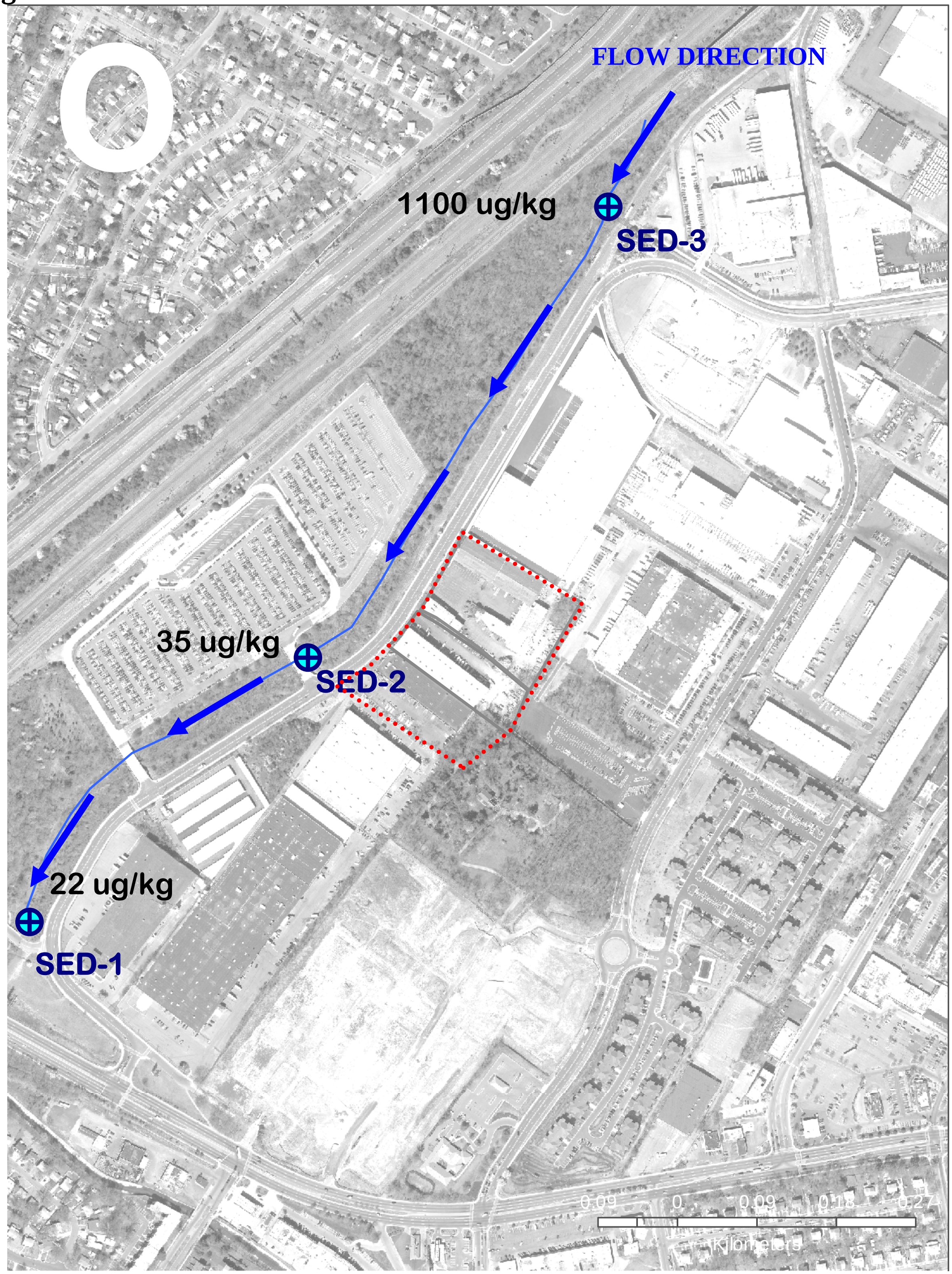

Figure 12 – Soil and Groundwater Sample Locations

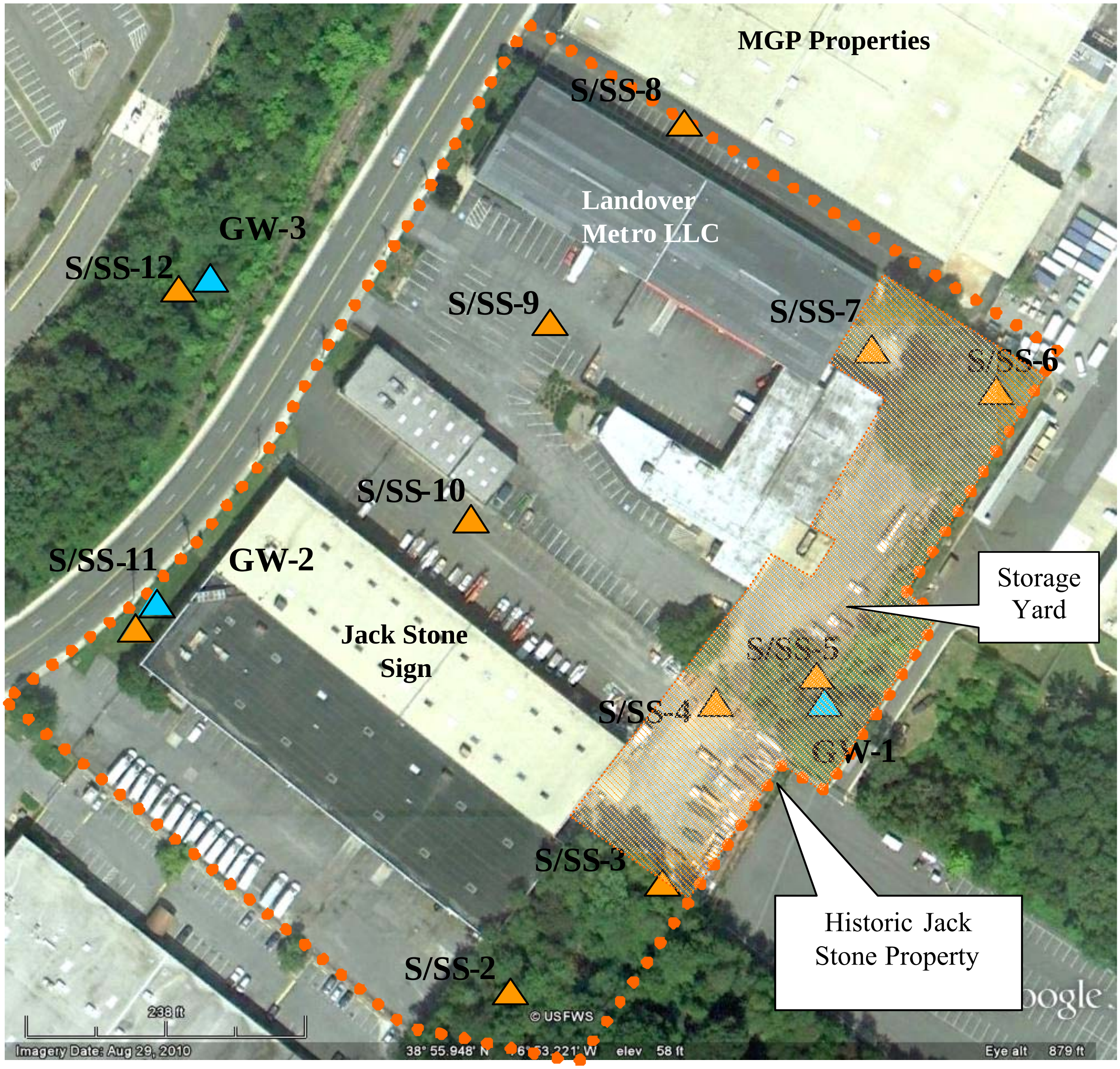

Figure 13 – Soil Sample Locations

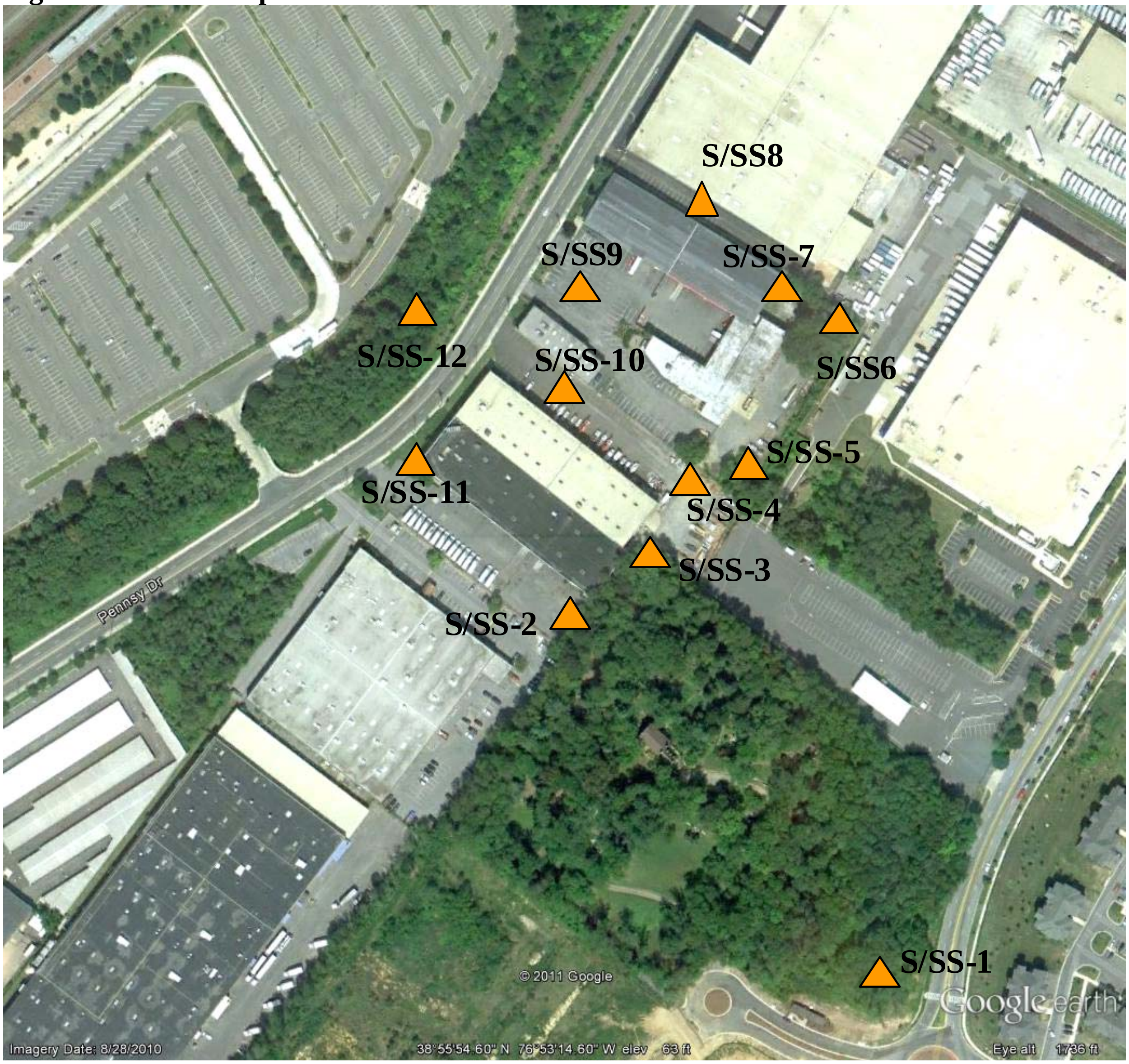

Figure 14 – PCB Isopleths

PCB in ug/kg.