County of Fairfax, Virginia

MEMORANDUM

DATE: February 7, 2025

TO: Board of Supervisors

FROM: Bryan J. Hill, County Executive

SUBJECT: Plastic Bags in Litter

As requested by Supervisor Herrity during the December 10, 2024, Environment Committee, this memorandum provides a clarification on data about plastic bags as a component of litter in Fairfax County. County staff are aware of three potential sources for information about plastic bags in the environment: plastic bag tax revenues, County stormwater permit monitoring, and Clean Fairfax Council observations.

As the Plastic Bag Tax revenues provide a quantitative, countywide measure, this is the most comprehensive source of information on plastic bag utilization in the County. Tax revenue data demonstrate a substantial decline in the use of plastic bags, with an estimated reduction of 1.5 million bags thus far in 2024 relative to the same time period in 2023. A reduction in the number of plastic bags utilized is likely to correlate with a reduction in plastic bags as litter.

Plastic Bag Tax Revenues

Revenues from the Plastic Bag Tax Ordinance may be used to conservatively estimate plastic bag utilization. As noted in the December 2, 2024, "Fairfax County Plastic Bag Tax Revenue Allocations" memorandum to the Board of Supervisors, the tax has generated $6 million in revenue from January 2022 to July 2024. We now have nine months of bag tax revenue for 2024. Comparing the same nine-month (January to September) periods from 2022, 2023, and 2024, shows a steady decline in plastic bag use in the County. While tens of millions of bags are still used each year, their numbers are clearly falling with the total for the first nine months of 2024 over seven percent below the first nine months of 2022.

Purchased Plastic Bags in Fairfax County, January-September, Based on Plastic Bag Tax Revenue

Year	Number of bags through 9 months	Change from Prior Year	Percent change from 2022
2022	49,520,642	--	--
2023	47,599,515	(1,921,127)	Down 3.9%
2024	46,006,112	(1,593,403)	Down 7.1%

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Stormwater Permit Monitoring

Fairfax County Department of Public Works and Environmental Services (DPWES) manages the County and public schools Municipal Separate Storm Sewer System (MS4) permit issued by the Virginia Department of Environmental Quality. As a requirement of our MS4, "floatable" materials, or water-borne litter, are monitored at 5 representative sites quarterly to estimate floatable discharge rates in stormwater. DPWES contracts with the Clean Fairfax Council to provide this monitoring data. Although the floatable monitoring program was not designed to answer questions about the efficacy of the Plastic Bag Tax, DPWES and Clean Fairfax Council are partnering to jointly perform a more robust analysis of the floatable monitoring data with the goal of completing the analysis in July 2025.

Clean Fairfax Observations

On September 25, 2024, the Clean Fairfax Council published a report with their analysis of litter monitoring data from FY2020 through FY2024 (Attachment 1). The report shows a decrease in the quarterly count of plastic shopping bags observed during MS4 litter surveys after the implementation of the Plastic Bag Tax. The report was prepared and published by Clean Fairfax Council without advance coordination with DPWES MS4 program staff, which staff have addressed directly with the Clean Fairfax Council. The analysis by Clean Fairfax Council does not account for a change in MS4 monitoring protocols. Prior to 2020, floatables were only counted. Beginning in 2020, floatables were counted and removed so that they could not be counted again in future surveys. Early MS4 monitoring years have higher counts of most types of floatables, not just plastic bags. Thus, staff find that Clean Fairfax Council incorrectly utilized MS4 data to support their conclusion that plastic bags have been reduced in the environment.

In addition to the County MS4 data included in their report, Clean Fairfax Council also cites the Ocean Conservancy TIDES Database to demonstrate a decline in plastic bags littered as a percentage of total trash reported by volunteers during cleanups in Fairfax County. The TIDES Database graph does demonstrate a decline over time in plastic bags encountered during cleanups.

cc: John Morrill, Director, Office of Environmental and Energy Coordination
Christopher Herrington, Director, DPWES

Attachments: Clean Fairfax Council. September 25, 2024. The Effect of Bag Ordinances on Single-Use Plastic Bag Litter in Northern Virginia Localities.

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The Effect of Bag Ordinances on Single-Use Plastic Bag Litter in Northern Virginia Localities.

September 25, 2024

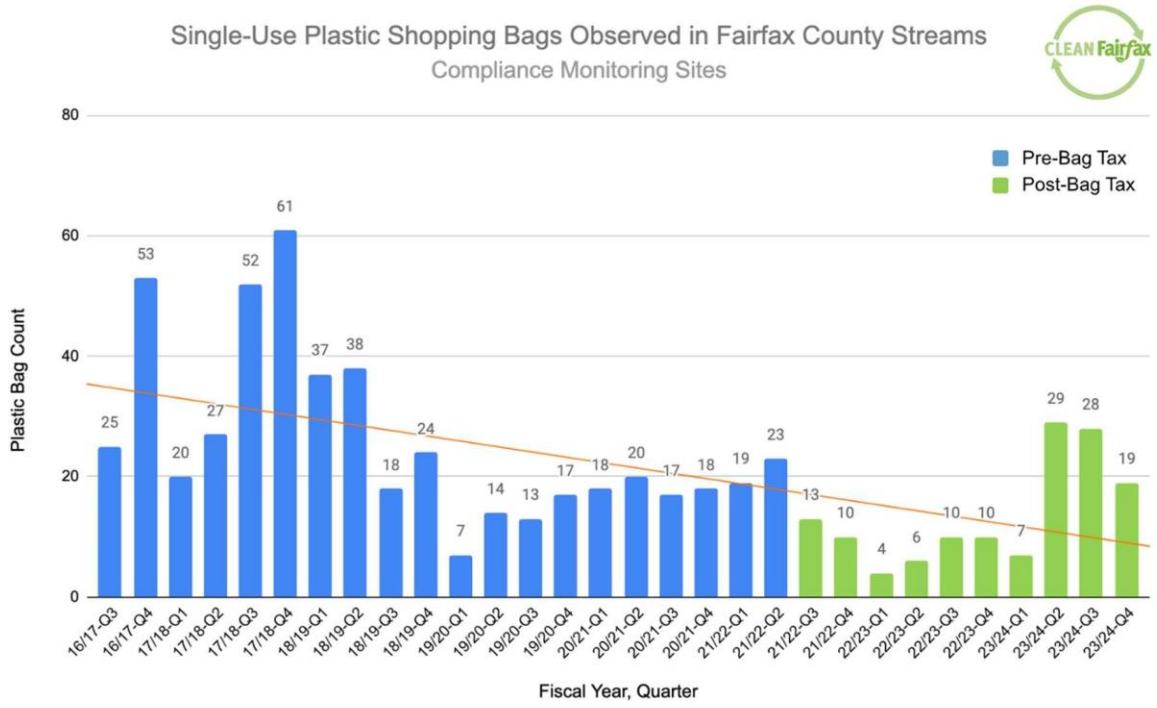
Executive Summary

This report summarizes the relationship between the $0.05 bag tax (fee) adopted by several Northern Virginia localities on single-use plastic bag litter observed there. Data from Fairfax County is provided from the ongoing public-private partnership between Fairfax County Department of Public Works and Environmental Services (DPWES) Stormwater Management Program and Clean Fairfax's Clean Streams Program to support the County's Municipal Separate Storm Sewer System (MS4) permit compliance. Additional data on Fairfax, Arlington, and Loudoun Counties were obtained from Ocean Conservancy's Trash Information and Data for Education and Solutions (TIDES) database.

MS4 Floatables Monitoring

The Clean Streams Program performs litter monitoring at five storm drain outfalls across Fairfax County to fulfill MS4 permit requirements. The following graph reflects the trend in single-use plastic shopping bags (grocery, t-shirt, and others under the $0.05 bag ordinance) observed by Clean Fairfax in litter monitoring from FY2020 through FY2024.

The average count of single-use shopping bags observed in monitoring *pre*-tax was **5.16 bags**, compared to an average of **2.72 bags** in the *post*-tax era. Littered bags continue to trend down over time, despite several upticks in bags collected in recent fiscal quarters. Overall, Clean Fairfax has observed a **47.27% decrease** in littered single-use plastic bags following the $0.05 bag ordinance adoption in Fairfax County.



TIDES Database

Ocean Conservancy's TIDES database is a public data system containing the world's largest dataset on ocean trash, collected and submitted by volunteers. Data from TIDES was used to compare the impact of the $0.05 bag fee on littered single-use plastic bags (as recorded in volunteer data entries) in three Northern Virginia which have adopted a bag ordinance: Arlington County, Fairfax County, and Loudoun County. The graph displays the change in single-use plastic bags observed at cleanups as a percentage of the total trash items reported on TIDES each year.

