



Maryland
Department of
the Environment

**Annual Report on Financial Assurance Plans and the
Watershed Protection and Restoration Program
-2021-**

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Water and Science Administration

Prepared for:
Governor Larry Hogan

Senate Education, Health, and Environmental Affairs Committee

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I. Introduction

Maryland's stormwater management (SWM) program includes fiscal reporting requirements for Maryland's 10 largest urban jurisdictions, which are Baltimore City and Anne Arundel, Baltimore, Carroll, Charles, Frederick, Harford, Howard, Montgomery, and Prince George's counties. One of these reporting requirements, Financial Assurance Plans (FAPs), needs to demonstrate how stormwater restoration projects are going to be funded. These plans, submitted every two years, are to be completed by each National Pollutant Discharge Elimination System (NPDES) Phase I municipal separate storm sewer system (MS4) jurisdiction. The plans must include the following: all actions required to meet MS4 permit requirements; annual and projected 5-year costs and revenues necessary to meet the impervious surface restoration plan (ISRP) requirements; any and all sources of funds used toward meeting MS4 permit requirements; and all specific actions and expenditures undertaken in the previous fiscal years to meet the ISRP requirement.

The most recent FAPs submitted on the anniversary date of each jurisdiction's MS4 permit, between December 2020 and February 2021, were required to demonstrate sufficient funding for meeting 100% of the projected ISRP costs for the 2-year period immediately following the filing of the plan. Local governing bodies were required to hold public hearings and sign the plans for accuracy prior to submitting them to the Maryland Department of the Environment (MDE or the Department) for review. The law requires that the Department shall: post FAPs on its website within 14 days of receipt; make a decision regarding the adequacy of these plans within 90 days of receipt; and submit an annual evaluation of these plans to the Governor and the General Assembly by September 1 each year.

A second reporting requirement for each MS4 jurisdiction, excluding Montgomery County, is to submit a Watershed Protection and Restoration Program (WPRP) Annual Report on the anniversary date of its MS4 permit. The report requires the following items:

- The number of properties, if any, subject to a stormwater remediation fee
- Any funding structure developed, if any, including the amount of money collected
- The amount of money deposited into the Watershed Protection and Restoration Fund (WPRF) in the previous fiscal year by source
- The percentage and amount of funds in the WPRF spent on purposes defined in the law
- All SWM projects implemented in the previous fiscal year for the ISRP requirement

This Annual Report on Financial Assurance Plans and the Watershed Protection and Restoration Program, 2021, (FAP Annual Report), fulfills the requirement of § 4-202.1(j)(7), Environment Article, Annotated Code of Maryland. The Department's Executive Summary and Evaluation is included below, followed by individual evaluations of each MS4 jurisdiction's FAP and WPRP Annual Report. Finally, the Department provides a summary of these programs regarding statewide progress and future goals. The citizens of Maryland, and local, state, and federal partners are commended for their effort in developing and implementing these very important environmental programs for improving local water resources and restoring the Chesapeake Bay.

II. Primary Information

Table 1: Significant Dates for FAPs and WPRP Annual Reports

MS4	FAP Submission Date	WPRP Annual Report Submission Date	Date of Public Hearing	FAP Approved by Local Governing Body (Y/N)	Department's Determination of Sufficient Funding (100%)	
	Anne Arundel	2/2/2021	2/2/2021	1/4/2021	Y	6/14/2021
	Baltimore City	12/28/2020	12/28/2020	12/17/2020	Y	6/14/2021
Large	Baltimore	12/21/2020	12/21/2020	12/1/2020	Y	6/14/2021
	Montgomery ¹	2/16/2021	N/A	3/9/2021	Y	6/14/2021
	Prince George's ²	12/22/2020	12/22/2020	5/18/2021	Y	6/14/2021
	Carroll	12/22/2020	12/22/2020	12/3/2020	Y	6/14/2021
Medium	Charles	12/23/2020	12/23/2020	10/27/2020	Y	6/14/2021
	Frederick ³	12/28/2020	12/28/2020	8/17/2021	Y	6/14/2021
	Harford	12/30/2020	1/22/2020	11/10/2020	Y	6/14/2021
	Howard ⁴	12/17/2020	12/17/2020	3/15/2021	Y	6/14/2021

1. A draft FAP was submitted on Feb. 16, 2021. An approved FAP was submitted on May 5, 2021.
2. A draft FAP was submitted on Dec. 22, 2020. An approved FAP was submitted on July 15, 2021.
3. A draft FAP was submitted on Dec. 28, 2020. An approved FAP was submitted on Aug. 24, 2021.
4. A draft FAP was submitted on Dec. 17, 2020. An approved FAP was submitted on June 23, 2021.

III. Executive Summary and Evaluation

Anne Arundel, Baltimore, Carroll, Charles, Frederick, Harford, Howard, Montgomery, and Prince George’s counties, and Baltimore City submitted comprehensive information on local projects for meeting ISRP requirements, including:

- Upland Practices: wet ponds, swales, infiltration, dry wells, rain gardens, green roofs, permeable pavement, rainwater harvesting, submerged gravel wetlands
- In-Stream Practices: shoreline management, outfall stabilization, stream restoration
- Programmatic Practices: street sweeping, inlet cleaning, storm drain vacuuming

This evaluation of the FAPs consists of budget and restoration information that have been provided by each MS4 Phase I permitted jurisdiction. Each locality has held public hearings and each plan has been signed by the local governing body.

Current Implementation

- The Department approved each MS4’s impervious acre baseline analysis, which sets the 20% level of restoration required under the stormwater permits, also known as the ISRP requirement. The permit terms for each MS4 have expired and the permits have been administratively continued. Collectively, the MS4s completed 93% of the ISRP requirement by the end of their permits’ 5-year terms (see Table 2).
- According to data provided by the MS4s, Large MS4s completed 21,756 acres of restoration or 86% of the total ISRP requirement, while Medium MS4s completed 10,448 acres of restoration or 109% of the ISRP requirement by the end of their permits’ 5-year terms.

Table 2: Completed Projects to Meet the ISRP 5-Year Permit Term Requirements

	MS4	Impervious Acre (IA) Baseline ¹	ISRP Requirement (Acres) ¹	Restoration Completed ¹	
Large	Anne Arundel	24,980	4,996	4,996	100%
	Baltimore City	21,455	4,291	4,530	106%
	Baltimore	30,180	6,036	6,064	100%
	Montgomery	18,891	3,778	3,779	100%
	Prince George's	30,525	6,105	2,387	39%
			126,031	25,206	21,756
Medium	Carroll	8,070	1,614	1,629	101%
	Charles	7,887	1,577	1,739	110%
	Frederick	9,903	1,981	1,981	100%
	Harford	10,928	2,186	2,186	100%
	Howard	11,019	2,204	2,913	132%
			47,807	9,562	10,448
Totals:		173,838	34,768	32,204	93%

1. Updated ISRP requirements, impervious acre baselines, and restoration completed from FY19 MS4 Annual Reports and data submitted for final permit restoration accounting.

- Prince Georges County did not meet the 20% ISRP requirement by the end of its 5-year permit term on Jan. 2, 2019. The County restored 2,387 impervious acres resulting in a restoration deficit of 3,718 impervious acres. Subsequently, on Jan. 29, 2021, the Department and Prince George’s County reached tentative agreement on a consent decree that was filed in Prince George’s County Circuit Court resolving issues with the County’s performance pursuant to the MS4 permit. The consent decree formally establishes implementation schedules and annual milestones, for the completion of the County’s remaining ISRP requirement by Dec. 31, 2024. Additionally, the consent decree imposes a \$475,000 penalty, due on Dec. 31, 2024, for failure to complete all of the restoration work required by the 2014 permit. The penalty can be satisfied through the construction of one or more Department-approved supplemental environmental projects (SEPs) at a minimum cost of \$475,000 by Dec. 31, 2024.
- Statewide, the specific actions implemented by the Phase I MS4s for meeting ISRP requirements through FY20 have achieved 34,262 acres of restoration or 20% of the total impervious acre baselines (see Table 3).

Table 3: Specific Actions Completed Through FY20 to Meet ISRP Permit Requirements

MS4	Impervious Acre (IA) Baseline ¹	Acres Restored as of					Restoration Complete ³
		FY16 ²	FY17 ²	FY18 ²	FY19 ²	FY20 ²	
Anne Arundel ⁴	24,980	912	1,680	4,996	4,996	4,999	20%
Baltimore City ⁵	21,455	3,624	3,953	4,291	6,763	4,749	22%
Baltimore	30,180	983	1,033	6,036	6,664	7,263	24%
Montgomery	18,891	1,918	2,927	3,778	3,849	4,018	21%
Prince George's	30,525	225	937	2,217	2,529	2,656	9%
Carroll	8,070	1,247	1,369	1,491	1,629	1,758	22%
Charles	7,887	253	310	679	1,683	1,739	22%
Frederick ⁶	9,903	161	186	563	1,981	1,981	20%
Harford ⁶	10,928	453	478	504	2,186	2,186	20%
Howard	11,019	1,028	1,434	1,858	2,913	2,913	26%
Totals:	173,838	10,804	14,307	26,413	35,193	34,262	20%

1. Impervious acre (IA) baselines from FY19 MS4 Annual Reports and final permit restoration accounting.
2. Restoration data are from FY16 to FY20 MS4 Annual Reports (covering the end of the previous permit term up to June 30, 2016, June 30, 2017, June 30, 2018, June 30, 2019, and June 30, 2020, respectively). Some of these data have been updated to reflect annual report review findings.
3. Percent of impervious acre baseline restored.
4. Anne Arundel County completed restoration in FY19, but those restored acres were credited toward replacing the nutrient credits from FY18 that were obtained in an amount equivalent to 2,607 impervious acres.
5. Baltimore City’s acres restored as of FY20 decreased due to a reduction in programmatic (or annual) BMPs. However, the reported restoration still exceeds the expired permit’s restoration requirement of 4,291 acres.
6. Frederick and Harford counties completed restoration in FY20, but those restored acres are being credited toward replacing the nutrient credits from FY19 that were obtained in an amount equivalent to 1,273 and 970 impervious acres, respectively.

Projected Implementation and Funding

- For FY21 and FY22, the MS4s projected completing 9,199 acres of restoration. The total 2-year cost reported in the All Actions worksheets equal \$450.1 million. This is the cost for only BMPs without factoring in other associated ISRP costs such as debt service payments.

Table 4: Projected ISRP Implementation for the Next Two Fiscal Years to Meet ISRP Requirements

	MS4	IA Baseline	Projected Restoration to be Completed ¹		Projected Cost ¹	Total Cost per Acre ²
Large	Anne Arundel	24,980	1,968	8%	\$94,009,114	\$47,767
	Baltimore City	21,455	1,230	6%	69,737,758	56,720
	Baltimore	30,180	665	2%	34,858,044	52,435
	Montgomery	18,891	491	3%	27,908,024	56,858
	Prince George's	30,525	2,599	9%	147,869,715	56,886
Medium	Carroll	8,070	808	10%	16,850,000	20,858
	Charles	7,887	479	6%	12,355,370	25,799
	Frederick	9,903	368	4%	21,816,155	59,280
	Harford	10,928	318	3%	12,712,000	40,038
	Howard	11,019	273	2%	12,000,000	43,956
Totals:		173,838	9,199	5%	\$450,116,180	\$48,937

- Acres to be Completed and Cost from All Actions worksheet in FY20 FAPs.
- Total Cost per Acre = Total Projected Cost/Total Projected Impervious Acres Restored Next Two Years. (Includes Best Management Practices (BMPs) with no reported cost).

- The 10 MS4s report that the total ISRP cost for the next two years is \$644.9 million while the total revenues is \$640.6 million (see Table 4).
- All MS4s showed that they have the budgets necessary to fund 100% of the ISRP requirements of the MS4 permit over the next two state fiscal years (FY21 and FY22). Each MS4 has permit terms that expired before the end of the two-year period, therefore, the reported costs and funds are to support continued implementation outside of the expired permit.

Figure 1: Fulfillment of 100% Revenue Requirement for 2-Year Costs

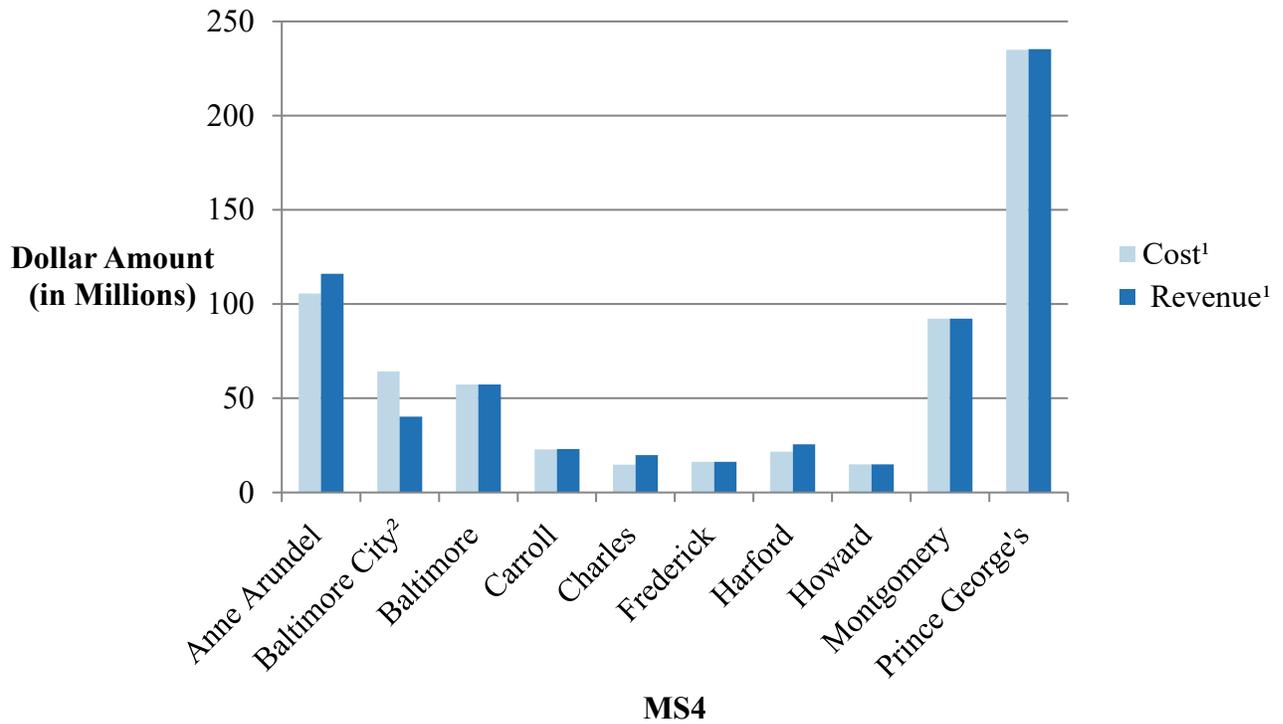


Table 5: Fulfillment of 100% Revenue Requirement for 2-Year Costs

	MS4	Cost¹	Revenue¹	Percent of Cost Covered	Meets 100% Requirement (Y/N)
Large	Anne Arundel	\$105.7M	\$116.1M	110%	Y
	Baltimore City²	\$64.3M	\$40.2M	63%	Y
	Baltimore	\$57.3M	\$57.3M	100%	Y
	Montgomery	\$92.2M	\$92.2M	100%	Y
	Prince George's	\$234.9M	\$235.2M	100%	Y
Medium	Carroll	\$22.9M	\$23.0M	101%	Y
	Charles	\$14.7M	\$19.8M	134%	Y
	Frederick	\$16.3M	\$16.3M	100%	Y
	Harford	\$21.7M	\$25.5M	118%	Y
	Howard	\$14.9M	\$14.9M	100%	Y
Totals:		\$644,883,170	\$640,585,905		

1. Cost and Revenue data from ISRP Revenue worksheet in FY20 FAPs.
2. Baltimore City's MS4 permit expired and until a new one is issued, it has no ISRP requirement and associated FAP commitment.

- On Oct. 23, 2020, MDE issued tentative determination MS4 permits for Baltimore City and Anne Arundel, Baltimore, and Montgomery counties. The draft permits build upon and improve pollution prevention under current permits and require local jurisdictions to not only keep pace but do more to help Maryland meet its Chesapeake Bay total maximum daily load (TMDL) requirements.
- The next FAPs are expected to contain increased BMP implementation and funding to meet the requirements of the reissued permits, demonstrating efforts to improve water quality and restore the Chesapeake Bay. The FAP submittals, due to the Department with FY22 MS4 annual reports, must show how each jurisdiction can fund 100% of its ISRP requirement for FY23 and FY24.
- MS4s that implemented programmatic annual BMPs in the previous permit term will be required to continue those BMPs or replace the ISRP credits that were achieved through programmatic BMPs with permanent BMPs. Also, MS4s will be able to incorporate new BMPs found in the draft 2021 “Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits” (2021 Accounting Guidance). For example, the updated 2021 Accounting Guidance incentivizes green stormwater infrastructure BMPs and BMPs with climate resiliency co-benefits.
- Individual summaries of MS4 implementation may be found in the following pages. Electronic copies of the report, reviews, and submitted FAPs may be viewed via the Department’s website at mde.maryland.gov/programs/Water/StormwaterManagement/Program/Pages/WPRPFinancialAssurancePlans.aspx

IV. County Analyses

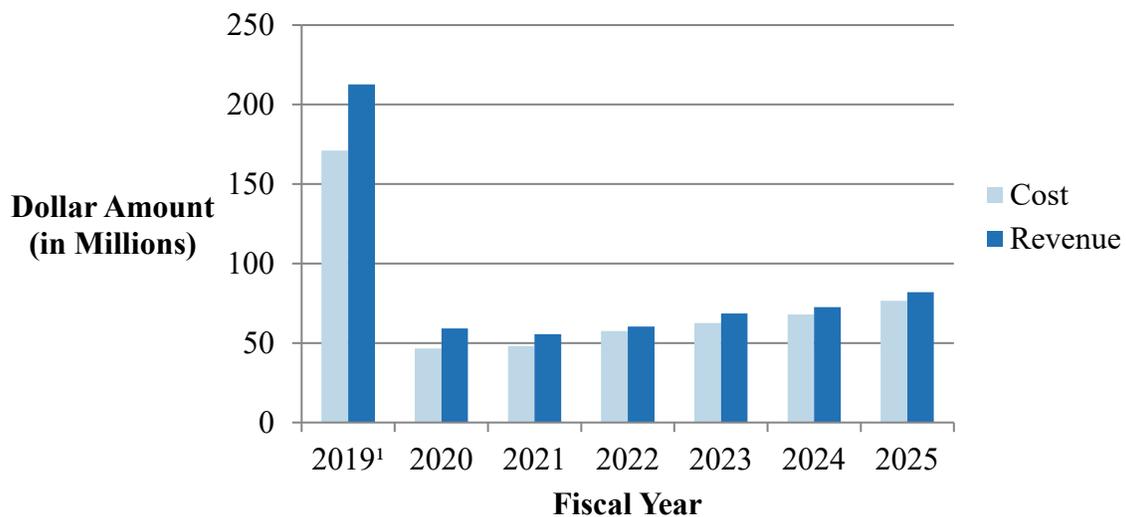
Anne Arundel County

Impervious Acre Baseline: 24,980

20% Requirement: 4,996

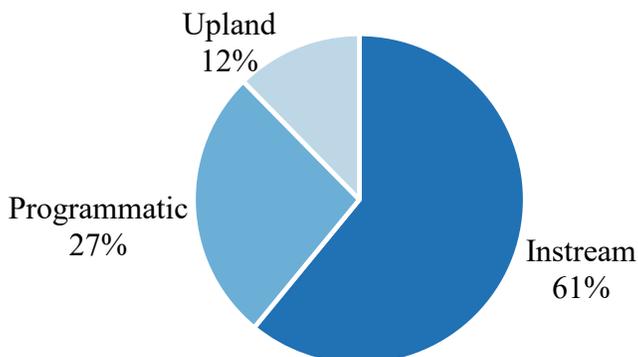
- Impervious acres restored by end of permit term (FY19): 4,996
- Percent of baseline restored by end of permit term (FY19): 20%
- Impervious acres restored as of FY20: 4,999
- Percent of baseline restored as of FY20: 20%
- Projected percent of baseline restored FY21-22: 8%
- Costs for funding the next 2 years (FY21-22) of the ISRP requirement: \$105,674,545
- Percentage of revenue budgeted to cover next 2-year (FY21-22) costs: 110%

Impervious Surface Restoration Plan Cost and Revenue

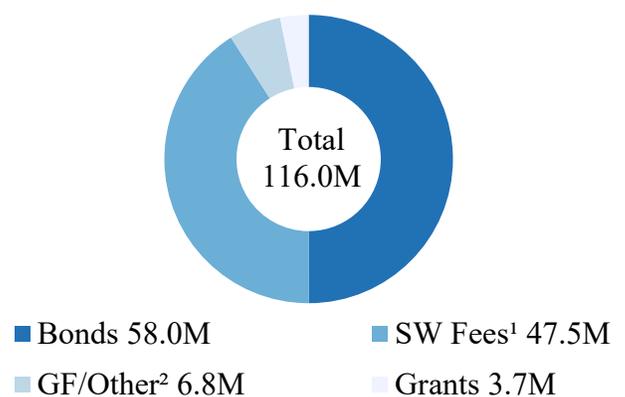


1. Cost and revenue for FY19 includes figures from previous fiscal years.

BMP Types Implemented During the Next Two Years (FY21-22)



Sources of Funds (FY21-22)



1. Stormwater Remediation Fees.

2. General Fund, Investment Income, Interfund Recoveries.

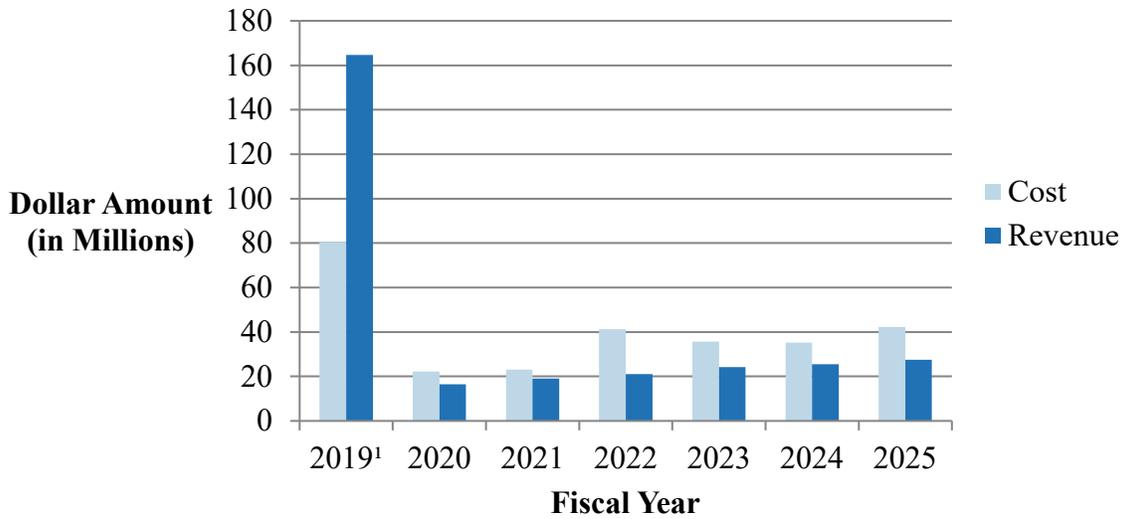
Baltimore City

Impervious Acre Baseline: 21,455

20% Requirement: 4,291

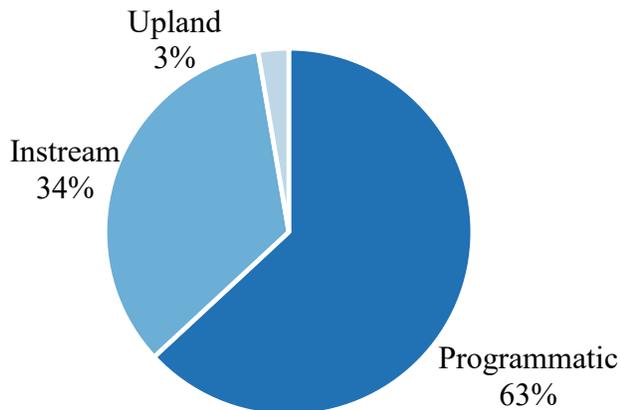
- Impervious acres restored by end of permit term (FY19): 4,530
- Percent of baseline restored by end of permit term (FY19): 21%
- Impervious acres restored as of FY20: 4,749
- Percent of baseline restored as of FY20: 22%
- Percent of baseline restored FY21-22: 6%
- Costs for funding the next 2 years (FY21-22) of the ISRP requirement: \$64,306,772
- Percentage of revenue budgeted to cover next 2-year (FY21-22) costs: 63%²

Impervious Surface Restoration Plan Cost and Revenue

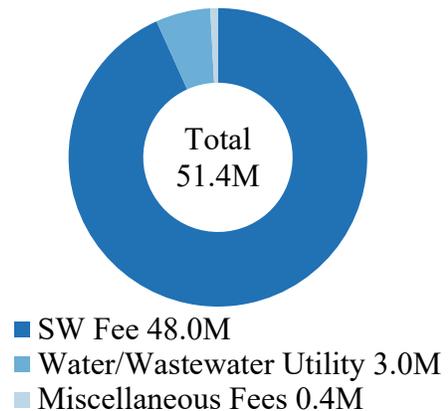


1. Cost and revenue for FY19 includes figures from previous fiscal years.
2. Baltimore City's MS4 permit expired and until a new one is issued, it has no ISRP requirement and associated FAP commitment.)

BMP Types Implemented During the Next Two Years (FY21-22)



Sources of Funds (FY21-22)



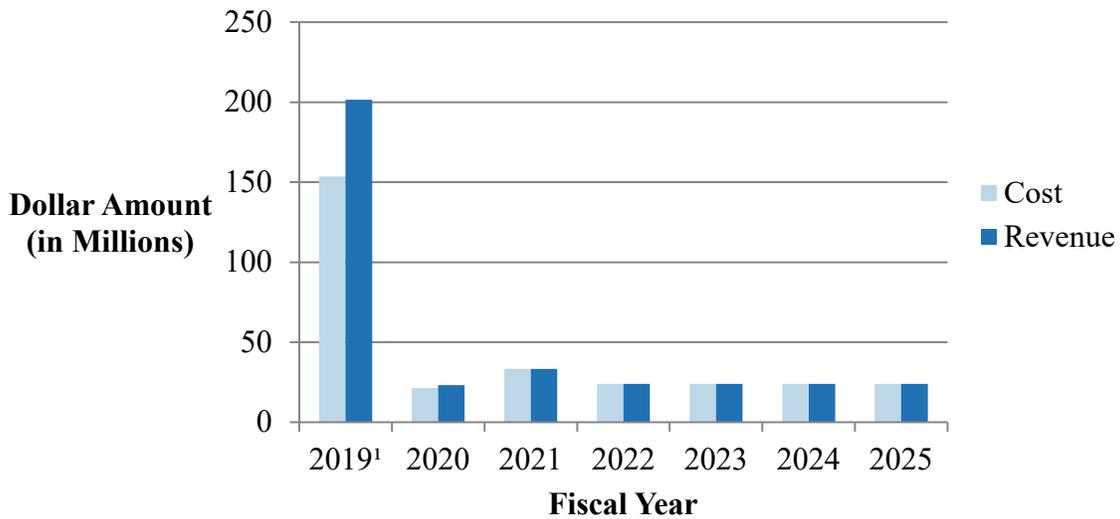
Baltimore County

Impervious Acre Baseline: 30,180

20% Requirement: 6,036

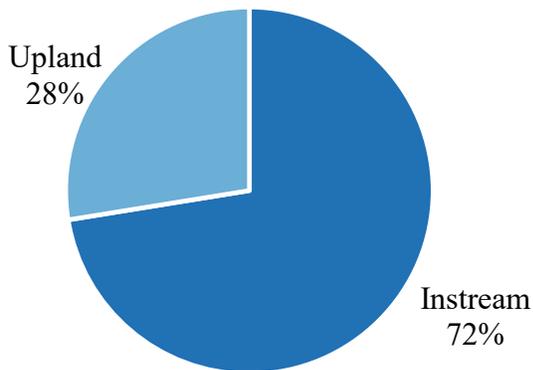
- Impervious acres restored by end of permit term (FY19): 6,064
- Percent of baseline restored by end of permit term (FY19): 20%
- Impervious acres restored as of FY20: 7,263
- Percent of baseline restored as of FY20: 24%
- Percent of baseline restored FY21-22: 2%
- Costs for funding the next 2 years (FY21-22) of the ISRP requirement: \$57,311,044
- Percentage of revenue budgeted to cover next 2-year (FY21-22) costs: 100%

Impervious Surface Restoration Plan Cost and Revenue

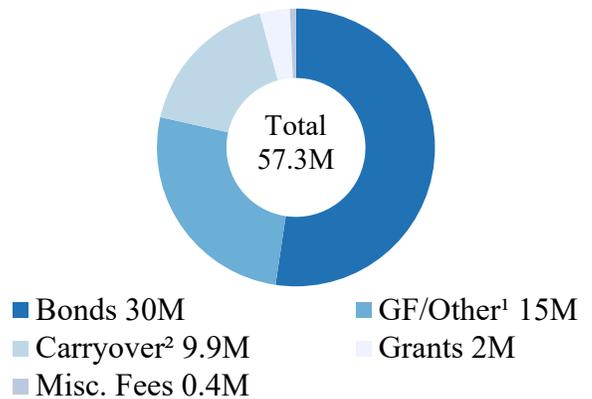


1. Cost and revenue for FY19 includes figures from previous fiscal years.

BMP Types Implemented During the Next Two Years (FY21-22)



Sources of Funds (FY21-22)



1. General Fund and Debt Premium.
2. Carryover from previous fiscal years.

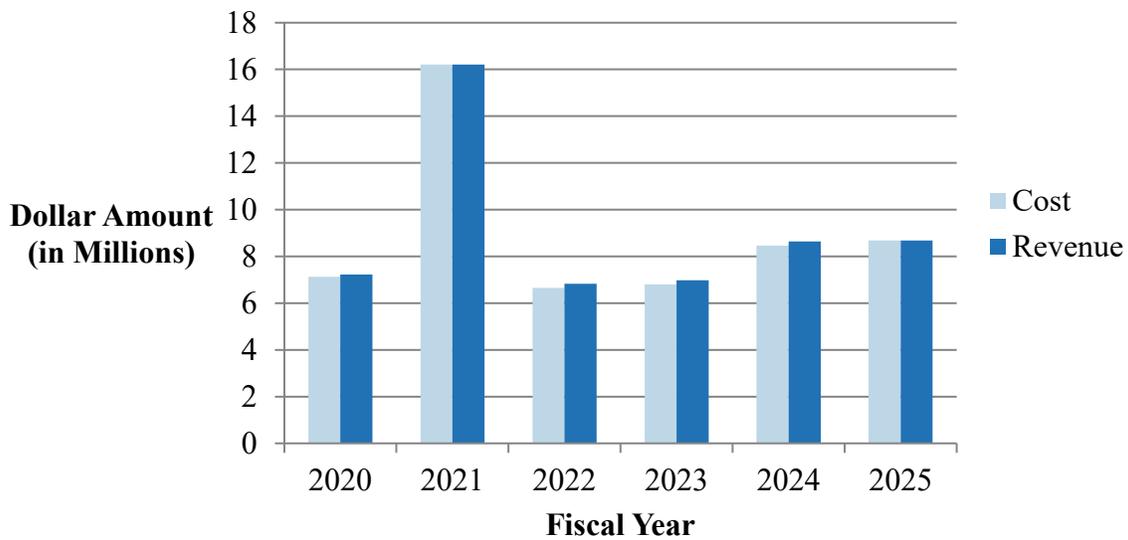
Carroll County

Impervious Acre Baseline: 8,070

20% Requirement: 1,614

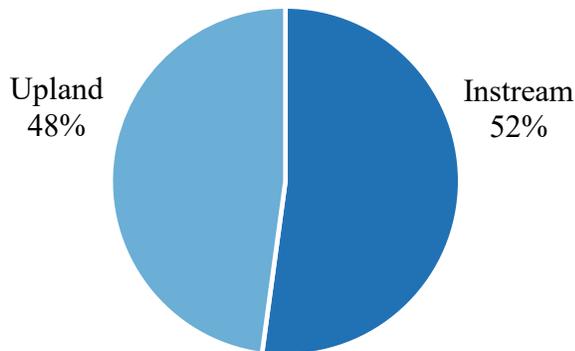
- Impervious acres restored by end of permit term (FY20): 1,629
- Percent of baseline restored by end of permit term (FY20): 20%
- Impervious acres restored as of FY20: 1,758
- Percent of baseline restored as of FY20: 22%
- Percent of baseline restored FY21-22: 10%
- Costs for funding the next 2 years (FY21-22) of the ISRP requirement: \$22,866,986
- Percentage of revenue budgeted to cover next 2-year (FY21-22) costs: 101%

Impervious Surface Restoration Plan Cost and Revenue

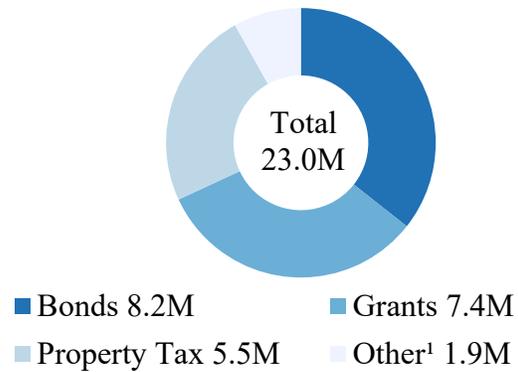


* No permit term cost and revenue data reported for past fiscal years up to FY19.

BMP Types Implemented During the Next Two Years (FY21-22)



Sources of Funds (FY21-22)



1. Other includes Municipalities, Municipal Support Capital Projects, Fund Balance, Development Contributions, and Interest.

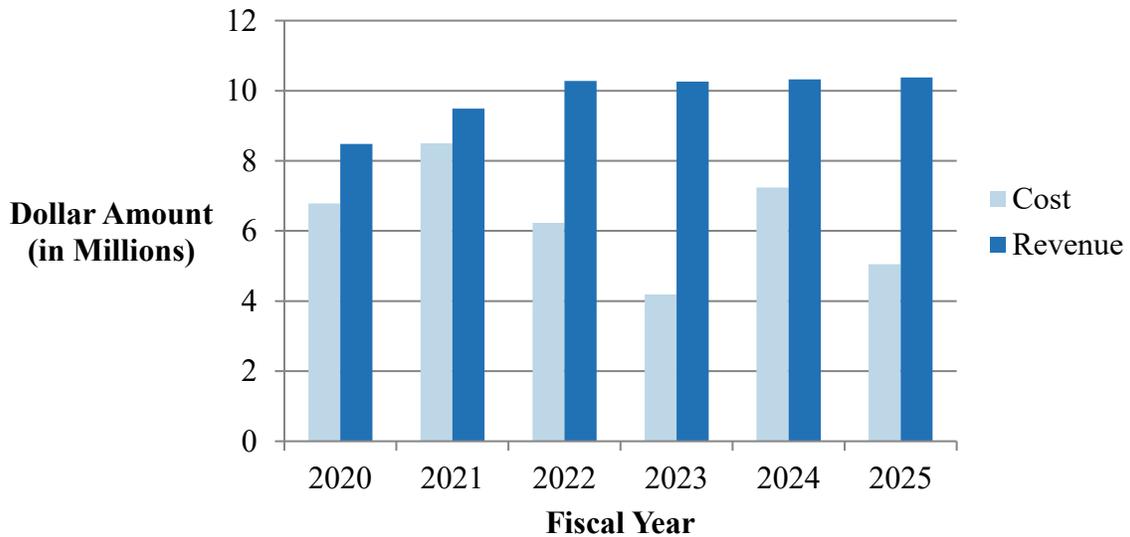
Charles County

Impervious Acre Baseline: 7,887

20% Requirement: 1,577

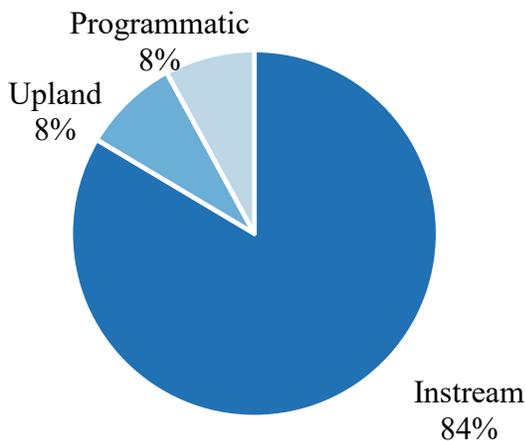
- Impervious acres restored by end of permit term (FY20): 1,739
- Percent of baseline restored by end of permit term (FY20): 22%
- Impervious acres restored as of FY20: 1,739
- Percent of baseline restored as of FY20: 22%
- Percent of baseline restored FY21-22: 6%
- Costs for funding the next 2 years (FY21-22) of the ISRP requirement: \$14,729,709
- Percentage of revenue budgeted to cover next 2-year (FY21-22) costs: 134%

Impervious Surface Restoration Plan Cost and Revenue

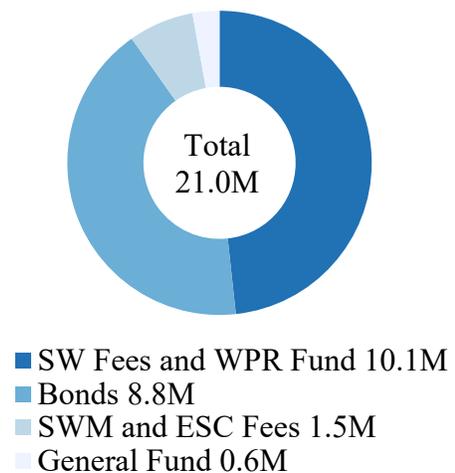


* No permit term cost and revenue data reported for past fiscal years up to FY19.

BMP Types Implemented During the Next Two Years (FY21-22)



Sources of Funds (FY21-22)



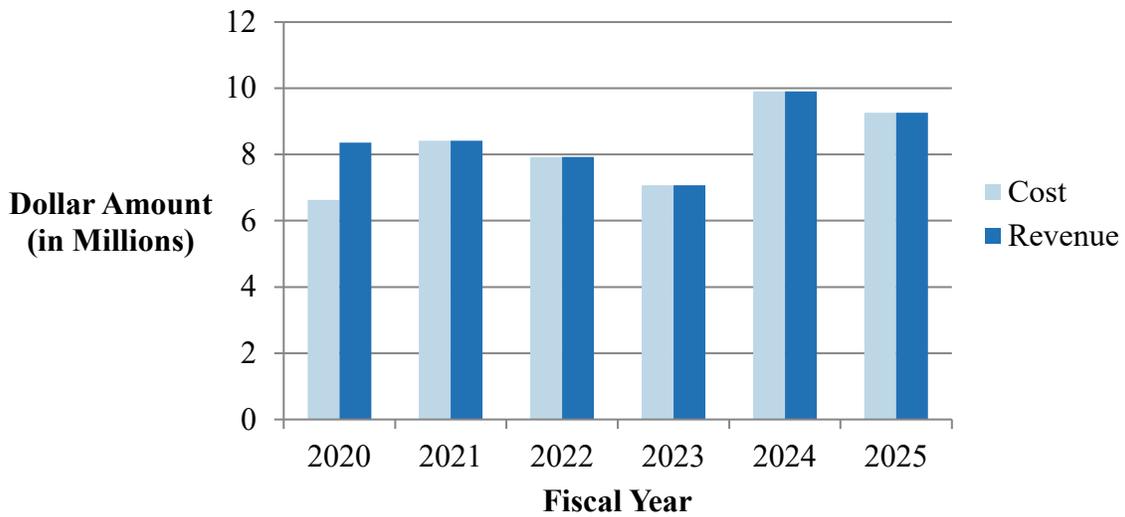
Frederick County

Impervious Acre Baseline: 9,903

20% Requirement: 1,981

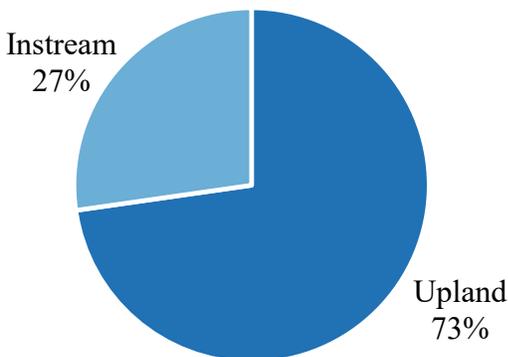
- Impervious acres restored by end of permit term (FY20): 1,981
- Percent of baseline restored by end of permit term (FY20): 20%
- Impervious acres restored as of FY20: 1,981
- Percent of baseline restored as of FY20: 20%
- Percent of baseline restored FY21-22: 4%
- Costs for funding the next 2 years (FY21-22) of the ISRP requirement: \$16,341,287
- Percentage of revenue budgeted to cover next 2-year (FY21-22) costs: 100%

Impervious Surface Restoration Plan Cost and Revenue

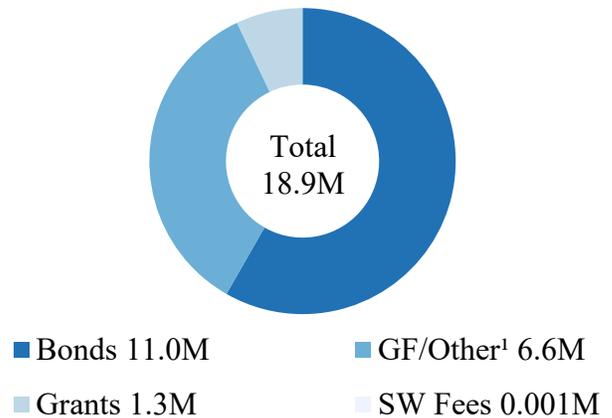


* No permit term cost and revenue data reported for past fiscal years up to FY19.

BMP Types Implemented During the Next Two Years (FY21-22)



Sources of Funds (FY21-22)



1. Other includes Capital Improvement Project Funds and Operating Funds.

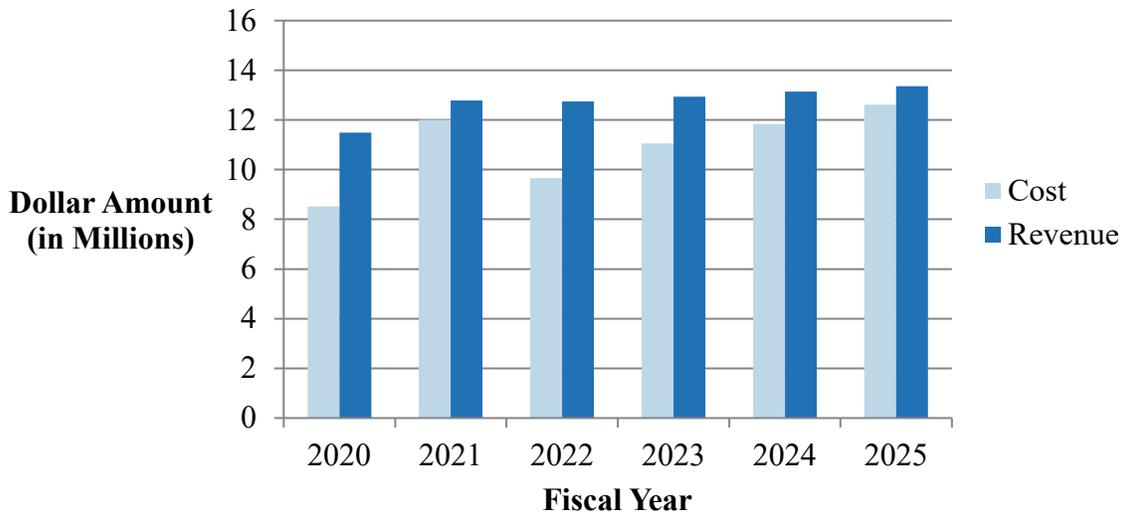
Harford County

Impervious Acre Baseline: 10,928

20% Requirement: 2,186

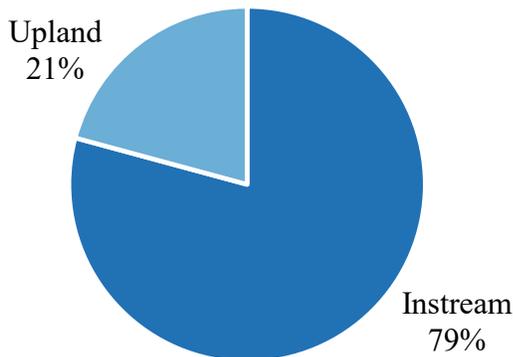
- Impervious acres restored by end of permit term (FY20): 2,186
- Percent of baseline restored by end of permit term (FY20): 20%
- Impervious acres restored as of FY20: 2,186
- Percent of baseline restored as of FY20: 20%
- Percent of baseline restored FY21-22: 3%
- Costs for funding the next 2 years (FY21-22) of the ISRP requirement: \$21,662,063
- Percentage of revenue budgeted to cover next 2-year (FY21-22) costs: 118%

Impervious Surface Restoration Plan Cost and Revenue

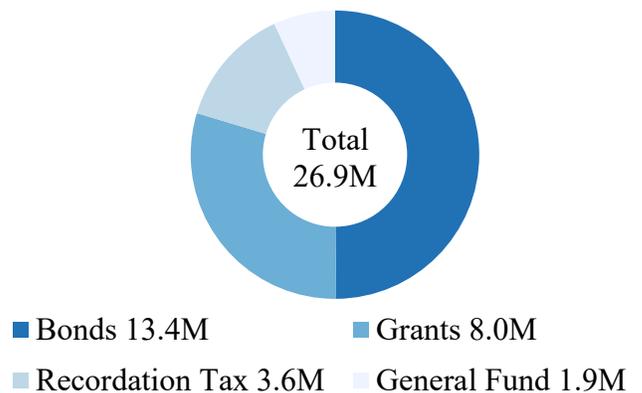


* No permit term cost and revenue data reported for past fiscal years up to FY19.

BMP Types Implemented During the Next Two Years (FY21-22)



Sources of Funds (FY21-22)



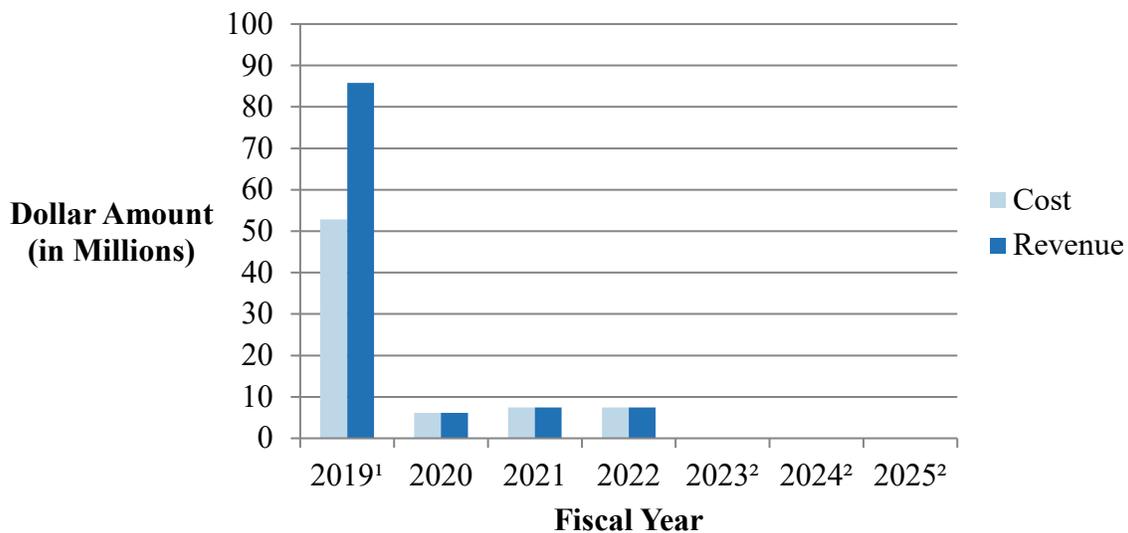
Howard County

Impervious Acre Baseline: 11,019

20% Requirement: 2,204

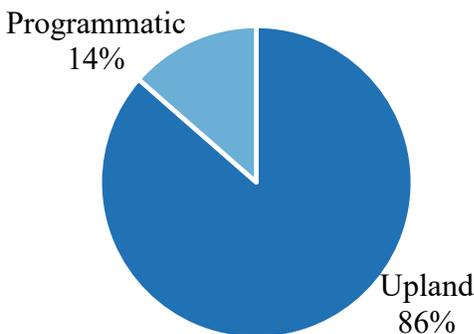
- Impervious acres restored by end of permit term (FY20): 2,913
- Percent of baseline restored by end of permit term (FY20): 26%
- Impervious acres restored as of FY20: 2,913
- Percent of baseline restored as of FY20: 26%
- Percent of baseline restored FY21-22: 2%
- Costs for funding the next 2 years (FY21-22) of the ISRP requirement: \$14,894,000
- Percentage of revenue budgeted to cover next 2-year (FY21-22) costs: 100%

Impervious Surface Restoration Plan Cost and Revenue

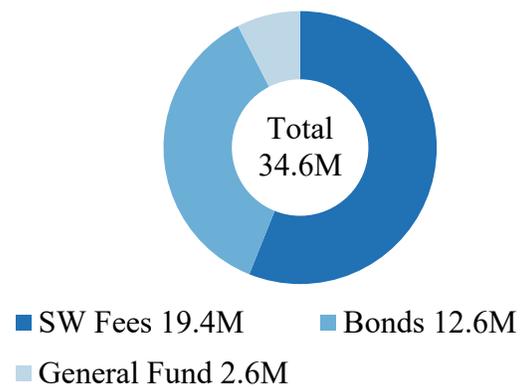


1. Cost and revenue for FY19 includes figures from previous fiscal years.
2. FY23-25 cost and revenue figures provided in draft FAP but not in final, approved FAP. No reported cost and revenue until ISRP requirements are established in the reissued MS4 permit.

BMP Types Implemented During the Next Two Years (FY21-22)



Sources of Funds (FY21-22)



*The County did not report specific BMP types planned to be implemented as capital projects, but instead reported annual amounts for “Various Types” of BMPs.

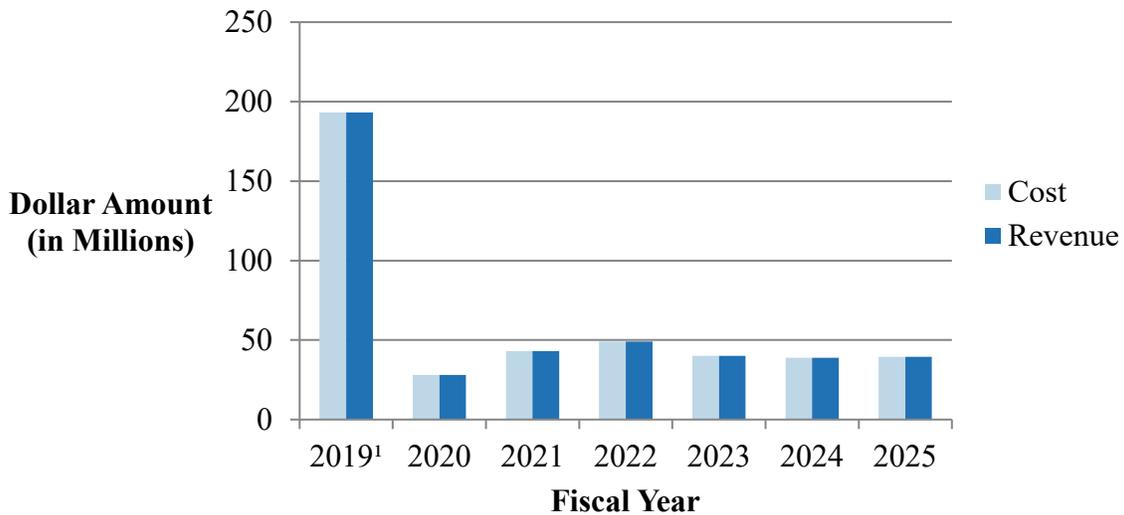
Montgomery County

Impervious Acre Baseline: 18,891

20% Requirement: 3,778

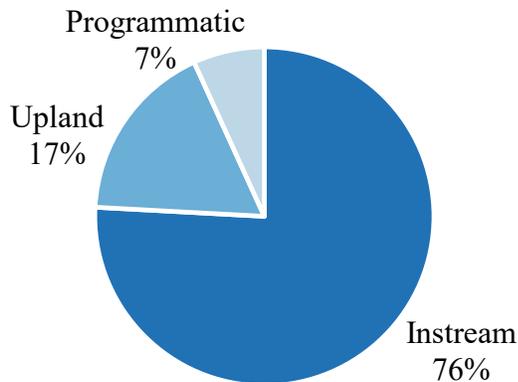
- Impervious acres restored by end of permit term (FY19): 3,779
- Percent of baseline restored by end of permit term (FY19): 20%
- Impervious acres restored as of FY20: 4,018
- Percent of baseline restored as of FY20: 21%
- Percent of baseline restored FY21-22: 3%
- Costs for funding the next 2 years (FY21-22) of the ISRP requirement: \$92,203,364
- Percentage of revenue budgeted to cover next 2-year (FY21-22) costs: 100%

Impervious Surface Restoration Plan Cost and Revenue

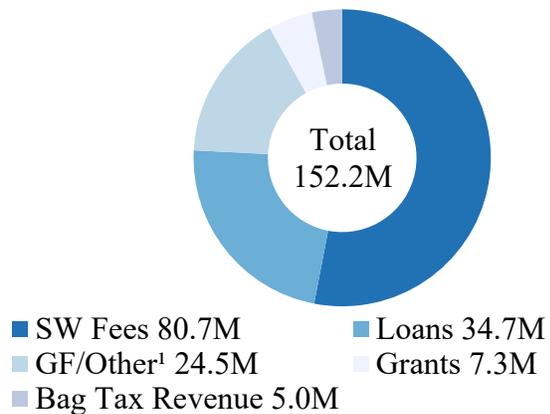


1. Cost and revenue for FY19 includes figures from previous fiscal years.

BMP Types Implemented During the Next Two Years (FY21-22)



Sources of Funds (FY21-22)



1. BMP Monitoring, SWM waiver, and Tree Canopy Fees; Solid Waste Fund; and Other Departmental Funds (Department of Transportation, Department of Permitting Services, and Department of General Services).

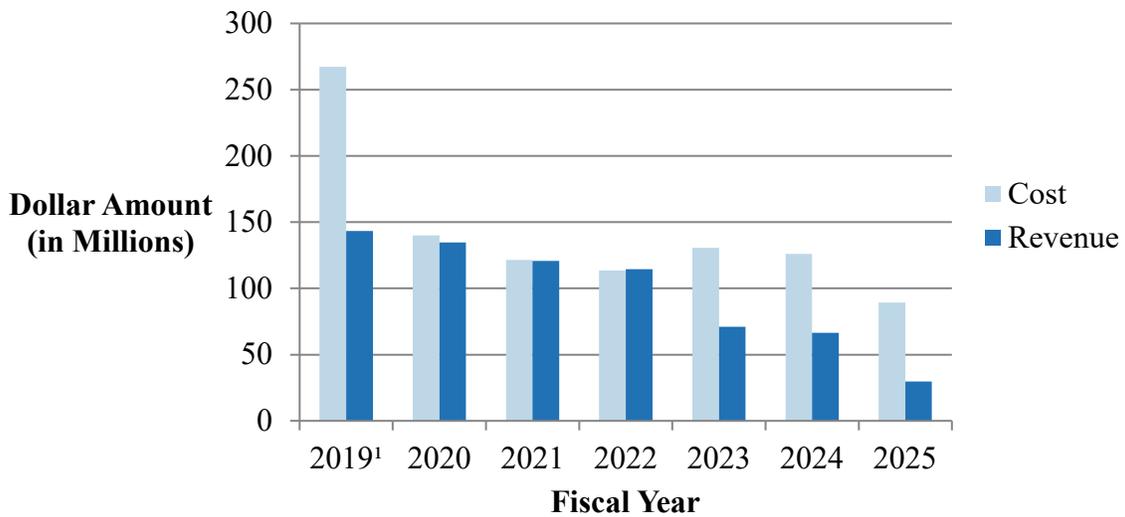
Prince George's County

Impervious Acre Baseline: 30,525

20% Requirement: 6,105

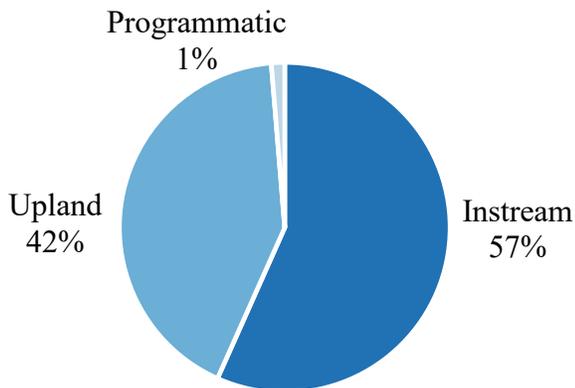
- Impervious acres restored by end of permit term (FY19): 2,387
- Percent of baseline restored by end of permit term (FY19): 8%
- Impervious acres restored as of FY20: 2,656
- Percent of baseline restored as of FY20: 9%
- Percent of baseline restored FY21-22: 9%
- Costs for funding the next 2 years (FY21-22) of the ISRP requirement: \$234,893,400
- Percentage of revenue budgeted to cover next 2-year (FY21-22) costs: 100%

Impervious Surface Restoration Plan Cost and Revenue

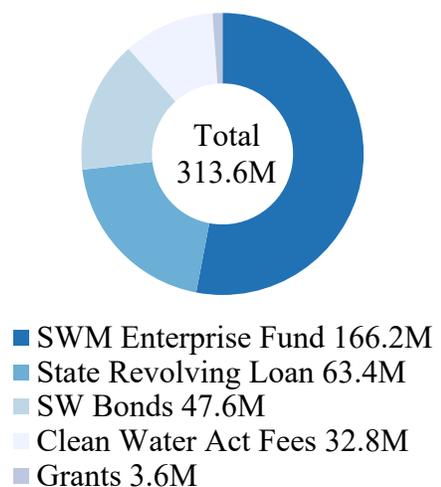


1. Cost and revenue for FY19 includes figures from previous fiscal years.

BMP Types Implemented During the Next Two Years (FY21-22)



Sources of Funds (FY21-22)



V. Watershed Protection and Restoration Program Annual Reports

- Stormwater remediation fees are optional for MS4 jurisdictions. Six MS4 jurisdictions reported having fees (seven if including Montgomery County, which is not required to submit a WPRP annual report, but does have a stormwater remediation fee); two obtain funds through taxes (see footnote 5 below); and one repealed its fee (see footnote 2 below). Residential fees range from \$0.01 to \$170.
- For the jurisdictions that have fees (excluding Prince George’s County), the number of properties subject to fees range from 50,713 to 268,766.

Table 6: FY20 Sources of Funds for the WPRF

Jurisdiction	Properties Subject to a Stormwater Remediation Fee	% Change ¹	Total Stormwater Remediation Fees	% Change ¹	Total Additional Sources of Funds	% Change ¹	Total	% Change ¹
Anne Arundel	212,980	0%	\$22,291,749	6%	\$3,012,481	12%	\$25,304,231	7%
Baltimore City	237,391	3%	\$34,078,358	8%	\$212,376	1%	\$34,290,734	8%
Baltimore ²	0		\$0		\$22,133,075	111%	\$22,133,075	111%
Montgomery ³	N/A		N/A		N/A		N/A	
Prince George’s ⁴	268,766	1%	\$14,617,830	0%	\$79,302,100	0%	\$93,919,930	468%
Carroll ⁵	0		\$0		\$2,509,025	6%	\$2,509,025	6%
Charles	50,713	0%	\$3,970,537	29%	\$626,302	5%	\$4,596,839	25%
Frederick	53,575	2%	\$536	2%	\$0	0%	\$536	2%
Harford ⁵	0		\$0		\$7,580,000	12%	\$7,580,000	12%
Howard	108,919	0%	\$9,713,766	0%	\$0	0%	\$9,713,766	0%
Total	932,344	1%	\$84,672,776	6%	\$115,375,359	360%	\$200,048,136	90%

*For further details on the WPRP, refer to the WPRP Annual Reports on the Department’s website at mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/WPRPFinancialAssurancePlans.aspx.

1. Percent change from previous FY.
2. Baltimore County’s stormwater remediation fee was repealed effective 7/1/2017.
3. Montgomery County was not required to report this information.
4. Prince George’s County did not indicate how many properties were subject to fees in FY19. Therefore, the FY18 value of 266,129 properties was used for the percent change calculations.
5. Carroll and Harford counties do not collect stormwater remediation fees, but do obtain funds through a dedicated property tax or recordation tax, respectively.

Table 7: FY20 Percentage and Amount of Funds Spent on Specific Purposes

Jurisdiction	Capital Improvements for SWM	Operations & Maintenance of SWM Systems and Facilities	Public Education and Outreach ¹	SWM Planning ²	Review of SWM Plans and Permit Application ³	Grants to Nonprofit Organizations ⁴	Administration of WPRF ⁵	Total
Anne Arundel	\$9,254,507	\$6,765,280	\$834,251	\$4,178,828	0	\$82,821	\$501,400	\$21,617,087
Baltimore City	7,932,898	11,843,589	420,951	722,975	1,349,648	205,179	1,571,977	24,047,217
Baltimore Montgomery ⁶	21,904,604	3,051,905	256,239	338,469	0	329,195	0	25,880,413
Prince George's	90,754,000	19,500,000	1,014,000	5,381,961	5,779,200	900,000	263,000	123,592,161
Carroll	1,140,908	129,121	2,447	16,512	0	0	1,119,689	2,408,678
Charles	1,365,884	1,027,006	53,487	1,720,482	0	63,448	15,100	4,245,408
Frederick ⁷	0	0	0	0	0	0	0	0
Harford	6,030,000	310,000	15,000	1,100,000	0	0	0	7,455,000
Howard ⁸	6,446,360	1,837,810	373,632	0	0	691,707	311,720	24,027,680
Total	\$144,829,161	\$44,464,712	\$2,970,008	\$13,459,227	\$7,128,848	\$2,272,351	\$3,782,887	\$233,273,644

* Md. Environment Code Ann. § 4-202.1.(i)(4) states “The percentage and amount of funds in the local watershed protection and restoration fund spent on each of the purposes provided in subsection (h)(4) of this section.” Descriptions for some of these purposes are listed in footnotes 1 to 5 below.

1. “Public education and outreach relating to stormwater management or stream and wetland restoration”.
2. “Stormwater management planning, including: 1. Mapping and assessment of impervious surfaces; and 2. Monitoring, inspection, and enforcement activities to carry out the purposes of the watershed protection and restoration fund”.
3. “To the extent that fees imposed under § 4-204 of this subtitle are deposited into the local watershed protection and restoration fund, review of stormwater management plans and permit applications for new development”.
4. “Grants to nonprofit organizations for up to 100% of a project's costs for watershed restoration and rehabilitation projects relating to: 1. Planning, design, and construction of stormwater management practices; 2. Stream and wetland restoration; and 3. Public education and outreach related to stormwater management or stream and wetland restoration”.
5. “Reasonable costs necessary to administer the local watershed protection and restoration fund”.
6. Montgomery County was not required to report this information.
7. Frederick County reported sources of funds for the WPRF, but did not report the specific amounts spent on capital improvements, operations and maintenance, public education and outreach, etc.
8. Howard County's total spent included an additional \$14.4M in funds not spent on one of the purposes specified in subsection (h)(4).

VI. Summary

Maryland's MS4 permits and ISRP requirements are an integral part of the state's strategy to ensure that all stormwater pollution control measures needed to restore the Chesapeake Bay are in place by 2025. Maryland's 10 largest urban jurisdictions have been tasked with reducing their stormwater pollutant loads even as their communities continue to grow. Maryland's MS4s in aggregate have completed 101% of their ISRP requirement.

The current MS4 permits have expired and are administratively continued. MS4s continue to implement restoration practices, utilizing new strategies in accordance with a greater understanding of BMP efficiencies and the processes to steer BMPs through planning, procurement, and construction. Additionally, with new MS4 permits in the future, planned restoration will need to be adjusted to effectively address goals while accounting for long-term bond obligations, and inspection and maintenance costs.

In the FY20 FAPs, all MS4s showed that they have the budgets necessary to fund at least 100% of the ISRP requirements over the next two state fiscal years (FY21 and FY22). The next FAP submittals to the Department, due in FY23, must show how each jurisdiction can fund 100% of its ISRP requirement for the following two years. These FAPs are expected to contain increased BMP implementation and funding, as well as new BMPs, green stormwater infrastructure BMPs, and BMPs with climate resiliency co-benefits.



Photo: "Beautiful New Landsat Mosaic of Chesapeake Bay" by NASA Goddard
Photo and Video is licensed under CC BY 2.0

VII. Definitions

Annual escalation: The practice of adjusting current values to account for future increases. Annual escalation can account for increases in value of labor and materials.

Appropriation: Authorization from the legislation to spend money from a specific funding source for the purposes allowed by law. Appropriations specify both the amount and funding source. Appropriations must be approved before a contract mechanism can be approved.

BMP: Best Management Practice; these include structural practices (e.g., filters, ponds, wetlands), ESD (e.g., grass swales, rain barrels, green roofs), and alternative practices (e.g., outfall stabilization, septic pumping, street sweeping, tree planting).

Budget: Plan or authorization for revenues and expenditures within a fixed period of time.

CIP: Capital improvement plan; A project must cost more than \$250,000 and be associated with a specific asset which will depreciate over time.

Debt service: Portion of capital expenditures which is paid using mechanisms to extend the payment over a specified period of time. Debt service mechanisms include bonds and loans, which include costs for administration and interest.

Encumbrance: Commitment of money to meet an obligation for goods and services. Once a contract or agreement is approved, the money is encumbered into the budget to secure those funds.

EPA: United States Environmental Protection Agency

ESD: Environmental site design (also referred to as Low Impact Development / LID), comprehensive strategy for maintaining pre-development runoff characteristics by integrating site design, natural hydrology, and smaller controls to capture and treat runoff at the source, like micro-bioretenion.

Expenditure: The amount of money that is actually spent.

FAP: Financial Assurance Plan; state required 5-year projection of funding and expenses related to the MS4 permit and impervious surface restoration requirements. These plans also require the reporting of specific actions and expenditures undertaken in previous fiscal years to meet impervious surface restoration requirements.

Fiscal year: July 1 to June 30

Grant: an amount of money given by an entity for a specific purpose, with no obligation of repayment. Grants can also be known as a gift. Grant agreements include matching commitments, either by cash or by in-kind services.

Impervious surface: a surface that does not allow stormwater to infiltrate into the ground. "Impervious surface" includes rooftops, driveways, sidewalks, or pavement.

ISRP: Impervious Surface Restoration Plan; can also mean MS4 WIP or implementation plan for qualitative controls. For the current MS4 permit, the impervious surface restoration requirement is 20% of the county's or municipality's total impervious area that has not already been treated or restored to the MEP.

Loan: A debt service mechanism in which a governing body receives money from an external source with a commitment to repay both the principal and interest within a specific time frame.

MDE: Maryland Department of Environment

MEP: Maximum Extent Practicable

MS4: Municipal Separate Storm Sewer System

NPDES: National Pollutant Discharge Elimination System

Nutrients: Total phosphorus and total nitrogen

Paygo: Portion of capital expenditures which is paid directly when the expenditure is incurred.

Public-private partnership (P3s): An agreement between one or more public and private entities to do something better together than could be done individually. In many of these agreements, the local government provides one or a combination of tax incentives, public assets, or financing assistance. The private entity may contribute land, capital investments, a commitment to provide local jobs, or development expertise and usually, but not always, assumes most of the financial risk for the ultimate project outcomes.

Qualitative Control: A system of practices that reduces or eliminates pollutants that might otherwise be carried by surface runoff. Design parameters include water quality volume and recharge volume. Water quality volume can be converted into equivalent acreage of impervious surface restored.

Quantitative Control: A system of practices that controls the increased volume and rate of surface runoff caused by man-made changes to the land. Design parameters include channel protection volume and flood protection volumes.

Reserve: Amount of revenue held to demonstrate ability to repay a debt service mechanism or to hedge against an unforeseen economic downturn.

Revenue: Cash received from external sources to supply specific funds.

Revenue bond: An official document authorized by a governing body to complete CIP projects using a debt service, with a specific enterprise fund used as collateral.

Request for Proposal: a document used by a company or organization to procure a good or service, typically through a bidding process.

Runoff: The portion of water during a storm that runs over the land instead of evaporating or being soaked through the ground surface.

SRLF: State revolving loan fund

TMDL: Total Maximum Daily Load, the maximum amount of a pollutant a water body can receive and still meet water quality standards; “pollution diet.” Developed when a substance exceeds water quality standards.

Watershed: An area of land that drains down slope to the lowest point, discharging to a river or other body of water

WIP: Watershed Implementation Plan; document that sets the way an agency will meet the regulatory requirements.

WPRP Fund: Watershed Protection and Restoration Program Fund.

WQA: Water Quality Analysis, developed when supplemental data indicates the water body is meeting water quality standards for that substance

*Some definitions obtained from Baltimore City Department of Public Works Glossary of Terms.

VIII. Appendices

Appendix A: Abbreviations and Classifications of BMPs

Table A-1: BMP Classes

Code	Code Description
A	Alternative BMP
E	ESD
S	Structural BMP

Table A-2: Alternative BMPs

Code	Code Description	Category
CBC	Catch Basin Cleaning	Programmatic
FPU	Planting Trees or Forestation on Previous Urban	Upland
IMPF	Impervious Surface Elimination (to forest)	Upland
IMPP	Impervious Surface Elimination (to pervious)	Upland
MSS	Mechanical Street Sweeping	Programmatic
OUT	Outfall Stabilization	In-Stream
SDV	Storm Drain Vacuuming	Programmatic
SEPC	Septic Connections to wastewater treatment plant (WWTP)	Upland
SEPD	Septic Denitrification	Upland
SEPP	Septic Pumping	Programmatic
SHST	Shoreline Stabilization	In-Stream
SPSC	Step Pool Storm Conveyance	In-Stream
STRE	Stream Restoration	In-Stream
VSS	Regenerative/Vacuum Street Sweeping	Programmatic

Table A-3: Environmental Site Design (ESD) BMPs

Code	Code Description	Category
Alternative Surfaces		
AGRE	Green Roof – Extensive	Upland
AGRI	Green Roof – Intensive	Upland
APRP	Permeable Pavements	Upland
ARTF	Reinforced Turf	Upland
Micro-Scale Practices		
MENF	Enhanced Filters	Upland
MIBR	Infiltration Berms	Upland
MIDW	Dry Well	Upland
MILS	Landscape infiltration	Upland
MMBR	Micro-Bioretenion	Upland
MRNG	Rain Gardens	Upland
MRWH	Rainwater Harvesting	Upland
MSGW	Submerged Gravel Wetlands	Upland
MSWB	Bioswale	Upland
MSWG	Grass Swale	Upland
MSWW	Wet Swale	Upland
Nonstructural Techniques		
NDNR	Disconnection of Non-Rooftop Runoff	Upland
NDRR	Disconnection of Rooftop Runoff	Upland
NSCA	Sheetflow to Conservation Areas	Upland

Table A-4: Structural BMPs

Code	Code Description	Category
Filtering Systems		
FBIO	Bioretention	Upland
FORG	Organic Filter (Peat Filter)	Upland
FPER	Perimeter (Sand) Filter	Upland
FSND	Sand Filter	Upland
FUND	Underground Filter	Upland
Infiltration		
IBAS	Infiltration Basin	Upland
ITRN	Infiltration Trench	Upland
Open Channels		
ODSW	Dry Swale	Upland
OWSW	Wet Swale	Upland
Ponds		
PMED	Micropool Extended Detention Pond	Upland
PMPS	Multiple Pond System	Upland
PPKT	Pocket Pond	Upland
PWED	Extended Detention Structure, Wet	Upland
PWET	Retention Pond (Wet Pond)	Upland
Wetlands		
WEDW	Extended Detention - Wetland	Upland
WPKT	Pocket Wetland	Upland
WPWS	Wet Pond – Wetland	Upland
WSHW	Shallow Marsh	Upland
Other Practices		
XDED	Extended Detention Structure, Dry	Upland
XDPD	Detention Structure (Dry Pond)	Upland
XFLD	Flood Management Area	Upland
XOGS	Oil Grit separator	Upland
OTH	Other	Upland

Appendix B: Calculations

General

ISRP Requirement = (total impervious acres not treated to the MEP jurisdiction-wide) * (20% MS4 permit restoration requirement).

Table 2

Restoration complete was determined by dividing the total acres restored (gathered from FY19 MS4 Annual Reports and data submitted for final permit restoration accounting) by the total updated ISRP Requirement.

Table 3

Restoration complete was determined by dividing the total acres of restored (gathered from FY20 MS4 Annual Reports) by the total updated impervious acre baseline.

Table 4

Restoration projected was determined by dividing the total projected acres of restoration (gathered from the FY20 FAPs) by the total updated impervious acre baseline.

Table 5

Fulfillment of 100% Revenue Requirement for 2-Year Costs = 2-Year Revenue/ 2-Year Costs.

Table 6

Percent change from previous FY was determined by dividing the FY20 household or dollar amount by the FY19 household or dollar amount and then subtracting by 1 (i.e., (FY20 Amount/FY19 Amount) – 1).

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