Santa Clara Valley
Urban Runoff
Pollution Prevention Program

Watershed Monitoring and Assessment Program

Integrated Monitoring Report

Part E: Water Quality Monitoring Budget Summary

Fiscal Years 2019-20 through 2025-26

Submitted in compliance with provision C.8.h.v of NPDES Permit No. CAS612008,
Order No. R2-2022-018

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EOA inc.

This report is submitted by the agencies participating in the

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of Campbell	City of Milpitas	City of Santa Clara
City of Cupertino	City of Monte Sereno	City of Saratoga
City of Los Altos	City of Mountain View	City of Sunnyvale
Town of Los Altos Hills	City of Palo Alto	County of Santa Clara
Town of Los Gatos	City of San José	Valley Water

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ACCWP	Alameda Countywide Clean Water Program
BAMSC	Bay Area Municipal Stormwater Collaborative
BMP	Best Management Practice
CEDEN	California Environmental Data Exchange Network
DPR	(California) Department of Pesticide Regulation
ECs	Emerging Contaminants
EPA	(Federal) Environmental Protection Agency
FY	Fiscal Year
IMR	Integrated Monitoring Report
LID	Low Impact Development
MPC	Monitoring and Pollutants of Concern
MRP	Municipal Regional Permit
NPDES	National Pollutant Discharge Elimination System
PCBs	Polychlorinated Biphenyls
POC	Pollutants of Concern
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RMC	Regional Monitoring Coalition
RMP	San Francisco Bay Regional Monitoring Program
RW	Receiving Water
RWL	Receiving Water Limitations
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Plan
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SOPs	Standard Operating Procedures
SSID	Stressor/Source Identification
SWAMP	Surface Water Ambient Monitoring Program
UCMR	Urban Creeks Monitoring Report
WY	Water Year

1.0 INTRODUCTION

This *Integrated Monitoring Report (IMR) Part E: Water Quality Monitoring Budget Summary for Fiscal Years (FY) 2019-20 through 2025-26* was prepared by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP or Program). Along with other San Francisco Bay Area public agencies, SCVURPPP member agencies share a common National Pollutant Discharge Elimination System (NPDES) permit to discharge municipal stormwater to receiving water bodies, referred to as the Municipal Regional Permit (MRP).

The MRP was first adopted by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB or Regional Water Board) on October 14, 2009, as Order R2-2009-0074 (SFBRWQCB 2009; referred to as MRP 1.0), and was updated and reissued on November 19, 2015, as Order R2-2015-0049 (SFBRWQCB 2015; referred to as MRP 2.0). The current and third version of the MRP (i.e., MRP 3.0; SFBRWQCB 2022) was issued by the Regional Water Board as Order R2-2022-0018 and became effective July 1, 2022. The next iteration of the MRP (MRP 4.0) is anticipated to be adopted in July 2027.

This report fulfills the requirements of Provision C.8.h.v(4) of MRP 3.0 for providing “a budget summary for each monitoring requirement (for each year of the Permit term)” since the prior IMR. Water quality monitoring in compliance with Provision C.8 is conducted by SCVURPPP on behalf of Santa Clara County MRP Permittees. This report summarizes the approximate budget expended by SCVURPPP for its water quality monitoring from FY 2019-20 through FY 2025-26, a seven-year period that covers Water Years (WYs) 2020 through 2026. SCVURPPP budgets on a fiscal year basis (i.e., July 1 through June 30) whereas monitoring is conducted on a water year basis that runs from October 1 through September 30. The previous IMR submitted to the Regional Water Board in 2020 (SCVURPPP 2020) summarized monitoring costs associated with WYs 2014 through 2019.

Water quality monitoring required by Provision C.8 is intended to evaluate the effectiveness of stormwater management actions, assess receiving water conditions, detect trends in water quality over time, identify appropriate management actions, and inform future monitoring program implementation. The Program conducts water quality monitoring in Santa Clara County in collaboration with the Bay Area Municipal Stormwater Collaborative (BAMSC) Regional Monitoring Coalition (RMC) and actively participates in the San Francisco Bay Regional Monitoring Program (RMP), which focuses on assessing Bay water quality and associated impacts. This report provides a summary of monitoring costs expended by SCVURPPP to comply with the final years of MRP 2.0 and the initial years of MRP 3.0 and also provides qualitative estimates of the water quality benefits realized.

2.0 WATER QUALITY MONITORING BUDGET SUMMARY

Table 2.1 summarizes the approximate budgets allocated and expended by the Program to comply with Provision C.8 of MRP 2.0 and MRP 3.0 for FYs 2019-20 through FY2025-26, corresponding to WYs 2020 – 2026.[1] Budgets presented include all aspects of Provision C.8 implementation, including:

- Monitoring program planning, coordination, and management;
- Field data collection;
- Laboratory analysis;
- Quality assurance / quality control (QA/QC);
- Data evaluation, analysis, and interpretation;
- Data management;
- Reporting; and
- Information management.

Reported budgets also include SCVURPPP's direct financial contributions to the RMP on behalf of Santa Clara County MRP Permittees, as well as the NPDES permit fee surcharges paid by Permittees during that time frame (and used by the State and/or Regional Water Board to fund its Surface Water Ambient Monitoring Program (SWAMP)).

For reference, Table 2.1 also presents budgets expended by SCVURPPP for field monitoring conducted in compliance with MRP 3.0 Provision C.11/12 (Mercury/PCBs Controls). These budgets, however, are not included in the totals included in Table 2.1. Although C.11/12 monitoring exceeds the level of effort required by Provision C.8, these activities inform Provision C.8.f Pollutants of Concern monitoring. In addition, the C.11/12 data are reported in Provision C.8 Urban Creeks Monitoring Reports (UCMRs) and IMRs.

The costs listed in Table 2.1 show the considerable resources (~$9.3 million) that SCVURPPP expended over the course of FYs 2019-20 through 2025-26 towards complying with MRP 2.0 and MRP 3.0 Provision C.8 water quality monitoring requirements. As described below, grant funding reduced local monitoring costs during MRP 3.0, but does not represent a stable funding source for future permit terms.

Costs presented are associated with the following monitoring activities:

- Compliance Options – Monitoring program oversight and participation in the BAMSC RMC, including the Monitoring and Pollutants of Concern (MPC) Subcommittee and associated projects of regional benefit, in compliance with Provision C.8.a.

- San Francisco Bay Estuary Receiving Water Monitoring (RMP) – Co-permittee monetary contributions to the core RMP as well as SCVURPPP and Co-permittee staff time spent

[1] Costs presented do not include costs incurred by Permittees to implement other water quality monitoring activities and programs required by other NPDES permits issued to Permittees (e.g., POTW monitoring, aquatic pesticide application monitoring, stream maintenance program monitoring).

actively participating in the RMP, including participation in several workgroups and strategy teams, in compliance with Provisions C.8.c.

- Creek Status Monitoring – Preparation, coordination, management and implementation of creek status monitoring conducted in compliance with Provision C.8.d of MRP 2.0.

- Stressor/Source Identification (SSID) Projects – Preparation, coordination, management and implementation of SSID projects conducted in compliance with Provision C.8.e of MRP 2.0.

- Low Impact Development (LID) Monitoring – Preparation, coordination, management and implementation of LID effectiveness monitoring conducted in compliance with Provision C.8.d of MRP 3.0.

- Trash Monitoring – Preparation, coordination, management and implementation of trash outfall and receiving water monitoring conducted in compliance with Provision C.8.e of MRP 3.0. Table 2.1 includes budget expended by SCVURPPP as well as expenditures from the EPA grant-funded Watching our Watersheds (WOW) project on behalf of SCVURPPP for Provision C.8.e monitoring.

- Pollutants of Concern (POC) Monitoring – Preparation, coordination, management and implementation of POC monitoring conducted in compliance with Provision C.8.f. Includes Program share of annual regional $100,000 augmentation of RMP Emerging Contaminants Monitoring Strategy applied during MRP 3.0. Table 2.1 also presents budgets for similar monitoring conducted pursuant to Provisions C.11/C.12, for which data were included in Provision C.8 monitoring reports. However, the budgets associated with Provision C.11/C.12 are excluded from Table 2.1 totals.

- Pesticides and Toxicity Monitoring – Preparation, coordination, management and implementation of pesticides and toxicity monitoring conducted in compliance with Provision C.8.g.

- Data Management & QA/QC – Coordination and implementation of the SCVURPPP Water Quality Monitoring Data Management and Quality Assurance Program, which implements all aspect of data management and quality assurance procedures required by Provision C.8.b, and consistent with approved Standard Operating Procedures (SOPs) and Quality Assurance Project Plans (QAPPs).

- Reporting – Analysis, interpretation and reporting of all data collected pursuant to Provision C.8 and documented in compliance with Provision C.8.h.

- NPDES Surcharge: SWAMP – Monetary contributions provided by Co-permittees to the State of California as part of the SWAMP surcharge issued to Co-permittees as part of their annual NDPES fee.

Table 2.1. SCVURPPP water quality monitoring budget summary for implementing MRP 2.0 and 3.0 monitoring provisions during Fiscal Years 2019-20 through 2025-26, covering Water Years 2020 - 2025.

MRP Version/ Subprovision	Subprovision Title	MRP 2.0			MRP 3.0[a]			
		FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26
C.8.a	Compliance Options	$83,000	$85,000	$85,000	$86,000	$90,000	$92,000	$95,000
C.8.b	Data Management & Quality Assurance/Quality Control (QA/QC)	$75,000	$79,000	$79,000	$80,000	$52,000	$93,000	$90,000
C.8.c	San Francisco Bay Estuary Receiving Water Monitoring (RMP) [b]	$248,000	$255,000	$255,000	$262,000	$278,000	$286,000	$294,000
C.8.d (MRP 2.0)	Creek Status Monitoring	$273,000	$280,000	$280,000	--	--	--	--
C.8.e (MRP 2.0)	Stressor/Source Identification (SSID)	$79,000	$55,000	$0	--	--	--	--
C.8.d (MRP 3.0)	Low Impact Development (LID) Monitoring	--	--	--	$70,000	$441,000	$398,000	$361,000
C.8.e (MRP 3.0)	Trash Outfall Monitoring	--	--	--	$205,000	$205,000	$182,000	$187,000
C.8.e (MRP 3.0)	Trash Receiving Water Monitoring (Watching Our Watersheds project) [c]	--	--	--	--	*$115,000*	*$206,000*	*$143,000*
C.8.f	Pollutants of Concern (POC) Monitoring [d]	$183,000	$150,000	$150,000	$201,000	$208,000	$251,000	$184,000
C.11/C.12 in support of C.8.f	*PCBs and Mercury Load Reduction Monitoring Tasks*	*$0*	*$0*	*$0*	*$0*	*$0*	*$80,000*	*$0*
C.11/C.12 in support of C.8.f	*PCBs Special Study (EPA Grant Funds)*	--	--	--	--	--	--	*$350,000*
C.8.g	Pesticides and Toxicity Monitoring	$16,000	$17,000	$17,000	$19,000	$50,000	$56,000	$58,000
C.8.h	Reporting [e]	$75,000	$58,000	$58,000	$111,000	$142,000	$161,000	$198,000
NA	NPDES Surcharge - Surface Water Ambient Monitoring Program	$53,000	$53,000	$53,000	$53,000	$53,000	$53,000	$53,000
Total C.8 Budget [f]	**(with WOW grant project funding)**	**$1,085,000**	**$1,031,000**	**$976,000**	**$1,086,000**	**$1,633,000**	**$1,779,000**	**$1,664,000**
Total C.8 Budget [f]	**(without WOW grant project funding)**	**$1,085,000**	**$1,031,000**	**$976,000**	**$1,086,000**	**$1,518,000**	**$1,573,000**	**$1,521,000**

Notes:
Values are rounded to the nearest thousand. Totals are calculated from unrounded values and may not sum exactly.
[a] MRP 3.0 began to take effect July 1, 2022, at the start of FY 2022-23
[b] Includes required monetary contributions to the RMP Core Program.
[c] Watching our Watershed (WOW) EPA grant program.
[d] Includes Program share (i.e., $34,000/year) of regional $100,000 augmentation of RMP Emerging Contaminants Monitoring Strategy applied during MRP 3.0.
[e] Includes Electronic Data submittal, Urban Creeks Monitoring Reports, Comprehensive Bioassessment Final Report and Integrated Monitoring Report.
[f] Does not include C.11/C.12 budgets in support of C.8.f.

Figure 2.1 presents the distribution of budgets among the MRP 3.0 monitoring programs for FY 2024-25 (inclusive of WOW grant funding), which is considered a representative ("typical") MRP 3.0 monitoring year. This fiscal year follows the MRP 3.0 planning phase, during which the new LID and trash monitoring programs were being developed, and excludes the current FY 2025-26, which has higher than average reporting costs associated with preparation of this IMR.

As shown in Figure 2.1, the largest share of the monitoring budget was allocated to Provision C.8.d LID monitoring (23%). Trash monitoring accounted for 22% of the total budget, 53% of which was funded through the WOW EPA Grant (Table 2.1). Provision C.8.f POC monitoring comprised 14% of the overall budget.

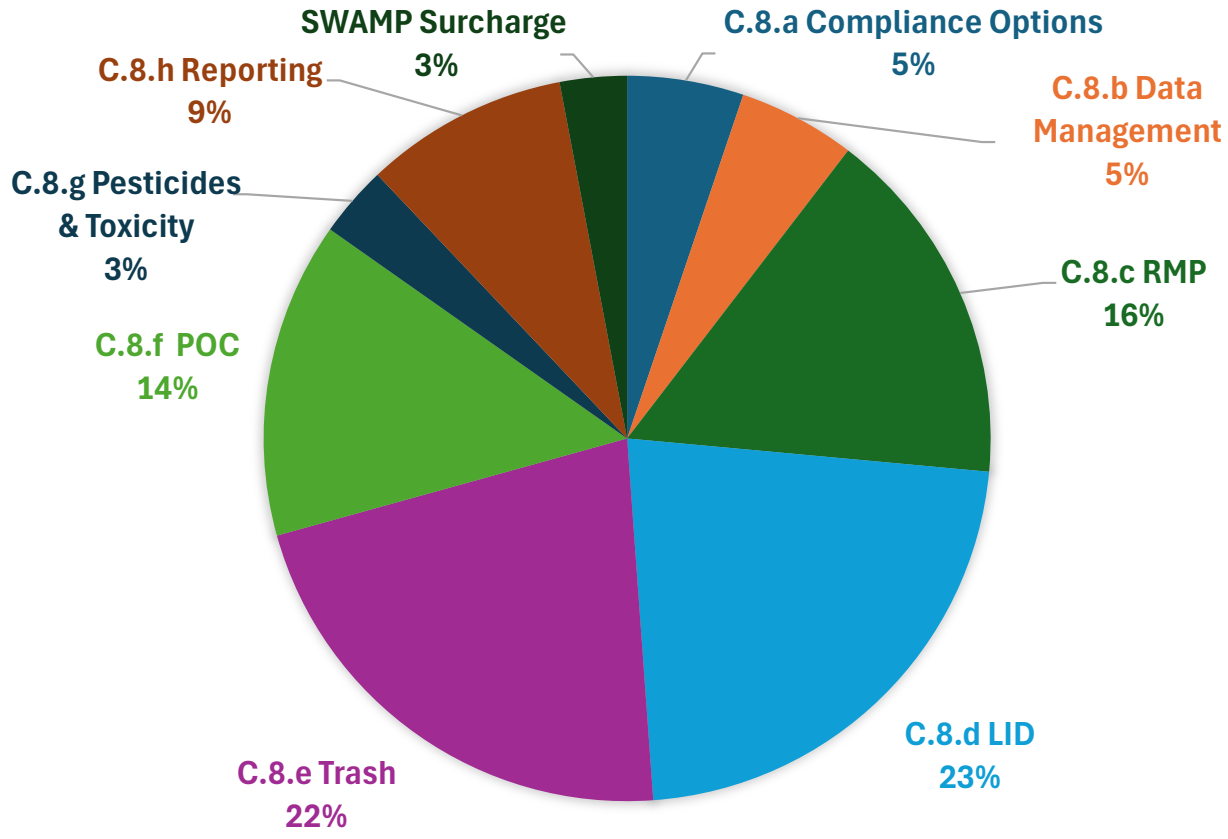

Figure 2.1. Budget distribution by MRP 3.0 monitoring provision for FY 2024-25 (a representative year with no major planning efforts and no IMR development).

Examining costs over time is an important step in evaluating monitoring program cost-effectiveness. Figure 2.2 summarizes monitoring costs for FY 2019–20 through FY 2025–26. To support comparison across years, all costs have been normalized to 2025 dollars. The figure illustrates changes in monitoring budgets associated with the transition from MRP 2.0 to MRP 3.0, which began in earnest in FY 2023–24 following the FY 2022–23 planning period.

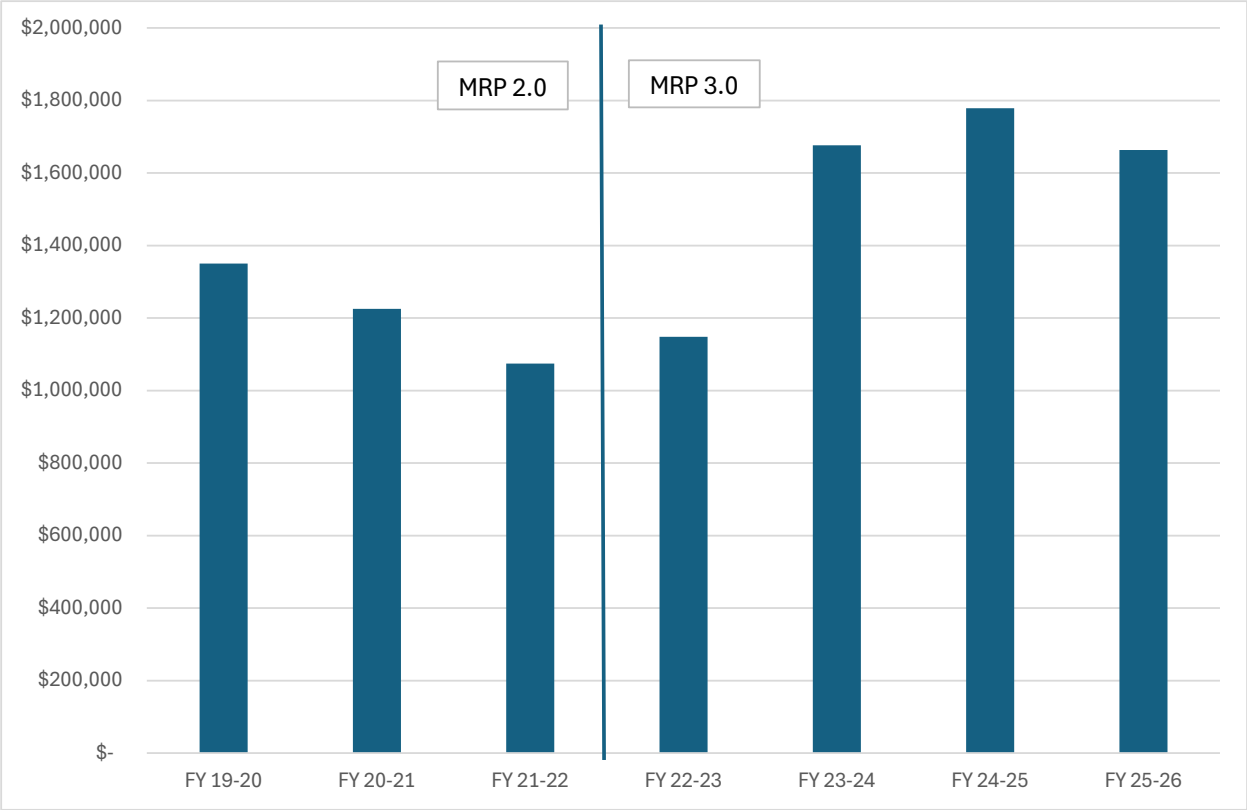

Figure 2.2. Total Provision C.8 monitoring budgets by fiscal year (2025 dollars).
MRP 3.0 became effective in FY 2022-23, which was used as a planning year for new trash and LID monitoring provisions.

3.0 COSTS AND BENEFITS OF MRP-REQUIRED WATER QUALITY MONITORING

The Program's water quality monitoring program generates data designed to address the core management questions identified in MRP 2.0 and 3.0. In many cases, these management questions are further refined into scientific monitoring questions that inform the development and implementation of appropriate monitoring designs.

This section presents a qualitative cost-benefit evaluation of the water quality monitoring programs implemented by SCVURPPP to comply with Provision C.8 of MRP 3.0. The evaluation assesses the extent to which the monitoring data collected enable SCVURPPP to address the associated management and monitoring questions.

The results of the evaluation are summarized in Table 3.1 and were used to inform the Program's recommendations for water quality monitoring under MRP 4.0, the next iteration of the MRP. Recommendations for MRP 4.0 monitoring are described in IMR Parts A (LID Monitoring), B1 (Trash Outfall Monitoring), B2 (Trash Receiving Water Monitoring), C (Pesticides and Toxicity Monitoring), and D (Pollutants of Concern Monitoring), and are summarized in the IMR Executive Summary.

Table 3.1. Qualitative cost-benefit evaluation of MRP 3.0 Provision C.8 water quality monitoring.

MRP 3.0 Subprovision		Relative Costs of Implementing ($ - $$$$) [a]	Relative Benefit Towards Answering Core Management Questions (★-★★★★)	Evaluation Summary
C.8.a	Compliance Options	$$	★★★	This component includes participation in BAMSC MPC Subcommittee and RMC, monitoring program planning, management, and oversight. Coordination on a regional level is useful for both planning, information sharing and ensuring efficiency and thoroughness.
C.8.b	Data Management & QA/QC	$$	★★★★	Proper QA/QC is critical for ensuring the data collected are trustworthy and representative of actual conditions.
C.8.c	San Francisco Bay Estuary Receiving Water Monitoring (RMP)	$$$$	★★★	Contributions to the RMP have provided useful information on the status and trends of water quality in the Bay and provided supplemental information to help SCVURPPP continue to identify and refine PCBs and mercury source areas for management actions. Attempts to focus RMP-led monitoring on high priority issues remains an on-going challenge due to competing interests and information needs. Overall, the RMP provides useful information to track water quality conditions in the Bay and helps inform broad-scale management and policy directions based on science, but at a relatively high cost.
C.8.d	Low Impact Development (LID) Monitoring	$$$$	★★★	At 23% of the total monitoring budget in FY 24–25, LID monitoring is the most resource-intensive Provision C.8 element. LID monitoring useful information confirming the effectiveness of LID (e.g., bioretention) facilities for stormwater treatment (Management Question #1). However, site modifications required to support monitoring limit the Program's ability to evaluate minimum operations and maintenance needs (Management Question #2), which are more directly informed through MRP Provision C.21 (Asset Management). While interest in long-term performance trends at targeted facilities supports continued LID monitoring, the relatively high costs indicate that refinements to the monitoring approach and Management Questions are needed to improve cost-effectiveness under MRP 4.0.
C.8.e	Trash Outfall Monitoring	$$	★★★	At 10% of the total monitoring budget in FY 24-25, Trash Outfall Monitoring has provided regionally consistent data to address MRP 3.0 Management Questions related to the effectiveness of trash control measures in MS4 catchments controlled to low trash generation levels. Early results indicate generally low trash loading rates at monitored outfalls, supporting conclusions that existing trash management actions are largely effective. However, the monitoring approach is resource-intensive and subject to logistical constraints, including equipment failure, vandalism, and limited site suitability. Recommendations for MRP 4.0 include refining storm selection criteria, reducing or eliminating trash characterization, and increasing flexibility in monitoring requirements to improve cost-effectiveness.
C.8.e	Trash Receiving Water Monitoring	$$$	★	Trash receiving water (RW) monitoring was implemented as a regionwide pilot study under MRP 3.0 and is funded almost entirely through the WOW project grant. If funded by SCVURPPP, this monitoring would account for approximately 12% of the total monitoring budget. The program was designed to address Management Question #2 by evaluating whether trash discharges from areas controlled to low trash generation levels contribute to adverse receiving water impacts. While the first year of monitoring produced scientifically robust data and demonstrated trash loading rates below the low trash generation threshold, the results have limited utility for directly informing management decisions or distinguishing the effectiveness of individual trash control measures. Given the high resource demands, reliance on external (and unreliable) grant funding, and limited ability to meaningfully answer the Management Questions, the pilot has met its intended objectives and continuation of Trash RW monitoring under MRP 4.0 is not recommended.
C.8.f	Pollutants of Concern (POC) Monitoring	$$$	★★★	Monitoring conducted under provision C.8.f provides valuable data on potential sources of POCs, supporting prioritization of areas for ongoing source property identification and other PCBs and mercury controls. The Receiving Water Limitations (RWL) monitoring component provided a regionally consistent dataset for comparisons with applicable water quality standards, and direct contributions to the RMPs Emerging Contaminants (ECs) Strategy represent an efficient mechanism for addressing this complex suite of ECs. Although POC monitoring has relatively high costs, the data collected address multiple core management questions and informed management actions. The PCBs Special Studies EPA grant, while primarily supporting provision C.11/12 objectives, also contributed to meeting provision C.8.f minimum monitoring requirements during MRP 3.0; however, future availability of grant funding is uncertain. Accordingly, the Program recommends continuing POC monitoring under MRP 4.0 with targeted refinements to improve cost-effectiveness and emphasize source identification, regional coordination, and efficient use of third-party and regional monitoring programs.
C.8.g	Pesticides and Toxicity Monitoring	$	★★	There were relatively low costs expended by the Program for Pesticides and Toxicity Monitoring during MRP 3.0. Data collected via the statewide SPoT program provide important information on pesticide and toxicity trends in stream sediments and help supplement key data needs. While the relatively low costs are favorable, the moderate management benefits indicate that refinements are needed to improve the cost-effectiveness of monitoring under provision C.8.g in MRP 4.0. A statewide effort to develop an Urban Pesticide Coordinated Monitoring Program is currently underway, and the Program is actively participating in this process. For SCVURPPP, the goal is to stabilize costs for pesticides and toxicity monitoring, while enhancing coordination of data collection efforts statewide with the California Department of Pesticide Regulation (DPR) to fill critical information gaps that will improve the regulation of pesticides that effect stormwater quality.
NA	NPDES Surcharge - Surface Water Ambient Monitoring Program	$	★	From a local program perspective, the NPDES SWAMP surcharge represented a relatively small portion of the overall monitoring budget; however, the benefits to local stormwater programs and managers were not readily apparent.

[a] Qualitative cost categories were based on the relative percentage of total costs for each major monitoring component shown above. Cost categories were defined as: $ = <5%, $$ = 5 - 10%; $$$ = 10 - 15%; $$$$ = >15% based on FY 2024-25 budgets, which represent a representative year of MRP 3.0 monitoring (i.e., no major planning efforts, and no IMR development).

4.0 CONCLUSIONS

Based on the budget review and qualitative cost-benefit evaluation, the following conclusions can be drawn:

- **Monitoring costs increased substantially from MRP 2.0 to MRP 3.0** and now represent a larger proportion of the overall Program budget funded by Permittees (Figure 2.2). As a result, fewer Program/Permittee resources are available for implementation of control measures that directly reduce pollutant impacts, highlighting the importance of ensuring that monitoring investments are well aligned with management value.
- **Reliance on external grant funding introduces long-term uncertainty for certain monitoring elements.** Trash receiving water monitoring is currently supported through USEPA grant funding that will not extend into MRP 4.0. While grants provide valuable opportunities to pilot new monitoring approaches, they are inherently unstable and subject to shifting federal/state priorities. Accordingly, grant funding is best suited for short-term or pilot efforts and should not be relied upon to support ongoing NPDES compliance monitoring. Further, trash receiving water monitoring has limited ability to directly inform management decisions.
- **The Provision C.8 monitoring program includes multiple focus areas with differing cost profiles.** As shown in Figure 2.1, LID monitoring is the most resource-intensive component, accounting for approximately 23% of the total monitoring budget. While evaluating the ongoing effectiveness of LID facilities across pollutant types is important, the LID monitoring program should be refined to improve cost efficiency and acknowledge other MRP provisions with similar goals (e.g., Provision C.21, Asset Management).

IMR Parts A (LID Monitoring), B1 (Trash Outfall Monitoring), B2 (Trash Receiving Water Monitoring), C (Pesticides and Toxicity Monitoring), and D (Pollutants of Concern Monitoring) recommend specific refinements for MRP 4.0 to better align monitoring questions with decision needs, while strategically reducing monitoring elements that provide limited additional management value.

5.0 REFERENCES

SCVURPPP (Santa Clara Valley Urban Runoff Pollution Prevention Program). 2020. Integrated Monitoring Report. Water Year 2014 through Water Year 2019. March 31, 2020.

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