

# Watershed Monitoring and Assessment Program



## Urban Creeks Monitoring Report Part D: Pollutants of Concern Monitoring Report *Water Year 2024 (October 2023 – September 2024)*

Submitted in compliance with provision C.8.h.iv of NPDES Permit No. CAS612008,  
Order No. R2-2022-0018

**March 31, 2025**

**This report is submitted by the agencies participating in the**



City of Campbell  
City of Cupertino  
City of Los Altos  
Town of Los Altos Hills  
Town of Los Gatos

City of Milpitas  
City of Monte Sereno  
City of Mountain View  
City of Palo Alto  
City of San José

City of Santa Clara  
City of Saratoga  
City of Sunnyvale  
County of Santa Clara  
Valley Water

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Appendix A Letter describing approach to emerging contaminant monitoring

## List of Acronyms

BAMSC	Bay Area Municipal Stormwater Collaborative
BASMAA	Bay Area Stormwater Management Agency Association
BMP	Best Management Practice
CEC	Constituents of Emerging Concern
CEDEN	California Environmental Data Exchange Network
CW4CB	Clean Watersheds for a Clean Bay
DQO	Data Quality Objectives
EDD	Electronic Data Deliverable
ECWG	Emerging Contaminants Workgroup
FIB	Fecal Indicator Bacteria
Hg	Mercury
HgT	Total Mercury
IMR	Integrated Monitoring Report
MQO	Measurement Quality Objective
MRP	Municipal Regional Permit
MS4	Municipal Separate Storm Sewer System
ND	Non-detect
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
PAHs	polycyclic aromatic hydrocarbons
PCBs	Polychlorinated Biphenyls
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
POC	Pollutant of Concern
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RMC	Regional Monitoring Coalition
RMP	Regional Monitoring Program for Water Quality in San Francisco Bay
ROW	Right-of-Way
RWL	Receiving Water Limitations
SAP	Sampling and Analysis Plan
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SFEI	San Francisco Estuary Institute
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SPLWG	Sources, Pathways, and Loadings Workgroup
SPoT	Statewide Stream Pollutant Trend Monitoring
SSC	Suspended Sediment Concentration
STLS	Small Tributary Loading Strategy
SWAMP	Surface Water Ambient Monitoring Program
TOC	Total Organic Carbon
TRC	Technical Review Committee
UCMR	Urban Creeks Monitoring Report
USEPA	United States Environmental Protection Agency
WDM	Watershed Dynamic Model
WMA	Watershed Management Area
WQIF	Water Quality Improvement Fund
WQO	Water Quality Objective
WY	Water Year

# 1. INTRODUCTION

This *Urban Creeks Monitoring Report (UCMR) Part D: Pollutants of Concern Monitoring Report, Water Year 2024* (POC Monitoring Report) was prepared by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP or Program), on behalf of its 15 member agencies (13 cities/towns, the County of Santa Clara, and Valley Water). 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 (referred to as MRP 1.0, SFBRWQCB 2009). On November 19, 2015, the Regional Water Board updated and reissued the MRP as Order R2-2015-0049 (referred to as MRP 2.0, SFBRWQCB 2015). 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. This report fulfills the requirements of provision C.8.h.iv.(1) of MRP 3.0 for the following:

- What was accomplished for POC monitoring during the preceding water year (i.e., Water Year 2024), and
- The allocation of sampling effort for POC monitoring planned for the forthcoming year (i.e., Water Year 2025<sup>1</sup>).

In compliance with provision C.8.h.iv.(1), this report includes monitoring locations, number and types of samples collected, purpose of sampling (i.e., management questions addressed), and analytes measured. This report builds on the interpretation and reporting on POC monitoring data that was provided in the March 2020 Integrated Monitoring Report (IMR) (SCVURPPP 2020) and the Water Years 2020 through 2023 UCMRs (SCVURPPP 2021, 2022, 2023, 2024a).

The data described in this report were collected in WY 2024 pursuant to water quality monitoring requirements in provision C.8.f of the MRP.<sup>2</sup> Monitoring data presented in this report were submitted electronically to the Regional Water Board by SCVURPPP. Data collected in receiving waters (i.e., creeks) by SCVURPPP were submitted for upload to the California Environmental Data Exchange Network (CEDEN).

## 1.1. Report Organization

This report is organized into the following sections:

- **Section 1.0** provides the relevant background information and regulatory requirements for POC monitoring pursuant to the MRP.

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<sup>1</sup> Most hydrologic monitoring occurs for a period defined as a water year, which begins on October 1 and ends on September 30 of the named year. For example, water year 2024 (WY 2024) began on October 1, 2023, and concluded on September 30, 2024.

<sup>2</sup> Monitoring data collected pursuant to other C.8 provisions (e.g., Low Impact Development Monitoring, Pesticides & Toxicity Monitoring, and Trash Monitoring) are reported in other Parts of the SCVURPPP Urban Creeks Monitoring Reporting series (UCMR) for WY 2024.

- **Section 2.0** presents the results of POC monitoring conducted by the Program and summarizes POC monitoring conducted by other groups in the Santa Clara Valley in WY 2024.
- **Section 3.0** describes the anticipated allocation of sampling effort for POC monitoring in WY 2025.
- **Section 4.0** provides all the references cited within the report.

## 1.2. POC Monitoring Requirements

MRP 3.0 provision C.8.f requires water quality monitoring for POCs, including polychlorinated biphenyls (PCBs), mercury, copper, and emerging contaminants. Permittees may comply with the monitoring requirements of provision C.8 through a regional collaborative effort, their Stormwater Program, third-party monitoring, or a combination of these mechanisms. POC monitoring must address the six priority management information needs (i.e., Management Questions) identified in provision C.8.f:

1. **Source Identification** – identifying or confirming which sources or watershed source areas provide the greatest opportunities for reductions of POCs in urban stormwater runoff.
2. **Contributions to Bay Impairment** – identifying which watershed source areas contribute most to the impairment of San Francisco Bay beneficial uses (due to source intensity and sensitivity of discharge location).
3. **Management Action Effectiveness** – evaluating the effectiveness or impacts of existing management actions, including compliance with Total Maximum Daily Loads (TMDLs) and other POC requirements and providing support for planning future management actions.
4. **Loads and Status** – providing information on POC loads, concentrations or presence in local tributaries or urban stormwater discharges.
5. **Trends** – evaluating trends in POC loading to the Bay and POC concentrations in urban stormwater discharges or local tributaries over time.
6. **Compliance with Receiving Water Limitations** - providing information to assess whether receiving water limitations (RWLs) are achieved.

POC monitoring is conducted on a water year basis (i.e., October 1 through September 30). Provision C.8.f specifies yearly (i.e., WY) and total (i.e., permit term) minimum numbers of samples for each POC. For example, in Santa Clara County, MRP 3.0 requires that a minimum total of 75 PCBs samples be collected and analyzed during the permit term, and at least eight PCBs samples be collected each year. The MRP also specifies the minimum number of samples for each POC that must address each Management Question. For example, by the end of the permit term, Management Questions 1 through 3 must be addressed with at least eight PCBs samples each, and Management Questions 4 and 5 must be addressed with at least 16 PCBs samples each. It is possible that a single sample can address more than one Management Question; however, no more than 25 percent of samples collected for POC monitoring may be used to satisfy requirements for multiple Management Questions.

Table 1.1 summarizes the POC monitoring requirements for Santa Clara Valley Permittees (SFBRWQCB 2022).

Table 1.1. MRP provision C.8.f pollutants of concern monitoring requirements for SCVURPPP Co-permittees.

Pollutant of Concern	Total Samples <sup>b</sup>	Yearly Minimum	Minimum # of Samples that Must be Collected for Each Management Question by the End of the Permit Term <sup>a</sup>					
			1. Source Identification	2. Contributions to Bay Impairment	3. Management Action Effectiveness	4. Loads and Status	5. Trends	6. Receiving Water Limitations
PCBs	75	8	8	8	8	16	16	--
Total Mercury	60	8	8	8	8	8	8	--
Copper	5	--	--	--	--	5	--	-- <sup>f</sup>
Emerging Contaminants <sup>c</sup>	25	--	--	--	--	25	--	--
Ancillary Parameters <sup>d</sup>	--	--	--	--	--	--	--	--
RWLs Assessment (Cu, Zn, FIB, others <sup>e</sup> )	5 (4 wet season; 1 dry season)	--	--	--	--	--	--	5

Source: SFBRWQCB 2022

Notes:

Cu = copper, FIB = fecal indicator bacteria, PCBs = polychlorinated biphenyls, RWLs = receiving water limitations, Zn = zinc

<sup>a</sup> Individual samples can address more than one Management Question simultaneously, up to 25% of total number of samples.

<sup>b</sup> The MRP minimum number of samples must be met by the end of the five-year permit term (i.e., 2027).

<sup>c</sup> The emerging contaminants level of effort described in the MRP can be satisfied through augmentation of the San Francisco Bay Regional Monitoring Program Emerging Contaminants Monitoring Strategy in the amount of \$100,000 per year for all Permittees combined.

<sup>d</sup> Total Organic Carbon (TOC) should be collected concurrently with PCBs data when normalization to TOC is deemed appropriate. Suspended sediment concentration (SSC) should be collected in water samples used to assess loads, loading trends, or Best Management Practice (BMP) effectiveness. Hardness data are used in conjunction with copper concentrations collected in fresh water.

<sup>e</sup> Additional RWL analytes are determined under provision C.8.h.iv.

<sup>f</sup> Copper is one of the required RWL analytes.

### 1.2.1. Receiving Water Limitations Monitoring

MRP 3.0 Provision C.8.f Management Question #6 (Compliance with RWLs) must be addressed with at least four samples collected during the wet season and one sample collected during the dry season. RWL analytes must include copper, zinc, fecal indicator bacteria (FIB), and any additional analytes identified based on assessment of the potential that discharges may result in receiving waters approaching or exceeding water quality objectives (WQOs). The RWL Assessment Report (i.e., RWL Monitoring Plan; BAMSC 2023) required by Provision C.8.h.iv.(2) was developed as a regional effort through the Bay Area Municipal Stormwater Collaborative<sup>3</sup> (BAMSC) Regional Monitoring Coalition (RMC) and was submitted with the WY 2022 UCMR (SCVURPPP 2023) on March 31, 2023. The RWL Assessment Report describes the regional approach to RWL monitoring, including the process used to identify the appropriate analytes to include in addition to those listed in Table 1.1, the locations of regionally representative

<sup>3</sup> The BAMSC was organized by the Bay Area Stormwater Management Agencies Association (BASMAA) Board of Directors to continue the information sharing and permittee advocacy functions of BASMAA in an informal manner after BASMAA's dissolution.

sampling sites, monitoring methods, and relevant WQOs against which to compare monitoring data. The analyte list described in the RWL Monitoring Plan includes:

- **Metals:** total mercury, dissolved copper, dissolved lead, dissolved zinc, hardness
- **Field measurements:** pH, temperature, specific conductance
- **Nutrients:** total phosphorus (sum of nitrite, nitrate, total Kjeldahl nitrogen), unionized ammonia (calculated from ammonia, pH, and temperature), total phosphorus
- **Total PCBs:** calculated as the sum of the RMP 40 congeners (PCB-8, PCB-18, PCB-28, PCB-31, PCB-33, PCB-44, PCB-49, PCB-52, PCB-56, PCB-60, PCB-66, PCB-70, PCB-74, PCB-87, PCB-95, PCB-97, PCB-99, PCB-101, PCB-105, PCB-110, PCB-118, PCB-128, PCB-132, PCB-138, PCB-141, PCB-149, PCB-151, PCB-153, PCB-156, PCB-158, PCB-170, PCB-174, PCB-177, PCB-180, PCB-183, PCB-187, PCB-194, PCB-195, PCB-201, PCB-203).<sup>4</sup>

On June 12, 2023, the Regional Water Board Executive Officer issued a letter of Conditional Approval of the RWL Assessment Report (Conditional Approval Letter). The Conditional Approval Letter stated that approval of the RWL Assessment Report is subject to two conditions: inclusion of polycyclic aromatic hydrocarbons (PAHs) in the analyte list, and demonstration of the representativeness of the selected monitoring locations. To address the first condition, participating BAMSC RMC members augmented the analyte list to include PAHs. To address the second condition, MRP Permittees identified and characterized watersheds in Alameda, Contra Costa, San Mateo, and Santa Clara counties that drain to San Francisco Bay and compared them to the selected monitoring locations. The results of the representativeness analysis were described in the RWL Assessment Report Addendum that was included in the WY 2023 UCMR (SCVURPPP 2024a).

### 1.2.2. Emerging Contaminants

Emerging contaminants are a diverse group of chemicals and compounds, broadly defined as synthetic or naturally occurring chemicals that are not regulated or commonly monitored in the environment but have the potential to enter the environment and cause adverse ecological or human health impacts. The MRP allows for Permittees to satisfy the emerging contaminant monitoring requirements through augmentation of the San Francisco Bay Regional Monitoring Program (RMP) Emerging Contaminants Monitoring Strategy in the amount of \$100,000 per year for all Permittees combined. SCVURPPP and its RMC partners have elected to exercise this option and are working through the RMP to identify analytes and monitoring strategies to implement. A letter describing this commitment and the approach to developing and implementing a regional emerging contaminant stormwater monitoring strategy through the RMP is included in **Appendix A**. SCVURPPP also continues to participate in the RMP's Emerging Contaminant Work Group (ECWG).

### 1.3. Third-Party Monitoring

The Program strives to work collaboratively with water quality monitoring partners to develop mutually beneficial monitoring approaches. Provision C.8.a.iii of the MRP allows Permittees to

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<sup>4</sup> Sediment and stormwater samples use ½ the method detection limit (MDL) for the respective RMP 40 PCB congener as the numeric value for sums for samples that are non-detect. LID and RWL samples use zero as the value for non-detected congeners.

use data collected by third-party organizations to fulfill monitoring requirements, provided the data are demonstrated to meet the required data quality objectives. For example, samples collected in Santa Clara County through the RMP and the State of California's Surface Water Ambient Monitoring Program (SWAMP) Stream Pollution Trend (SPoT) Program may supplement the Program's efforts towards achieving provision C.8.f monitoring requirements. Third party monitoring conducted by the RMP and SPoT monitoring program also provide context for reviewing and interpreting SCVURPPP monitoring results. Third-party monitoring conducted or planned by the RMP and SPoT are briefly summarized in this report.

## 2. WY 2024 POC MONITORING IN THE SANTA CLARA VALLEY

In compliance with provision C.8.f of the MRP, the Program conducted POC monitoring in WY 2024 for PCBs, mercury, and copper. The MRP-required yearly minimum number of eight samples was met for all POCs with this requirement (i.e., PCBs and mercury). The total number of samples collected for each POC in WY 2024, the agency conducting the monitoring, and the Management Questions addressed are listed in Table 2.1 (PCBs), Table 2.2 (mercury), and Table 2.3 (copper). These tables also show the progress to date to achieve the minimum number of samples required for each Management Question over the permit term as shown in Table 1.1. The general sample locations are shown in Figure 2.1. The minimum number of PCBs and mercury samples required to address Management Questions #1 (Source Identification), 2 (Contributions to Bay Impairment), and #3 (Management Action Effectiveness) has been achieved. The minimum number of copper samples required to address Management Question #4 (Loads and Status) has also been achieved. Progress was also made towards meeting the PCBs and mercury sampling requirements for Management Question #4 (Loads and Status) and Management Question #5 (Trends). In addition, progress was made towards meeting Management Question #6 (RWL Monitoring) requirements, which includes a large suite of analytical constituents.

Table 2.1. PCBs Monitoring Accomplishments by SCVURPPP and Third Parties, WY 2022 through 2024.

Organization	Matrix	Total Number of PCBs Samples	Management Question <sup>a</sup>					Comments
			1. Source Identification	2. Contributions to Bay Impairment	3. Management Action Effectiveness	4. Loads and Status	5. Trends	
WY 2024								
SCVURPPP	Urban Sediment	43	43	--	--	--	--	Urban sediment collected from the MS4.
	MS4 Stormwater	12	--	--	10	2	--	Stormwater outfalls and/or manhole immediately upstream of outfalls, LID influent and/or treated effluent.
	Receiving Water	4	--	--	--	--	4	RWL monitoring samples from Saratoga Creek.
RMP	Receiving Water	2	--	--	--	--	2	Long term monitoring samples from Guadalupe River.
WY 2023 <sup>b</sup>								
SCVURPPP	Urban Sediment	18	10	8	--	--	--	Urban sediment collected from MS4 infrastructure.
	MS4 Stormwater	5	--	--	--	5	--	Stormwater outfalls and/or manhole immediately upstream of outfalls
SPoT	Waterbody Sediment	2	--	--	--	--	2	Long term monitoring samples from Guadalupe River and Coyote Creek
RMP	Receiving Water	2	--	--	--	--	2	Long term monitoring samples from Guadalupe River.
WY 2022 <sup>b</sup>								
SCVURPPP	Sediment	8	8	--	--	--	--	Urban sediment collected from the MS4.
<b>Total PCB Samples per Management Question in MRP 3.0</b>		--	<b>61</b>	<b>8</b>	<b>10</b>	<b>7</b>	<b>10</b>	
<b>Minimum PCB Samples per Management Question in MRP 3.0<sup>c</sup></b>		--	<b>8</b>	<b>8</b>	<b>8</b>	<b>16</b>	<b>16</b>	

Notes:

LID = Low Impact Development.

MS4 = Municipal Separate Storm Sewer System

<sup>a</sup> Individual samples can address more than one Management Question simultaneously, up to 25% of the total number of samples.

<sup>b</sup> See the WY 2022 and WY 2023 SCVURPPP UCMR, respectively, for additional details (SCVURPPP 2023, SCVURPPP 2024a).

<sup>c</sup> The MRP minimum number of samples must be met by the end of the five-year permit term (i.e., 2027).

Table 2.2. Mercury Monitoring Accomplishments by SCVURPPP and Third Parties, WY 2022 through 2024.

Organization	Matrix	Total Number of Mercury Samples	Management Question <sup>a</sup>					Comments
			1. Source Identification	2. Contributions to Bay Impairment	3. Management Action Effectiveness	4. Loads and Status	5. Trends	
WY 2024								
SCVURPPP	Urban Sediment	43	43	--	--	--	--	Urban sediment collected from the MS4.
	MS4 Stormwater	12	--	--	10	2	--	Stormwater outfalls and/or manhole immediately upstream of outfalls, LID influent and/or treated effluent.
	Receiving Water	4	--	--	--	--	4	RWL monitoring samples from Saratoga Creek.
RMP	Receiving Water	--	--	--	--	--	2	Long term monitoring samples from Guadalupe River.
WY 2023 <sup>b</sup>								
SCVURPPP	Urban Sediment	18	10	8	--	--	--	Urban sediment collected from MS4 infrastructure.
	MS4 Stormwater	5	--	--	--	5	--	Stormwater outfalls and/or manhole immediately upstream of outfalls
WY 2022 <sup>b</sup>								
SCVURPPP	Sediment	8	8	--	--	--	--	Urban sediment collected from the MS4.
<b>Total Mercury Samples per Management Question in MRP 3.0</b>		--	<b>61</b>	<b>8</b>	<b>10</b>	<b>7</b>	<b>6</b>	
<b>Minimum Mercury Samples per Management Question in MRP 3.0</b>		--	<b>8</b>	<b>8</b>	<b>8</b>	<b>16</b>	<b>16</b>	

Notes:

LID = Low Impact Development.

NA = Not Applicable.

<sup>a</sup> Individual samples can address more than one Management Question simultaneously, up to 25% of the total number of samples.

<sup>b</sup> See the WY 2022 and WY 2023 SCVURPPP UCMR, respectively, for additional details regarding specific samples (SCVURPPP 2023, SCVURPPP 2024a).

<sup>c</sup> The MRP minimum number of samples must be met by the end of the five-year permit term (i.e., 2027).

Table 2.3. Copper Monitoring Accomplishments by SCVURPPP and Third Parties, WY 2022 through 2024.

Organization	Matrix	Total Number of Copper Samples	Management Question <sup>a</sup>					Comments
			1. Source Identification	2. Contributions to Bay Impairment	3. Management Action Effectiveness	4. Loads and Status	5. Trends	
WY 2024								
SCVURPPP	MS4 Stormwater	5	--	--	--	5	--	Treated LID effluent.
	Receiving Water	4	--	--	--	--	4	RWL monitoring samples from Saratoga Creek.
SPoT	Waterbody Sediment	2	--	--	--	--	2	Long term monitoring samples from Guadalupe River.
<b>Total Copper Samples per Management Question in MRP 3.0</b>		--	--	--	--	<b>5</b>	<b>6</b>	
<b>Minimum Copper Samples per Management Question in MRP 3.0<sup>b</sup></b>		--	--	--	--	<b>5</b>	--	

Notes:

NA = Not Applicable.

LID = Low Impact Development.

MS4 = Municipal Separate Storm Sewer System

<sup>a</sup> Individual samples can address more than one Management Question simultaneously, up to 25% of the total number of samples.

<sup>b</sup> The MRP minimum number of samples must be met by the end of the five-year permit term (i.e., 2027).

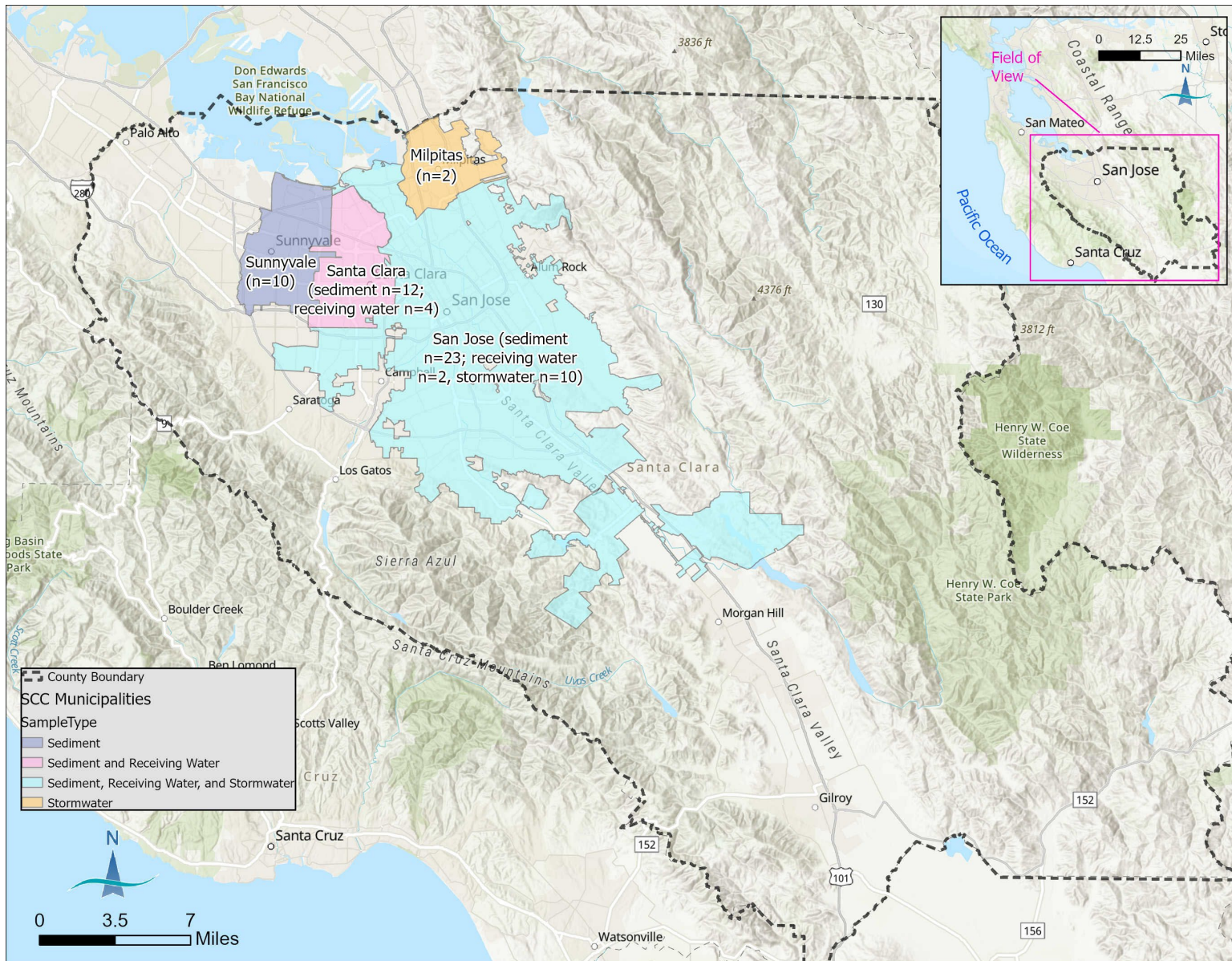


Figure 2.1. General locations of POC monitoring stations in Santa Clara County sampled, WY 2024.

## 2.1. SCVURPPP Water Year 2024 Results

During WY 2024, the Program collected urban sediment and stormwater samples from the municipal separate storm sewer system (MS4). The Program also collected receiving water samples and influent and treated effluent samples from a LID facility. Depending on the sample type and matrix, samples were collected and analyzed in accordance with one or more of the following monitoring plans and Quality Assurance Project Plans (QAPPs):

- Monitoring Plans:
  - Water Year 2016 Pollutant of Concern Monitoring - Sampling and Analysis Plan (SAP; SCVURPPP 2015).
  - BASMAA Standard Operating Procedures (SOPs; BASMAA 2016)
  - Low Impact Development (LID) Monitoring Plan for the Santa Clara Valley During MRP 3.0 (SCVURPPP 2024b); and
  - Receiving Water Limitations Assessment Report - Receiving Water Limitations Monitoring Plan (BAMSC 2023).
- QAPPs:
  - BASMAA Clean Watersheds for a Clean Bay (CW4CB) QAPP (modified for differing analytical methods (BASMAA 2013);
  - BASMAA RMC QAPP (BASMAA 2020); and
  - LID Monitoring QAPP (BAMSC 2024).

The sections below present the data results of POC monitoring conducted by the Program in WY 2024, organized by the Management Question addressed.

### 2.1.1. Management Question 1: Source Identification

As in previous years, one of the primary goals of PCBs and mercury monitoring conducted by SCVURPPP in WY 2024 was to inform identification of source areas where control measures could be implemented to comply with MRP requirements for load reductions of PCBs and mercury. In WY 2024, individual and composite sediment samples (n=43) were collected from streets, gutters, storm drain inlets, and other MS4 structures (i.e., MS4 sediment samples) to inform Management Question #1 (Source Area Identification). Sediment samples were analyzed for PCB congeners (method SGS AXYS MLA-908 Rev 01)<sup>5</sup> at SGS AXYS Analytical Services Ltd. of Sidney, British Columbia, Canada, and for total mercury (method EPA 7471A) and total solids<sup>6</sup> (method SM 2540) at Eurofins Calscience of Tustin, California.

Source identification sampling locations were identified by evaluating several types of data, including municipal storm drain infrastructure data showing pipelines and access points (e.g., manholes, outfalls, pump stations), catchment areas delineated from municipal storm drain data, land uses in the contributing area, receiving water characteristics, and logistical/safety considerations (SCVURPPP 2015).

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<sup>5</sup> Method SGS AXYS MLA-908 Rev 01 is SGS AXYS Analytical Services Ltd. in house method that conforms with EPA Method 1628 - Polychlorinated Biphenyl (PCB) Congeners in Water, Soil, Sediment, Biosolids, and Tissue by Low-resolution GC/MS using Selected Ion Monitoring (USEPA 2021).

<sup>6</sup> Samples were analyzed for total solids so that dry weight (dw) concentrations could be calculated.

Table 2.4 presents the PCBs and mercury concentrations measured in the MS4 sediment samples collected by SCVURPPP in WY 2024. The full PCBs dataset was not yet available from the analytical laboratories at the time of this report's publication. Missing data will be reported with the 2026 IMR, which will be submitted by March 31, 2026. Concentrations of total PCBs (sum of "RMP 40" congeners<sup>7</sup> calculated using ½ method detection limit (MDL) for censored, i.e., non-detect congeners) ranged from 0.01 to 1.65 mg/kg for data that was available at the time of this report's publication. Concentrations of total mercury ranged from 0.01 to 0.94 mg/kg.

In general, a sediment sample is considered highly elevated if it has a PCBs concentration over 0.5 mg/kg, and moderately elevated if it has a concentration from 0.2 to 0.5 mg/kg. Similarly for mercury, an MS4 sediment sample is considered highly elevated if it is over 1.0 mg/kg, and moderately elevated if it has a concentration from 0.3 to 1.0 mg/kg. For both PCBs and mercury, concentrations above 1 mg/kg are considered confirmation of a source. These thresholds are used by the BAMSC as approximate benchmarks for identifying areas that should be considered for future investigation. Three samples (SJ060524-05, SJ060624-19, and SJ060624-23) had a total PCBs concentration of 0.2 mg/kg and above and one sample had a total PCBs concentration over 1.0 mg/kg (SJ060524-06). Three samples had a mercury concentration above 0.3 mg/kg (SJ060624-15, SJ060624-17, SJ060624-18, and SJ060624-22).

Additional analysis of PCBs and mercury data within the context of other locally collected data to identify source areas and potential control measures will be presented in the Program's Fiscal Year 2024-2025 Mercury and PCBs Control Measures Report, which will be submitted with the Annual Report on September 30, 2025.

**Table 2.4. PCBs and mercury concentrations measured in urban sediment in Santa Clara County, WY 2024, to inform Management Question #1 (Source Identification).**

Permittee	Sample ID	Sample Date	Sample Location Type	Latitude	Longitude	Total PCBs <sup>a</sup>	Total Mercury
						(mg/kg-dw) <sup>b</sup>	
Sunnyvale	SN060424-01	06/04/2024	Drop Inlet/Catch Basin	37.415301	-122.014834	0.02	0.09
Sunnyvale	SN060424-02	06/04/2024	Manhole Vault	37.415189	-122.013791	0.02	0.16
Sunnyvale	SN060424-03	06/04/2024	Manhole Vault	37.415523	-122.015185	0.01	0.07
Sunnyvale	SN060424-04	06/04/2024	Drop Inlet/Catch Basin	37.416338	-122.014410	0.01	0.13
Sunnyvale	SN060424-05	06/04/2024	Drop Inlet/Catch Basin	37.415693	-122.013452	0.01	0.03
Sunnyvale	SN060424-07	06/04/2024	Drop Inlet/Catch Basin	37.384881	-122.013276	0.04	0.26
Sunnyvale	SN060424-08	06/04/2024	Drop Inlet/Catch Basin	37.376769	-122.012112	0.01	0.04
Sunnyvale	SN060424-09	06/04/2024	Drop Inlet/Catch Basin	37.374141	-122.008893	0.01	0.17
Sunnyvale	SN060424-10	06/04/2024	Drop Inlet/Catch Basin	37.375502	-122.015328	0.08	0.02
Sunnyvale	SN060424-11	06/04/2024	Street/curb	37.375773	-122.016640	0.08	0.01
San Jose	SJ060524-01	06/05/2024	Drop Inlet/Catch Basin	37.364943	-121.879117	0.07	0.01
San Jose	SJ060524-03	06/05/2024	Drop Inlet/Catch Basin	37.364376	-121.879576	0.05	0.01
San Jose	SJ060524-04	06/05/2024	Other	37.365384	-121.878320	0.05	0.02
San Jose	SJ060524-05	06/05/2024	Drop Inlet/Catch Basin	37.365137	-121.878903	<b>0.53</b>	0.08

<sup>7</sup> The RMP-40 PCB congeners include: PCB-8, PCB-18, PCB-28, PCB-31, PCB-33, PCB-44, PCB-49, PCB-52, PCB-56, PCB-60, PCB-66, PCB-70, PCB-74, PCB-87, PCB-95, PCB-97, PCB-99, PCB-101, PCB-105, PCB-110, PCB-118, PCB-128, PCB-132, PCB-138, PCB-141, PCB-149, PCB-151, PCB-153, PCB-156, PCB-158, PCB-170, PCB-174, PCB-177, PCB-180, PCB-183, PCB-187, PCB-194, PCB-195, PCB-201, PCB-203.

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Permittee	Sample ID	Sample Date	Sample Location Type	Latitude	Longitude	Total PCBs <sup>a</sup>	Total Mercury
						(mg/kg-dw) <sup>b</sup>	
San Jose	SJ060524-06	06/05/2024	Drop Inlet/Catch Basin	37.365750	-121.877568	<b>1.65</b>	0.06
San Jose	SJ060524-07	06/05/2024	Drop Inlet/Catch Basin	37.365950	-121.878083	0.03	0.16
San Jose	SJ060524-08	06/05/2024	Street/curb	37.365262	-121.876681	0.01	0.11
San Jose	SJ060524-09	06/05/2024	Drop Inlet/Catch Basin	37.364170	-121.877625	0.02	0.04
San Jose	SJ060524-10	06/05/2024	Street/curb	37.363892	-121.877970	0.04	0.15
San Jose	SJ060624-11	06/06/2024	Drop Inlet/Catch Basin	37.365039	-121.881031	0.02	0.11
San Jose	SJ060624-13	06/06/2024	Drop Inlet/Catch Basin	37.363934	-121.879761	0.02	0.09
San Jose	SJ060624-14	06/06/2024	Drop Inlet/Catch Basin	37.363863	-121.880473	0.07	0.15
San Jose	SJ060624-15	06/06/2024	Drop Inlet/Catch Basin	37.362974	-121.882735	0.13	<b>0.94</b>
San Jose	SJ060624-16	06/06/2024	Drop Inlet/Catch Basin	37.363599	-121.880440	0.08	0.04
San Jose	SJ060624-17	06/06/2024	Drop Inlet/Catch Basin	37.362882	-121.883486	0.03	<b>0.39</b>
San Jose	SJ060624-18	06/06/2024	Street/curb	37.367154	-121.881096	0.08	<b>0.45</b>
San Jose	SJ060624-19	06/06/2024	Street/curb	37.366862	-121.882196	<b>0.20</b>	0.25
San Jose	SJ060624-20	06/06/2024	Drop Inlet/Catch Basin	37.368873	-121.886957	0.01	0.10
San Jose	SJ060624-21	06/06/2024	Drop Inlet/Catch Basin	37.368760	-121.886825	0.03	0.14
San Jose	SJ060624-22	06/06/2024	Drop Inlet/Catch Basin	37.366947	-121.884000	0.09	<b>0.67</b>
San Jose	SJ060624-23	06/06/2024	Drop Inlet/Catch Basin	37.366840	-121.884069	<b>0.25</b>	0.21
Santa Clara	SC071024-01	07/10/2024	Drop Inlet/Catch Basin	37.367893	-121.941675	--	0.07
Santa Clara	SC071024-02	07/10/2024	Drop Inlet/Catch Basin	37.366594	-121.943924	--	0.09
Santa Clara	SC071024-03	07/10/2024	Drop Inlet/Catch Basin	37.366396	-121.941727	--	0.04
Santa Clara	SC071024-04	07/10/2024	Drop Inlet/Catch Basin	37.366543	-121.946234	--	0.13
Santa Clara	SC071024-06	07/10/2024	Street/curb	37.36638	-121.946197	--	0.15
Santa Clara	SC071024-07	07/10/2024	Drop Inlet/Catch Basin	37.366433	-121.943982	--	0.09
Santa Clara	SC071024-08	07/10/2024	Drop Inlet/Catch Basin	37.368162	-121.950171	--	0.15
Santa Clara	SC071024-09	07/10/2024	Drop Inlet/Catch Basin	37.359324	-121.944828	--	0.11
Santa Clara	SC071024-10	07/10/2024	Drop Inlet/Catch Basin	37.360712	-121.945421	--	0.12
Santa Clara	SC071024-11	07/10/2024	Drop Inlet/Catch Basin	37.369865	-121.949068	--	0.05
Santa Clara	SC071024-12	07/10/2024	Drop Inlet/Catch Basin	37.363309	-121.946697	--	0.07
Santa Clara	SC071024-13	07/10/2024	Other	37.366439	-121.945553	--	0.15

Notes

-- Data not yet available at the time of this report's publication.

**Bolded Values** indicate an exceedance of 0.2 mg/kg for total PCBs or an exceedance of 0.3 mg/kg for mercury.

<sup>a</sup> Total PCBs in source investigation samples are calculated as sum of RMP 40 congeners with non-detects (NDs) assigned a value of ½ the method detection limit (MDL).

<sup>b</sup> Samples were analyzed for total solids so that dry weight (dw) concentrations could be calculated.

### 2.1.2. Management Question 2: Contributions to Bay Impairment

In WY 2024, the Program did not collect any samples to address Management Question #2 (Contributions to Bay Impairment). The minimum number of eight samples required to address this information need was satisfied in WY 2023 (see Tables 2.1 and 2.2). These samples consisted of grab and composite samples of urban sediment collected in watershed catchments with known elevated PCB concentrations. The intent of these samples is to assess which areas within the County contribute most to Bay impairment. As described in the MRP, these data could also be used to support conceptual models or watershed loading models such as for model

calibration and validation or other information needs. In this case, the data are being used to inform land use yields in the RMP’s Watershed Dynamic Model.

### 2.1.3. Management Question 3: Management Action Effectiveness

Ten PCBs and mercury samples were collected by SCVURPPP in WY 2024 to address POC Monitoring Management Question #3 (Management Action Effectiveness), satisfying the minimum number of eight samples required to address this information need. These samples, presented in Table 2.5, were collected during five storm events from the influent and effluent of the Top Golf LID facility (TCM-6) located within the City of San José. These data will be used by the region to help assess the effectiveness of LID facilities in treating PCBs and mercury that may be entrained in stormwater runoff. Samples were analyzed for PCB congeners (method EPA 1668C) at Enthalpy Analytical of El Dorado Hills, California, and total mercury (method EPA 1631E) at Caltest Analytical Laboratory of Napa, California. LID monitoring methods, data results and interpretation of the data can be viewed in the WY 2024 LID Monitoring Report, which is submitted as Part A of the WY 2024 UCMR.

Table 2.5. POC Samples collected in Santa Clara County to address Management Question #3, WY 2024.

Permittee	Sample ID	Sample Date	Sample Location Type	Latitude	Longitude	Total PCBs <sup>a</sup> (ng/L)	Total Mercury (ug/L)
San Jose	TCM-6 Influent	01/02/2024	LID Influent	37.42423	-121.96960	0.23	0.05
San Jose	TCM-6 Effluent	01/02/2024	LID Effluent	37.42423	-121.96960	0.42	0.01
San Jose	TCM-6 Influent	02/01/2024	LID Influent	37.42423	-121.96960	1.8	0.02
San Jose	TCM-6 Effluent	02/01/2024	LID Effluent	37.42423	-121.96960	0.27	0.01
San Jose	TCM-6 Influent	02/14/2024	LID Influent	37.42423	-121.96960	3.6	0.02
San Jose	TCM-6 Effluent	02/14/2024	LID Effluent	37.42423	-121.96960	0.23	0.01
San Jose	TCM-6 Influent	03/02/2024	LID Influent	37.42423	-121.96960	2.2	0.01
San Jose	TCM-6 Effluent	03/02/2024	LID Effluent	37.42423	-121.96960	0.28	0.01
San Jose	TCM-6 Influent	03/23/2024	LID Influent	37.42423	-121.96960	1.7	0.01
San Jose	TCM-6 Effluent	03/23/2024	LID Effluent	37.42423	-121.96960	0.14	0.01

Notes:

ND = non-detect. The total mercury detection limit was 0.0005 ug/L.

<sup>a</sup> Total PCBs sums of the RMP-40 congeners in LID influent/effluent are calculated with ND assigned a value of zero.

### 2.1.4. Management Question 4: Loads and Status

Five copper samples and two PCBs and mercury samples were collected by the Program in WY 2024 to address POC Monitoring Management Question #4 (Loads and Status). Analytical results are shown in Table 2.6. The copper samples were all collected from the treated effluent of the TCM-6 LID facility. The method in which these samples were collected (i.e., a flow-weighted composite collected according to the LID monitoring plan and QAPP (SCVURPPP 2024b, BAMSC 2024)) approximates an event mean concentration (EMC) for the sampled storm event. Total and dissolved copper (method EPA 200.8), and hardness (Method SM 2340C) were analyzed at Caltest. Dissolved copper concentrations in the treated LID effluent samples ranged from 1.5 to 6.6 ug/L and total copper concentrations ranged from 4.7 to 33 ug/L. Hardness ranged from 18 to 40 mg/L. Interpretation of the copper data collected from the LID sampling

events can be viewed in the WY 2024 LID Monitoring Report, which is submitted as Part A of the WY 2024 UCMR.

The PCBs and mercury samples (036PCL800-1223-SW and 036PCL810-1223-SW) addressing Management Question #4 were collected by SCVURPPP at manholes in the City of Milpitas immediately upstream of outfalls that discharge to Lower Penitencia Creek. These samples were collected as a flow-weighted composites during a storm event on December 18, 2023, and also approximate EMCs for the sampled event. PCB congeners (method EPA 1668C) were analyzed at Enthalpy and total mercury (method EPA 1631E) was analyzed at Caltest.

The analytical data collected, along with nearby rainfall data, catchment area, and percent imperviousness area within the sampled catchments could be used in the future to develop loads from analytical models, such as the Simple Method (Schueler, 1987). These data could also be used to support development of the RMP's Watershed Dynamic Model.

**Table 2.6. POC Samples collected in Santa Clara County to address Management Question #4, WY 2024**

Sample ID	Sample Date	Sample Location Type	Latitude	Longitude	Dissolved Copper	Total Copper	Hardness	Total PCBs <sup>a</sup>	Total Mercury
					ug/L	ug/L		mg/L	ng/L
TCM-6 Effluent	01/02/2024	LID Effluent	37.42423	-121.96960	6.6	8.3	40	NA	NA
TCM-6 Effluent	02/01/2024	LID Effluent	37.42423	-121.96960	3.7	4.7	18	NA	NA
TCM-6 Effluent	02/14/2024	LID Effluent	37.42423	-121.96960	4.2	5.5	20	NA	NA
TCM-6 Effluent	03/02/2024	LID Effluent	37.42423	-121.96960	5.4	6.7	30	NA	NA
TCM-6 Effluent	03/23/2024	LID Effluent	37.42423	-121.96960	6.2	7.8	18	NA	NA
036PCL800-1223-SW	12/18/2023	MS4 Stormwater	37.40433	-121.90038	NA	NA	NA	0.28	0.002
036PCL810-1223-SW	12/18/2023	MS4 Stormwater	37.40431	-121.90049	NA	NA	NA	0.18	0.003

Notes:

NA = Not applicable

<sup>a</sup> Total PCBs sums of the RMP-40 congeners in MS4 stormwater are calculated with ND assigned a value of ½ MDL.

### 2.1.5. Management Question 5: Trends

Four PCBs and mercury water samples were collected by SCVURPPP to address POC Management Question #5 (Trends). These samples were collected at station 205SAR005 on Saratoga Creek in the City of Santa Clara. Because this station has been used historically, data collected by SCVURPPP from this station could be compared with historical data (as well as any future data) to see if there are any changes to POC concentrations over time. PCB congeners (method EPA 1668C) were analyzed at Enthalpy and mercury (method EPA 1631E) was analyzed at Caltest. Analytical results are shown in Table 2.7. Total PCBs concentrations ranged from ND during the dry season event on July 9, 2024, to 3.9 ng/L during a wet season event on December 20, 2023. Total mercury concentrations ranged from 0.001 ug/L on July 9, 2024, to 0.052 ug/L on February 2, 2024.

Third party samples also contributed to Management Question #5 (Trends). The RMP collected two PCBs and mercury samples from Guadalupe River at station 205GUA020 to extend an existing time series dataset at that station. And two trends sediment samples were collected by the SPoT Program as a part of a long-term study. The SPoT samples were collected from in-stream bedded sediment monitoring stations located in the Guadalupe River (205GUA020) and Coyote Creek (205COY060). However, the samples taken in WY 2024 were only analyzed for copper in WY 2024. The SPoT Program analyzes sediment samples deposited at the base of watersheds for toxicity, metals, PAHs, PCBs, legacy pesticides, current use pesticides, and emerging contaminants such as fipronil and polybrominated diphenyl ethers. The intent of these studies is to provide information on the condition of California waterways with respect to trends in sediment toxicity and contamination. See also Section 2.2.2.

**Table 2.7. PCB and mercury sample concentrations in Santa Clara County to address Management Question #5, WY 2024.**

Permittee/ Organization	Sample ID	Sample Date	Sample Location Type	Latitude	Longitude	Total PCBs <sup>a</sup>	Total Mercury
						ng/L	ug/L
Santa Clara	205SAR005	11/18/2023	Receiving Water	37.35973	-121.97336	0.18	0.002
Santa Clara	205SAR005	12/20/2023	Receiving Water	37.35973	-121.97336	3.9	0.037
Santa Clara	205SAR005	02/20/2024	Receiving Water	37.35973	-121.97336	0.25	0.052
Santa Clara	205SAR005	07/09/2024	Receiving Water	37.35973	-121.97336	ND	0.001

Notes:

ND = Non-detect. All PCB congeners were ND.

<sup>a</sup> Total PCBs sums of the RMP-40 congeners in are calculated with a ND assigned a value of zero.

### 2.1.6. Management Question 6: Receiving Water Limitations Monitoring

Four samples (one dry season and three wet season) were collected by SCVURPPP in coordination with other members of the BAMSC RMC to address POC Management Question #6 (Receiving Water Limitations Monitoring). The RWL samples were collected from Saratoga Creek (Station 205SAR005) as described in the RWL Monitoring Plan that was included in SCVURPPP's WY 2022 UCMR (SCVURPPP 2023) and supplemented via the Regional Water Board Executive Officer conditional approval process. Constituent concentrations from the four RWL samples collected in WY 2024 are listed in Table 2.8.

The RWL samples were analyzed for PCB congeners (method EPA 1668C) at Enthalpy, for PAHs (method EPA 625.1) at Physis Environmental Laboratories, Inc. of Anaheim, California and for the following at Caltest:

- Total mercury (EPA 1631E);
- Dissolved copper, lead, and zinc (EPA 200.8);
- Hardness (SM 2340C);
- Suspended sediments (ASTM D3977-97);
- Nitrate (EPA 300.0);
- Total Kjeldahl nitrogen, ammonia, nitrite, and phosphorus (SM 4500); and
- *E. coli* (SM 9223B).

Total Nitrogen was calculated by summing nitrite, nitrate, and total Kjeldahl nitrogen. Unionized ammonia was calculated using ammonia, pH, and temperature (Emerson, et. al. 1975).

**Table 2.8. Analyte concentrations at RWL monitoring station at Saratoga Creek to address Management Question #6, WY 2024.**

Analyte	Units	SCVURPPP (205SAR005)			
		11/18/2023	12/20/2023	2/20/2024	7/9/2024
E. coli	MPN/100mL	>2,419.6	>2,419.6	166	579
Copper, Dissolved	ug/L	5.1	2.5	1.0	0.6
Lead, Dissolved	ug/L	0.29	0.23 J	ND (<0.07)	ND (<0.07)
Zinc, Dissolved	ug/L	12.0	6.9	ND (<0.78)	ND (<0.78)
Hardness	mg/L	76	82	106	570
Total Mercury	ug/L	0.002	0.037	0.052	0.001
Total Kjeldahl Nitrogen (TKN)	mg/L	0.94	1.10	0.66	0.85
Nitrate (as N)	mg/L	0.43	0.13	0.19	1.20
Nitrite (as N)	mg/L	0.022	0.003 J	ND (<0.002)	0.013
Total Nitrogen (TKN+NO <sub>3</sub> +NO <sub>2</sub> ) <sup>a</sup>	mg/L	1.4	1.2	0.9	2.1
Unionized Ammonia (as N) Emerson <sup>b</sup>	mg/L	0	0.008	0.002	0.006
Ammonia (as N)	mg/L	ND (<0.04)	0.39	0.077 J	0.092 J
Field pH	units	7.3	7.9	8.0	8.3
Field Specific Conductance	uS/cm	195	109	229	1193
Field Temperature	C	15.8	13.5	12.0	19.8
Total Phosphorus	mg/L	0.34	0.49	0.31	0.02
Total PCBs (RMP 40) (ND=0) <sup>c</sup>	ng/L	0.18	3.9	0.25	0
PAHs (total) (ND=0) <sup>c</sup>	ug/L	0.05	0.55	0.17	0.003

Notes:

J-flagged values are estimates when the analytical result is above the method detection limit (MDL), but below the reporting limit (RL).

Shaded rows indicate the value is calculated.

<sup>a</sup> Total Nitrogen is the sum of TKN, nitrate, nitrite.

<sup>b</sup> Unionized Ammonia calculated using the Emerson (1975) equation which uses pH and temperature.

<sup>c</sup> Total PCBs (RMP 40) and PAHs calculated using some values that were below the detection limit (i.e., ND) and which were replaced with zero. Individual PCB congener and PAH data are available in CEDEN. No PCBs were detected in the sample collected on 7/9/24.

In compliance with the RWL Monitoring Plan and Provision C.8.h.iv, these data will be evaluated in a Regional RWL Assessment Report that will be submitted with the SCVURPPP IMR in March 2026. Data will be compared to the relevant WQOs described in the RWL Monitoring Plan, RWL data collected by other members of the BAMSC RMC, and similar data in the county and region available through CEDEN.

### 2.1.7. Statement of Data Quality

A comprehensive quality assurance/quality control (QA/QC) program was implemented by SCVURPPP covering all aspects of POC monitoring. Monitoring for PCBs and mercury was performed according to protocols specified or referenced in the WY 2016 POC SAP (SCVURPPP 2015) and supplemented by protocols described in the RMC Standard Operating Procedures (BASMAA 2016). The WY 2016 POC SAP references the CW4CB QAPP (BASMAA 2013) and the BASMAA RMC QAPP (BASMAA 2020) as the basis for QA/QC procedures. RWL monitoring was performed according to the RWL Monitoring Plan (BAMSC 2023) which also references the CW4CB QAPP and the BASMAA RMC QAPP. LID influent and effluent sampling data were collected and evaluated as governed by the LID monitoring plan and QAPP (SCVURPPP 2024; BAMSC 2024). The respective LID sampling data quality is discussed in the WY 2024 LID Monitoring Report, which is submitted as Part A of the WY 2024 UCMR.

Data were assessed for representativeness, comparability, completeness, sensitivity, contamination, accuracy, and precision. These seven attributes are compared to data quality objectives (DQOs), which were established to ensure that data collected are of adequate quality and sufficient for the intended uses. DQOs address both quantitative and qualitative assessment of the acceptability of data. Representativeness and comparability are qualitative while completeness, sensitivity, contamination, accuracy, and precision are quantitative assessments. Specific DQOs are based on Measurement Quality Objectives (MQOs) for each analyte.

Overall, the results of the QA/QC review suggest that the POC monitoring data generated during WY 2024 met the MQO objectives, except for minor instances detailed in Table 2.9. While some data were flagged by the QA Officer based on the MQOs and DQOs identified in the QAPPs, 100% of the data was of acceptable quality to be included in this report's dataset.

Table 2.9. Quality Control Issues and Analysis in the Water Year 2024 Project Data Set.

Sample ID/Analyte/Matrix	Issue	Analysis
SJ060524-01/PCBs/sediment; SN060424-05/PCBs/sediment	Field duplicate RPD was above the QC limit (25%) for some PCB congeners.	Precision outside of control limits for sediment is not uncommon in field duplicate samples due to sample heterogeneity. Data was flagged by the QA Officer and no further corrective action was required.
Blank WG90839-101/PCB 189 /sediment; SJ060524-10 SJ060624-11 SJ060624-13 SJ060624-14 SJ060624-15 SJ060624-16 SJ060624-17 SJ060624-18 SJ060624-19 SJ060624-20 SJ060624-21 SJ060624-22 SJ060624-23	Lab Blank concentration for PCB 189 > MDL but < RL.	Detection within the blank applied to only one of the RMP-40 PCBs congeners. This may bias the concentration of PCB 189 high. However, data quality was not significantly affected as none of the 13 samples in batch WG90839-AXYS had a detection of PCB 189 above the RL. Data was flagged by the QA Officer and no further corrective action was required.
B24A112-BLK1/PCB 153 205SAR005-20231220/PCB 153/receiving water	Lab Blank concentration for PCB 153 > MDL.	Detection was in only one of the RMP 40 congeners. This may bias the concentration of PCB 153 slightly high in the primary sample. However, the detection (4.73 pg/L) was only slightly above the MDL (4.0 pg/L) and below the RL (10 pg/L), as such, the data quality was not significantly affected. Data was flagged by the QA Officer and no further corrective action was required.
Blind Field Duplicate 205BAM010-20231118/Naphthalene-d8(Surrogate)/receiving water 205SAR005-20240220/Naphthalene-d8(Surrogate)	Surrogate recovery was below the QC limit for Naphthalene.	Surrogate recovery was low which may bias the concentration of naphthalene low. Data was flagged by the QA Officer and no further corrective action was required.

Notes:

MDL = method detection limit

RPD = relative percent difference

RL = reporting limit

## 2.2. Third-party Monitoring Accomplishments

### 2.2.1. SF Bay Regional Monitoring Program (RMP)

The RMP's **Small Tributaries Loading Strategy (STLS)** was developed in 2009. The RMP STLS Team includes BAMSC representatives, Regional Water Board staff, RMP staff, and technical advisors and is overseen by the RMP's Sources, Pathways, and Loadings Workgroup (SPLWG). The objective of the RMP STLS is to develop a comprehensive planning framework to coordinate POC monitoring/modeling between the RMP and RMC participants.

The RMP's **Emerging Contaminants Workgroup (ECWG)** was established in 2006. Similar to the STLS, the RMP ECWG includes BAMSC representatives, Regional Water Board staff, RMP staff, and technical advisors. The objective of the RMP ECWG is to develop cost-effective strategies to identify and monitor constituents of emerging concern (CECs) to support management actions to minimize impacts to San Francisco Bay.

The STLS, ECWG, and other RMP workgroups typically conduct annual monitoring for POCs and other pilot and special studies on a region-wide basis. The RMP Special Studies address specific scientific issues that RMP committees, workgroups, and strategy teams identify as priority for further study. These studies are developed through an open selection process at the workgroup level and selected for funding through the Technical Review Committee (TRC) and the Steering Committee. The pilot and special studies associated with the RMP STLS are intended to fill data gaps associated with loadings of POCs from relatively small tributaries to the San Francisco Bay. The RMP ECWG works closely with the STLS on special studies that specifically target CECs in Bay tributaries. SCVURPPP is an active participant in the RMP STLS and ECWG and works with other Bay Area municipal stormwater programs to identify opportunities to direct RMP funds and monitoring activities towards addressing both short- and long-term MRP management questions.

POC-related RMP monitoring projects and special studies that were ongoing across the region in WY 2024 include the following, most of which support development of the Watershed Dynamic Model (WDM). The WDM is a semi-distributed process-based numerical modeling tool that was developed to estimate regional and sub-regional scale loads for the Bay Area. To date, the WDM has been used to simulate hydrology and suspended sediment transport for a 26-year period (WY 1994-2023). It is presently being further extended to model PCB and Hg loads, and may be extended in the future to model CECs loads.

- Watershed characterization through wet weather reconnaissance-style monitoring. Since WY 2015, the RMP STLS monitoring has conducted reconnaissance-style wet weather monitoring for POCs (primarily PCBs and mercury) to characterize catchments of interest and identify POC sources and source areas. Prior to the start of each wet weather season, the STLS team identifies locations across the Bay Area to conduct this monitoring. Wet weather reconnaissance monitoring has been deprioritized starting in WY 2023 but may be resumed in future years.
- Stormwater monitoring for emerging contaminants through the RMP ECWG. The ECWG coordinates with the STLS to sample creeks for CECs as part of the "CEC Stormwater Loads Modeling Exploration" project and to support development of the "Stormwater CECs Strategy." Additional financial contributions to the RMP for emerging contaminant monitoring by the BAMSC RMC (see Section 1.2.2) will help support this work through

the permit term. In 2024, the RMP published the results of a major multi-year study to provide screening-level data (occurrence and concentration) and evaluate the role of stormwater as a transport pathway for a suite of contaminants identified as important for the Bay. This monitoring effort spanned four wet seasons (water years 2019-2022), sampled both urban and reference (minimally developed) sites during storm events, and analyzed five broad classes of contaminants: per- and polyfluoroalkyl substances (PFAS), organophosphate esters, bisphenols, ethoxylated surfactants, and tire- and vehicle-derived compounds (Peter, KT et al. 2024).

- Bay Prey Fish and Near-field / Margins Sediment Sampling. In WY 2024, the RMP Status and Trends Program continued field collection of samples to spatially characterize contaminant concentrations of PCBs and PFAS in fish and sediment found within the margins of Central Bay, South Bay, and Lower South Bay. This study builds on previous Surface and Trends efforts to characterize surface sediment contamination across the Bay while piloting routine monitoring of prey fish.
- Near-Field Water Sampling. In 2022, the Status & Trends (S&T) Program added a pilot effort to quantify contaminants of emerging concern (CECs) in Bay water in areas near (“near-field” of) expected loading pathways during or shortly after storm events and during the dry season. For the first year of the pilot (Water Year 2022), the near-field design included three targeted, near-field stations and four ambient Bay stations. In WY 2024, the RMP Status and Trends Program completed a sampling and analysis plan (SAP) and field collection at one station in San Mateo County. The analytes measured included bisphenols, organophosphate esters (OPEs), PFAS, and a suite of stormwater CECs.

The results of these activities during WY 2024 are presented in reports produced by the San Francisco Estuary Institute (SFEI) that are available through the SFEI website (<https://www.sfei.org/>)

### **2.2.2. State Water Board’s SPoT Monitoring**

The SPoT Monitoring Program conducts annual dry season monitoring (subject to funding constraints) of sediments collected from a statewide network of large rivers. The goal of the SPoT program is to monitor trends in sediment toxicity and sediment contaminant concentrations in selected large rivers throughout California and relate contaminant concentrations and toxicity to watershed land uses. Results from these large catchment stations provide context for the monitoring conducted by the Program.

Sites are targeted in bottom-of-the-watershed locations with slow water flow and appropriate micromorphology to allow deposition and accumulation of sediments, including stations near the mouth of Coyote Creek (station 205COY060) and the Guadalupe River (station 205GUA020). In most years, sediments are analyzed for PCBs, mercury, metals (including copper), toxicity, pesticides, and organic pollutants (Phillips et al. 2014). However, in WY 2024, SPoT monitoring in Coyote Creek and Guadalupe River was limited to copper.

The most recent technical report prepared by SPoT program staff was published in 2020 and describes 10-year trends from the initiation of the program in 2008 through 2017 (Phillips et al. 2020).

### **2.2.3. US EPA Water Quality Improvement Fund Grant**

In WY 2024, the City of San Pablo submitted a grant application for funding via the US Environmental Protection Agency (USEPA) San Francisco Bay Water Quality Improvement Fund (WQIF) (EPA-REGIX-SFBAY-24). The application was collectively developed by and submitted on behalf of all BAMSC members, including SCVURPPP. A total of \$8.0 million in funding was requested to support the PCBs TMDL Special Studies and Implementation project. BAMSC members pledged to match the grant funds at a 25% level. In late 2024, the City of San Pablo was notified by the USEPA that the grant was awarded. The grant and match funds are expected to be available in WY 2025 to support ongoing monitoring in Santa Clara County to help address many of the Provision C.8.f Management Questions described in Section 2.1. Specifically, funds will be used to oversee the following project tasks:

- Develop alternative source property investigation tools;
- Conduct monitoring, mapping, and planning in support of PCBs control measure implementation;
- Support development and implementation of programs to control PCBs discharges from private properties, such as those as described in SCVURPPP's Old Industrial Area Control Measure Plan (SCVURPPP 2024c);
- Provide support for implementation of enhanced operations and maintenance (O&M) of storm drain lines or other MS4 infrastructure that contain PCBs-contaminated sediment and/or drain catchments where PCBs are elevated; and
- Develop conceptual designs for stormwater treatment systems.

### 3. CONCLUSIONS AND RECOMMENDATIONS

In WY 2024, SCVURPPP collected and analyzed POC samples in compliance with provision C.8.f of the MRP. The MRP yearly minimum requirements were met for all relevant monitoring parameters. In addition, SCVURPPP continued to work with the RMP's STLS and ECWG to supplement WY 2024 monitoring accomplishments.

**Conclusions** from WY 2024 POC monitoring included the following:

- SCVURPPP collected and analyzed a total of 59 sediment, stormwater runoff, and/or receiving water samples:<sup>8</sup>
  - Forty-three (urban sediment samples collected from the MS4 were analyzed for PCBs and mercury to inform identification of source areas where control measures could be implemented, i.e., Management Question #1 (Source Area Identification). Not all analytical laboratory data associated with sediment samples were available in time for this report's publication. For the existing dataset, sediment concentrations of total PCBs (i.e., sum of the RMP 40 congeners) ranged from 0.01 to 1.65 mg/kg and sediment concentrations of mercury ranged from 0.01 to 0.94 mg/kg. Missing data will be reported with the 2026 IMR, which will be submitted by March 31, 2026. Additional analysis of these data will be provided with the Fiscal Year 2025-2026 Mercury and PCBs Control Measures Report, which will be submitted by September 30, 2025.
  - Ten flow-weighted composite stormwater runoff samples collected from LID facilities were analyzed for PCBs and mercury to address Management Question #3 (Management Action Effectiveness). Interpretation of these data are provided in the WY 2024 LID Monitoring Report, which is submitted as Part A of the WY 2024 UCMR.
  - Two flow-weighted composite stormwater samples for PCBs and mercury analyses were collected at manholes (036PCL800-1223-SW and 036PCL810-1223-SW) immediately upstream of outfalls that discharge to Lower Penitencia Creek. These samples inform Management Question #4 (Loads and Status).
  - Five copper samples were collected from the treated effluent of the TCM-6 LID facility in the City of San José to inform Management Question #4 (Loads and Status). Dissolved copper concentrations in the treated LID effluent samples ranged from 1.5 to 6.6 ug/L and total copper concentrations ranged from 4.7 to 33 ug/L. Interpretation of these data are provided in the WY 2024 LID Monitoring Report, which is submitted as Part A of the WY 2024 UCMR.
  - Four receiving water grab samples for PCBs and mercury analysis were collected from Saratoga Creek to inform Management Question #5 (Trends). Total PCBs concentrations ranged from ND during a dry season event to 3.9 ng/L during a wet season event. Total mercury concentrations ranged from 0.001 ug/L to 0.052 ug/L.

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<sup>8</sup> The accounting below totals greater than 59 samples as individual samples can address more than one POC

- Four receiving water grab samples were collected from Saratoga Creek and analyzed for a broad suite of constituents to inform Management Question #6 (Receiving Water Limitations). Interpretation and evaluation of these data will be provided in a Regional RWL Assessment Report which will be included with the 2026 IMR.
- Monitoring by the RMP and the SPoT program was conducted in Santa Clara County receiving waters:
  - Two sediment samples were collected by the SPoT Program for copper analysis informing Management Question #5 (Trends).
  - Two flow-weighted composite receiving water samples were collected by the RMP for mercury and PCBs analysis informing Management Question #5 (Trends).
- In accordance with MRP requirements, a comprehensive QA/QC program was implemented by SCVURPPP covering all aspects of POC monitoring during WY 2024. Overall, the results of the QA/QC review suggest that the data generated during WY 2024 POC monitoring were of sufficient quality for the purposes of this program. While some data were flagged in the project database based on the MQOs and DQOs identified in the QAPPs, none of the data were rejected.

**Recommendations** for WY 2025 POC monitoring include the following:

- SCVURPPP will continue to collect grab and composite urban sediment samples in MS4 catchments for PCBs and mercury analysis to address Management Questions #1 (Source Identification) and #5 (Trends).
- SCVURPPP will continue to collect composite and/or individual stormwater samples in MS4 catchments during storm events for PCBs and mercury analysis. Some samples will address Management Question #4 (Loads and Status), with the goal of collecting the data necessary to calculate PCB and mercury loads to the Bay. Others will be collected in previously monitored catchments to address Management Question #5 (Trends).
- SCVURPPP will continue monitoring at two LID facilities in WY 2025. Flow weighted composites will be collected at the influent and effluent of the LID facilities during three storm events, and samples will be analyzed for POCs, including mercury, PCBs, and copper. Additional analytes will include PFAS, total suspended solids, zinc, and total petroleum hydrocarbons. The effluent samples will be used to address POC Management Question #4 (Loads and Status).
- SCVURPPP will work with BAMSC RMC members to complete implementation of the RWL Assessment Report/Monitoring Plan. One remaining sample will be collected to address Management Question #6 (Compliance with RWLs) and a regional report will be developed for submittal with the 2026 IMR.
- SCVURPPP will continue to work with the SPoT Program to address Management Question #5 (Trends). The SPoT Monitoring Program conducts annual dry season monitoring (subject to funding constraints) of sediments collected from a statewide network of large rivers to investigate long-term trends in water quality, including two stations in Santa Clara County (Coyote Creek and Guadalupe River). In most years, sediments are analyzed for PCBs, mercury, other metals, toxicity, pesticides, and organic pollutants.

- SCVURPPP will continue to participate in the RMP's STLS and ECWG and will continue to provide augmented financial contributions to support the ECWG and associated stormwater monitoring for emerging contaminants.
- SCVURPPP will work with BAMSC RMC members to leverage funds available from the recently awarded EPA WQIF grant to address Management Questions for PCBs in Santa Clara County.
- SCVURPPP will continue to comply with all provision C.8.f POC monitoring requirements in the MRP.

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## **APPENDICES**

## **Appendix A**

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### **Letter Describing Approach to Emerging Contaminant Monitoring**



**Santa Clara Valley  
Urban Runoff  
Pollution Prevention Program**

Campbell • Cupertino • Los Altos • Los Altos Hills • Los Gatos • Milpitas • Monte Sereno • Mountain View • Palo Alto  
San Jose • Santa Clara • Saratoga • Sunnyvale • Santa Clara County • Santa Clara Valley Water District

March XX, 2023

Ms. Eileen White  
Executive Officer  
San Francisco Bay Region  
Regional Water Quality Control Board  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

**Subject: Regional Stormwater Monitoring Strategy for Emerging Contaminants**

Dear Ms. White:

This letter transmits the regional stormwater monitoring strategy for emerging contaminants in compliance with provision C.8.f.ii of the Municipal Regional Permit for Stormwater (MRP 3.0), NPDES Permit No. CAS612008 (Order No. R2-2022-0018), on behalf of Permittees that participate in the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP or Program). Provision C.8.f.ii (Table 8.2, footnote c) of the MRP states that:

*Permittees, collectively, shall produce or cause to be produced a stormwater monitoring strategy for emerging contaminants (ECs) by April 1, 2023 that prioritizes ECs for stormwater monitoring listed in this table and possibly others and establishes an approach for sampling stormwater ECs based on specific or likely physico-chemical properties, sources, transport pathways, and fate of prioritized ECs. Permittees must conduct or cause to be conducted ECs stormwater monitoring to execute the ECs stormwater monitoring strategy at a level of effort indicated in the table. This level of effort can be satisfied either through sampling and analysis of the number of samples indicated in this table or through augmentation of the San Francisco Bay Regional Monitoring Program Emerging Contaminants Monitoring Strategy in the amount of \$100,000 per year for all Permittees combined.*

As approved by the Program's Management Committee, SCVURPPP Permittees have agreed to satisfy this MRP 3.0 requirement by annually contributing their equitable share of \$100,000 to augment the San Francisco Bay Regional Monitoring Program (RMP) EC Monitoring Strategy<sup>1</sup> (see Table 1). For Permittees in Santa Clara County, annual contributions will be made through SCVURPPP.

**Table 1.** Contributions that MRP Permittees have agreed to make annually to augment the RMP's Emerging Contaminant Monitoring Strategy during the term of the permit.

Permittee Group	Annual Contribution	Relative Percentage <sup>2</sup>
Alameda County Permittees	\$30,923	30.92%
Contra Costa County Permittees	\$21,649	21.65%
Santa Clara County Permittees	\$33,489	33.49%
San Mateo County Permittees	\$13,939	13.94%
<b>Total</b>	<b>\$100,000</b>	<b>100%</b>

<sup>1</sup> [https://www.sfei.org/sites/default/files/biblio\\_files/CEC%20Strategy%20-%202020%20Update%20-%20Final\\_92320.pdf](https://www.sfei.org/sites/default/files/biblio_files/CEC%20Strategy%20-%202020%20Update%20-%20Final_92320.pdf)

<sup>2</sup> Relative percentages are based on the populations within the MRP-associated portions of each county at the start of MRP 3.0 (Department of Finance, January 2022).

The stormwater portion of the RMP's EC Monitoring Strategy is currently under development and builds upon a stormwater EC screening study conducted from 2018 through 2023 and ongoing watershed hydrology, sediment, and pollutant loads modeling. The stormwater portion of the RMP's EC Monitoring Strategy is scheduled for completion in late 2023 and will be implemented during the term of MRP 3.0 through the RMP. This portion of the RMP's EC Monitoring Strategy includes both watershed/stormwater modeling and monitoring tasks to address high priority management questions established collaboratively through the RMP and consistent with those included in MRP 3.0.

SCVURPPP Permittees look forward to continuing to participate in the RMP and the development and implementation of the stormwater portion of the EC Monitoring Strategy. Please contact me or Program staff (Chris Sommers - [csommers@eoainc.com](mailto:csommers@eoainc.com)) if you have any comments or questions.

Very truly yours,



Adam W. Olivieri, Dr. P.H., P.E.  
Program Manager

cc: SCVURPPP Management Committee Members  
Dr. Thomas Mumley, Assistant Executive Officer, SF Bay Regional Water Board  
Dr. Jay Davis, SF Bay RMP Lead Scientist, San Francisco Estuary Institute