Santa Clara Valley
Urban Runoff
Pollution Prevention Program

Watershed Monitoring and Assessment Program

Urban Creeks Monitoring Report
Executive Summary

Water Year 2024 (October 2023 – September 2024)

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

March 31, 2025

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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Introduction and Background

This *Urban Creeks Monitoring Report* (UCMR) for Water Year 2024 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). SCVURPPP member agencies are subject to the National Pollutant Discharge Elimination System (NPDES) stormwater permit for Bay Area municipalities 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 (SFRWQCB 2009; referred to as MRP 1.0). On November 19, 2015, the Regional Water Board updated and reissued the MRP as Order R2-2015-0049 (SFBRWQCB 2015; referred to as MRP 2.0). The Regional Water Board subsequently updated and revised the MRP as Order R2-2022-0018 (SFBRWQCB 2022; referred to as MRP 3.0), which took effect on July 1, 2022.

This UCMR, including all appendices and attachments, fulfills the requirements of provision C.8.h.iii of the MRP for reporting all data collected in Water Year (WY) 2024 (October 1, 2023 – September 30, 2024) pursuant to provision C.8. Data presented in this report were submitted in electronic California Surface Water Ambient Monitoring Program (SWAMP)-comparable formats by SCVURPPP to the Regional Water Board on behalf of SCVURPPP Permittees and pursuant to provision C.8.h.ii of the MRP and may be obtained via the California Environmental Data Exchange Network (CEDEN). Data collected in prior water years (i.e., WYs 2012 – WY 2023) pursuant to provision C.8 of the MRP are presented in previously submitted annual Urban Creeks Monitoring Reports (SCVURPPP 2015, 2016, 2017, 2018, 2019, 2021, 2022, 2023a, 2024) and periodic Integrated Monitoring Reports (SCVURPPP 2014, 2020). The older data are also available on CEDEN.

Water quality monitoring required by provision C.8 of the MRP is intended to evaluate the effectiveness of stormwater control actions; assess the condition of water quality in Bay Area receiving waters (creeks and the Bay); identify and prioritize stormwater runoff associated impacts, stressors, sources, and loads; identify appropriate management actions; and detect trends in water quality over time.

Provision C.8.a (Compliance Options) of the MRP allows Permittees to address monitoring requirements through regional collaboration, their countywide stormwater program, and/or individually. On behalf of Co-permittees, SCVURPPP conducts creek water quality monitoring and monitoring projects in collaboration with the Bay Area Municipal Stormwater Collaborative (BAMSC)[1] Regional Monitoring Coalition (RMC). Furthermore, SCVURPPP actively participates in the Regional Monitoring Program for Water Quality in San Francisco Bay (RMP), which focuses on assessing Bay water quality and associated impacts. In compliance with provision C.8.c of the MRP (San Francisco Estuary Receiving Water Monitoring), SCVURPPP also provides financial contributions towards implementing the RMP.[2] Provision C.8.a.iii allows Permittees to use third-party data meeting provision C.8.b data quality objectives to satisfy monitoring requirements.

Monitoring data were collected and validated in accordance with several monitoring plans and quality assurance project plans (QAPPs), including the SCVURPPP Low Impact Development (LID) Monitoring Plan (SCVURPPP 2023b), the BAMSC LID Monitoring QAPP Version 1.0

[1] The BAMSC was formed in 2021 upon dissolution of the Bay Area Stormwater Management Agencies Association (BASMAA) as a 501(c)(3) non-profit organization.
[2] See https://www.sfei.org/programs/sf-bay-regional-monitoring-program for details on the RMP.

(AMS 2023a), the Receiving Water Limitations Monitoring Plan (BAMSC 2023), the BAMSC Trash Monitoring Plan (BAMSC 2023), the BAMSC Trash QAPP (AMS 2023b), the RMC Standard Operating Procedures (SOPs; BASMAA 2016), the BASMAA RMC QAPP (BASMAA 2020), and the Clean Watershed for a Clean Bay QAPP (BASMAA 2013). Where applicable, and in compliance with provision C.8.b of the MRP, methods described in the QAPPs and SOP are comparable with methods specified by the California SWAMP Quality Assurance Program Plan (QAPrP) (SWAMP 2022).

This UCMR consists of four "Parts" (A-D) that address the major sub-provisions of MRP provision C.8 (Water Quality Monitoring). The following sections of this Executive Summary summarize each UCMR Part:

- Part A: Low Impact Development (LID) Effectiveness Monitoring
- Part B: Trash Monitoring
- Part C: Pesticides and Toxicity Monitoring
- Part D: Pollutants of Concern (POC) Monitoring

Part A: Low Impact Development (LID) Effectiveness Monitoring

Part A of the UCMR reports all LID Effectiveness monitoring activities conducted in WY 2024. Provision C.8.d identifies specific parameters and monitoring frequencies that must be achieved to address management questions related to pollutant removal efficiencies of LID facilities and minimum levels of maintenance necessary to avoid deteriorated conditions. In the Santa Clara Valley, a minimum of 25 water quality sampling events must be conducted during the permit term, with an annual minimum of three events beginning in WY 2024. Each sampling event must consist of paired flow- (or time) weighted composite samples of the LID facility influent and effluent collected with automated samplers.

Permittees were required to submit LID Monitoring Plans that demonstrate how the requirements in provision C.8.d will be met to the Regional Water Board Executive Officer (EO) for approval by May 1, 2023, and begin implementation of their approved or conditionally approved Monitoring Plans by October 1, 2023. To assist development and implementation of scientifically-sound LID Monitoring Plans, provision C.8.d.ii requires Permittees to form and convene a Technical Advisory Group (TAG) which includes impartial science advisors and Regional Water Board staff.

In compliance with Provision C.8.h.iii.(1), Part A of the UCMR includes the LID Monitoring Status Report for WY 2024. Part A describes the LID monitoring accomplishments during WY 2024, including: a summary of the monitoring methods and study designs used; the stormwater samples collected and the concentrations of all parameters measured; a summary of maintenance activities and maintenance status at the facilities throughout the rainy season; a statement of data quality; a summary of the lessons learned and interim conclusions; and an outline of the planned activities for WY 2025. Also included are descriptions of the revisions to the LID Monitoring Plans in response to the EO conditional approval and the outcomes of the TAG meeting held in WY 2024.

A.1 Stormwater Monitoring

In WY 2024, monitoring commenced at Treatment Control Measure 4 (TCM4) and Treatment Control Measure 6 (TCM6) that are both part of the Top Golf Public Green Street Project located in the City of San José. Continuous flow monitoring was conducted at each facility throughout the wet season, beginning at the end of December after faulty flow monitoring equipment was replaced (Figure E1).

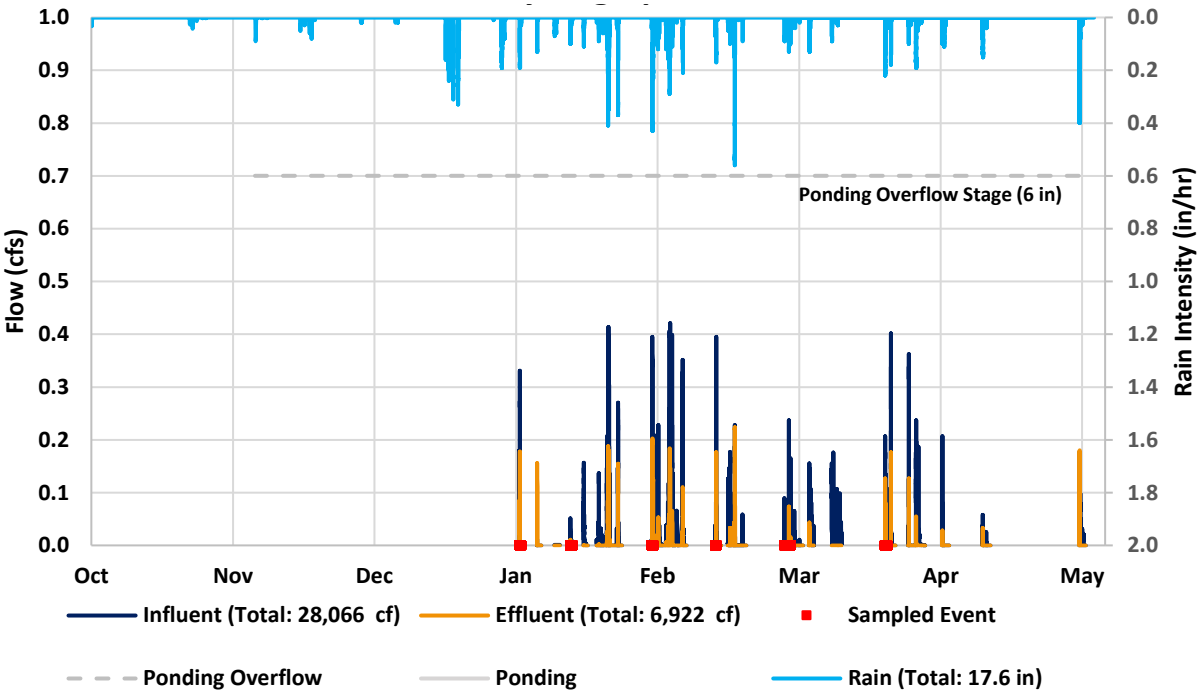

Figure E.1. Hydrology data measured during WY 2024 at the TCM6 bioretention facility in San José, CA.

During WY 2024, SCVURPPP successfully completed seven water quality sampling events over the course of six storms. Six events were completed at TCM6 and at TCM4. Paired influent/effluent samples were analyzed for dissolved and total mercury, dissolved and total copper, dissolved and total zinc, hardness, pH, Total Suspended Solids (TSS), Total Petroleum Hydrocarbons (TPH), total polychlorinated biphenyls (PCBs)[3] and 40 Per- and polyfluoroalkyl substances (PFAS). The average (i.e., mean) influent and effluent and the mean percent reduction for all analytes measured at TCM6 are shown in Table E.1. For most analytes, the average effluent concentration was less than the average influent concentration, indicating the LID facility reduced the concentration of the analyte in stormwater. Only dissolved copper, dissolved mercury and two sub-classes of PFAS were not reduced in the effluent. For PFAS, there is the possibility that waters flowing through the facility are enriching in PFAS as they percolate through the soil and gravel layers, or as they come into contact with structural materials within the facility (e.g., underdrain, adhesives, landscape fabric). Another possible explanation for higher concentrations of PFAS on the effluent side lies with the limitations of the analytical method itself. EPA 1633 quantifies 40 of several thousand possible PFAS

[3] 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.

compounds, many of these terminal products of breakdown processes. There exists the possibility that overall mass of PFAS in influent and effluent samples may not be dissimilar, but that transformation processes within the facility are converting PFAS precursor compounds that are not analyzed via EPA 1633 into terminal products that are.

Table E.1. Summary of WY 2024 water quality data measured at the TCM6 bioretention facility in San José, CA.

Analytes	Units	Influent Mean	Effluent Mean	WY2024 Percent Reduction (%)
pH	none	7.2	7.1	2%
Hardness as CaCO3	mg/L	25	32	-26%
Total Suspended Solids	mg/L	108	10	90%
TPH as Diesel C12-C24	µg/L	52	ND	NC
TPH as Motor Oil C24-C36	µg/L	70	ND	NC
Total Copper	µg/L	14	6.6	52%
Total Mercury	µg/L	0.02	0.01	55%
Total Zinc	µg/L	158	8.2	95%
Dissolved Copper	µg/L	2.8	5.2	-86%
Dissolved Mercury	µg/L	0.002	0.004	-105%
Dissolved Zinc	µg/L	30	3.1	90%
Total RMP 40 PCB Congeners	ng/L	1.9	0.27	86%
Perfluoroalkane Sulfonamido Substances (6 compounds)	ng/L	ND	ND	NC
Flurotelomer Substances (6 compounds)	ng/L	ND	ND	NC
Polyfluoroalkyl Ether Acids (3 compounds)	ng/L	ND	ND	NC
Perfluoroalkyl carboxylic acids - PFCAs (11 compounds)	ng/L	4.6	19	-309%
Perfluoroalkane sulfonic acids - PFSAs (9 compounds)	ng/L	0.30	4.6	-1,421%
Perfluoroalkyl ether sulfonic acids - PFESAs (1 compound)	ng/L	ND	ND	NC
Perfluoroalkyl ether carboxylic acids - PFECAs (4 compounds)	ng/L	ND	ND	NC

Notes:
NC Not calculated due to high number of non-detects in the storm-specific influent and effluent data.
ND Analyte not detected at or above the method detection limit (includes J-flagged congeners / compounds included in totals)

A.2 Maintenance Activities

During WY 2024 regular maintenance was performed at both TCM4 and TCM6 by a contractor for the City of San José approximately twice per month. Maintenance assessments were also conducted prior to selected water quality monitoring events using the BAMSC Maintenance Assessment Form to document the maintenance status of the facilities. This information will be used in the future to evaluate if the necessary level of operations and maintenance (O&M) to maintain proper functioning of the facilities was accomplished during the project, and to compare with data from LID monitoring facilities across the region that had different levels and types of ongoing O&M during the project.

A.3 Recommendations for WY 2025 LID Monitoring

SCVURPPP plans to re-initiate hydrologic monitoring with the start of the WY 2025 monitoring year and to sample a minimum of six water quality sampling events throughout the course of the wet season. SCVURPPP is currently planning to implement a number of modifications to the sampling program based on WY 2024, Water Board staff comments on the conditionally approved LID monitoring Plans submitted in WY 2023, and input from the LID Monitoring TAG. These modifications were incorporated into the Revised LID Monitoring Plan that was submitted in October 2024. These changes include lower TPH reporting limits; updated PFAS methodology based on the final EPA Method 1633, a revised definition of a storm event, new measurements using a piezometer to monitor the water depth within the facilities throughout the wet weather season; and potential changes to blank testing, pending discussion and agreement with Water Board staff and the LID Monitoring TAG.

Part B: Trash Monitoring

Provision C.8.e directs Permittees to conduct trash monitoring at municipal separate storm sewer system (MS4) outfalls and in receiving waters, and prescribes specific monitoring location criteria, methods and frequencies that must be achieved to address the management and monitoring questions listed in MRP 3.0.

Part B of the UCMR contains two Annual Trash Monitoring Progress Reports for WY 2024, submitted in compliance with Provision C.8.h.iii.(2) of the MRP, documenting trash outfall monitoring (Part B1) and trash receiving water monitoring (Part B2). The reports were prepared collaboratively by member Programs of the BAMSC with partial funding for their development from the Watching Our Watersheds (WOW) Regional Trash Monitoring Project which is funded through the USEPA Water Quality Improvement Fund (WQIF). The reports describe Provision C.8.e Trash Monitoring requirements and how each BAMSC Program complied with the requirements during WY 2024.

B.1 Trash Technical Advisory Group

Both components of Provision C.8.e trash monitoring (i.e., outfall and receiving water monitoring) were informed by the Trash Monitoring Technical Advisory Group (Trash TAG), which was formed by BAMSC in WY 2023. The Trash TAG is comprised of impartial science advisors and Regional Water Board staff. In WY 2024, the Trash TAG met twice (March and May 2024) with focus on obtaining Trash TAG guidance and feedback on the development of the Trash Receiving Water Monitoring Plan and Quality Assurance Project Plan (QAPP).

B.2 Trash Outfall Monitoring

In Santa Clara County, a minimum of three MS4 outfalls must be monitored for trash discharge during a minimum of three wet weather events per year beginning October 1, 2023. Monitoring must be conducted with netting devices (or equivalent devices) attached to the end of outfall pipes or other equivalent location that allows for capture of trash discharging through the MS4. Targeted outfalls must drain areas that are controlled to the low trash generation level (i.e., less than 5 gallons per acre per year) and must be representative with respect to the types of trash controls present across the region. Provision C.8.e.ii also requires direct measurement of flow at the monitoring station (to calculate loading) and collection of data on the type of material collected.

In WY 2023, SCVURPPP participated in the development of the Regional Trash Outfall Monitoring Plan (BAMSC 2023) and associated QAPP (AMS 2023b) that were submitted to the Regional Water Board Executive Officer (EO) for approval on July 31, 2023. On August 31, 2023, the Regional Water Board EO conditionally approved both plans, and updated versions were submitted on July 31, 2024 (BAMSC 2024a and AMS 2024a).

In WY 2024, SCVURPPP was successful in collecting and characterizing the three required trash samples at three MS4 outfalls, located in the City of Palo Alto (station SC-SFC), the City of Mountain View (station SC-STE) and the City of San José (station SC-COY). Trash sampling at the three sites was conducted using an Oldcastle NetTech™ Gross Pollutant Trap system (trash net device) with 5 mm mesh size, and flow monitoring was conducted using water level sensors installed in the outfall pipes, upstream of the trash net devices.

Each trash sample was characterized by measuring the overall volume of collected trash and the volume of trash characterized into 13 different categories. In addition, a qualitative assessment of each catchment area draining to the monitored outfall was conducted prior to the first monitoring event to evaluate the levels of trash observed on streets and sidewalks. The assessments included observations of trash sources and trash controls in the catchment.

In WY 2024, trash samples were collected at each outfall site during three storm events. Sample volumes ranged from 0.6 to 12.5 gal at SC-SFC, 0.5 to 12.7 gal at SC-STE, and 4.6 to 12.1 gal at SC-COY, with the highest volumes measured during the first storm events of the year targeted at each station. The trash characterization data showed that plastic trash items made up the majority of trash characterized in all samples.

Water flow data was impacted during monitored storm events due to the material captured in the nets causing water to back up into the pipes. Flows were therefore calculated using HEC-HMS rainfall-runoff models for timeframes when nets were installed. Flow data were used to develop annual hydrographs for each site. Rainfall data were obtained from several rain gages in proximity to the monitored catchment and rainfall totals were calculated using an inverse distance squared weighted average.

Annual trash loading rates were calculated using a simple model that assumed the same trash volume (i.e., average of measured volumes from three events) was discharged during each storm event of the season with greater than 0.1 inch precipitation in 6 hours and at least 24 hours of antecedent dry conditions. At SC-SFC there were 27 events meeting these criteria, at SC-STE there were 23 events, and at SC-COY there were 26 events. Using this simple method, trash loading rates were 2.2, 1.0, and 0.6 gallons/acre/year for SC-SFC, SC-STE, and SC-COY, respectively. These values are well below the low trash generation rate of 5 gallons/acre/year, suggesting that trash controls in the monitored catchments are performing well.

B.3 Trash Receiving Water Monitoring

MRP Provision C.8.e requires that a pilot program to directly sample sections of receiving waters that receive runoff primarily from MS4 outfalls that drain tributary areas controlled to the low trash generation level begin October 1, 2024. At least six receiving water sites regionwide (with two in Santa Clara County) must be monitored during at least three wet weather events per year. Targeted storm events should be likely to result in discharges of trash through the MS4 system, and targeted receiving water monitoring locations should not be downstream of direct discharge sites (e.g., homeless encampments, illegal dumping sites). Provision C.8.e.ii also requires direct measurement of flow at the monitoring station (to calculate loading) and collection of data on the type of material collected.

All trash receiving water monitoring, including site selection, Monitoring Plan and QAPP development, field monitoring, and reporting is being conducted as part of the WOW project. In WY 2024, the WOW project team developed a Regional Trash Receiving Water Monitoring Plan (BAMSC 2024b) and associated QAPP (AMS 2024b) that meet the requirements of MRP Provision C.8.e. The plans were submitted to the Regional Water Board EO for approval on July 31, 2024. On January 30, 2025, Regional Water Board staff submitted a formal letter via email approving both plans.

The Regional Trash Receiving Water Monitoring Plan (BAMSC 2024b) describes the site selection process, the overall monitoring approach, and specific monitoring methods. In Santa Clara County, site SC-ADO on Adobe Creek in the City of Palo Alto and site SC-LPA on Lower Penitencia Creek in the City of Milpitas were chosen for receiving water monitoring. Sampling will be conducted using a Modified Box Trawl with 5 mm mesh net, developed by 5 Gyres. During most sampling events, the trawl will be deployed using a USGS Type A bridge crane and A-55 reel. The trawl will be deployed in such a way as to capture as much of a storm hydrograph as is feasible. Individual samples varying in time from approximately 10 to 30 minutes will be collected and subsequently characterized to learn which part of the storm hydrograph is most important for trash discharge. Flow data will be obtained from nearby stream gages for calculation of annual trash loading rates.

B.4 Recommendations for WY 2025 Trash Monitoring

WY 2025, SCVURPPP will continue to comply with all aspects of MRP Provision C.8.e, including working with the BAMSC Trash Workgroup to convene at least one Trash TAG meeting. SCVRUPPP will also re-initiate trash outfall monitoring and initiate trash receiving water monitoring (via the WOW project) with the start of the WY 2025 monitoring year and to collect trash samples during minimum of three storm events at all sites throughout the course of the wet season.

Part C: Pesticides and Toxicity Monitoring

Part C of the UCMR presents all data collected in compliance with provision C.8.g (Pesticides and Toxicity Monitoring). Toxicity testing provides a tool for assessing the acute and chronic toxic effects of all chemicals in water or sediment collected from receiving waters and allows for assessing the cumulative effect of chemicals present. Because different test organisms are sensitive to different classes or combinations of chemicals, several types of organisms are used. Water samples are tested with five organisms and seven toxicity endpoints while sediment samples are tested with two organisms. In addition, sediment and water are monitored for a variety of potential pollutants concurrent with toxicity monitoring to provide preliminary insights into the possible causes of toxicity, should it be observed. Provision C.8.g requires the collection of two dry season samples per year, and the analysis of those samples for water and sediment toxicity and sediment chemistry. An additional three water samples, analyzed for toxicity and pesticides, are required during permit term if collected as part of a regional RMC effort.[4]

[4] In WY 2023, SCVURPPP satisfied MRP 3.0 wet weather monitoring requirements by collecting three wet weather water samples (Stevens Creek, San Tomas Aquino Creek, and Guadalupe River) as part of a regionally coordinated monitoring event. These data were reported in the WY 2023 UCMR.

C.1 WY 2024 Results

In July 2024, dry season Pesticides and Toxicity monitoring was conducted at the same locations on Stevens and San Tomas Aquino Creeks that have been targeted since WY 2016.

- Water Toxicity. Statistically significant toxicity to *C. dubia* (reproduction), was observed in the San Tomas Aquino Creek dry season water sample, with a Percent Effect of 56%, which triggered a follow-up sample. The September 2024 sample was also significantly toxic to *C. dubia* (reproduction) with a Percent Effect of 58%. In the Stevens Creek water sample, statistically significant toxicity to *C. dubia* (reproduction), was also observed, but with a Percent Effect below the follow-up threshold of 50%.
- Sediment Toxicity. No toxicity was observed in either the San Tomas Aquino or Stevens Creek sediment samples.
- Sediment Chemistry. Pesticide concentrations in the WY 2024 dry season sediment samples were low, with no total organic carbon (TOC) normalized concentrations of individual pyrethroids found to be over one toxic unit (TU) equivalent. The sum of the TU equivalents calculated for pyrethroid pesticides was 0.7 for the Stevens Creek sample and 0.5 for the San Tomas Aquino Creek sample. Fipronil and its degradants were all below the method detection limit (MDL). As in many previous years, serpentine associated metals (chromium and nickel) concentrations were above the highly conservative Threshold Effect Concentrations (TECs) in both creeks; however, only nickel in the Stevens Creek sample was above the Probable Effect Concentration (PEC).[5] Zinc in the San Tomas Aquino Creek sample was also above the TEC but not the PEC.

In accordance with MRP requirements, a comprehensive QA/QC program was implemented by SCVURPPP covering all aspects of Pesticides and Toxicity monitoring was conducted during WY 2024. Overall, the results of the QA/QC review suggest that the data generated during WY 2024 Pesticides and Toxicity 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.

C.2 WY 2016 through WY 2024 Data Summary

The results of pesticides and toxicity monitoring conducted in San Tomas Aquino and Stevens Creek during WY 2016 through WY 2024 were analyzed to identify temporal trends. Wet weather results are also summarized from samples collected during WY 2018 and WY 2023. The data provide a reference to inform management decisions regarding water quality improvement in Santa Clara County watersheds and guide the planning of future monitoring in the area.

- ***H. azteca.*** Toxicity to *H. azteca* (survival), a test organism known to be sensitive to pyrethroid pesticides, was observed twice in San Tomas Aquino Creek sediment samples (WY 2022 and WY 2023); however, the Percent Effect was below the threshold for resampling on both occasions. The cause of this toxicity finding is unknown as the sum of pyrethroid TU equivalents in the corresponding sediment chemistry samples was below 1.0. Toxicity to *H. azteca* (survival) has been found in six of nine wet weather water samples collected throughout the Santa Clara Valley in WY 2018 and WY 2023.

[5] In compliance with MRP provision C.8.g.iv, metals and polyaromatic hydrocarbon (PAH) concentrations are compared to Probable and Threshold Effect Concentrations (PECs and TECs) as defined by MacDonald et al. (2000).

- ***C. dilutus.*** Toxicity to *C. dilutus* (survival), a test organism known to be sensitive to neonicotinoids (e.g., imidacloprid) and fipronil, has been tested in 18 dry weather water samples and 21 dry weather sediment samples from San Tomas Aquino and Stevens Creek. Of these, significant toxicity with a Percent Effect above 50% has been observed in three sediment samples from San Tomas Aquino Creek (WY 2019, WY 2021, WY 2022). Toxicity to *C. dilutus* has also been tested in six wet weather water samples collected throughout the County; however no toxicity has been observed.
- ***C. dubia.*** Toxicity to *C. dubia*, a water flea that is sensitive to a broad range of aquatic contaminants, has been tested for survival and/or reproduction endpoints in 47 dry season water samples from San Tomas Aquino and Stevens Creeks and 14 wet weather water samples from throughout the County. Of these samples, significant toxicity with a Percent Effect above 50% has been observed in three dry season samples from San Tomas Aquino Creek and six dry season samples from Stevens Creek. The specific cause of the chronic *C. dubia* toxicity is unknown, and not seemingly explained by the synoptic sediment chemistry results. It is possible that the chronic *C. dubia* toxicity observed in water samples are false positives resulting from inconsistencies in laboratory QA procedures. Statewide, there have been other reports of unexplained chronic *C. dubia* toxicity. The Southern California Coastal Water Research Project (SCCWRP) recently examined this issue and recommended guidance for laboratory best practices, accreditation, and training to reduce variability and inconsistency between lab processes (Brent et al. 2023).
- Between WY 2016 and WY 2024, no sediment samples in San Tomas Aquino or Stevens Creeks had PEC quotients greater than 1.0 for analytes other than chromium and nickel. When chromium and nickel (present in local native soils) are excluded, eight samples in the WY 2016 through WY 2024 dataset had TEC quotients ≥ 1.0, the more conservative of the two sediment chemistry evaluation criteria. These include total polyaromatic hydrocarbons (PAHs) from Stevens Creek in WY 2017 and WY 2018, zinc from Stevens Creek and San Tomas Aquino Creek in WY 2020, zinc from San Tomas Aquino Creek in WY 2024, and copper from Stevens Creek and San Tomas Aquino Creek in WY 2020 and WY 2022, and copper from Stevens Creek in WY 2023.
- Overall, detection frequencies for bifenthrin and fipronil are similar to results from the California Department of Pesticide Regulation Northern California studies (Ensminger 2021, Alvarado 2023, Alvarado and McClanahan 2024) and *H. azteca* toxicity responses were similar to SWAMP Stream Pollution Trend (SPoT) monitoring program results for Coyote Creek and Guadalupe River (Phillips et al. 2020).

C.3 Recommendations for WY 2025 Pesticides and Toxicity Monitoring

In WY 2025, SCVURPPP will continue to sample San Tomas Aquino and Stevens Creeks for dry weather Pesticides & Toxicity Monitoring requirements.

Part D: Pollutants of Concern Monitoring

Part D of the UCMR reports all Pollutants of Concern (POC) monitoring data collected in WY 2024. POC monitoring required by MRP provision C.8.f is intended to assess inputs of POCs to the Bay from local tributaries and urban runoff, provide information to support implementation of Total Maximum Daily Load (TMDL) water quality restoration plans and other pollutant control strategies, assess progress toward achieving wasteload allocations (WLAs) for TMDLs, help resolve uncertainties associated with loading estimates for POCs, and provide information to assess whether receiving water limitations (RWLs) are achieved. In WY 2024, SCVURPPP conducted POC monitoring for PCBs and mercury in December 2023, June 2024, and July 2024. The MRP-required yearly minimum number of samples was met for all POCs.

POC Monitoring in the Santa Clara Valley is conducted by SCVURPPP and its water quality partners, including the members of the RMC, the RMP, and the SWAMP SPoT monitoring program. Figure E.2 illustrates the general locations of where POC monitoring was conducted in WY 2024 by SCVURPPP and its water quality partners in compliance with MRP provision C.8.f.

In accordance with MRP requirements, a comprehensive QA/QC program was implemented by SCVURPPP covering all aspects of POC monitoring. 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.

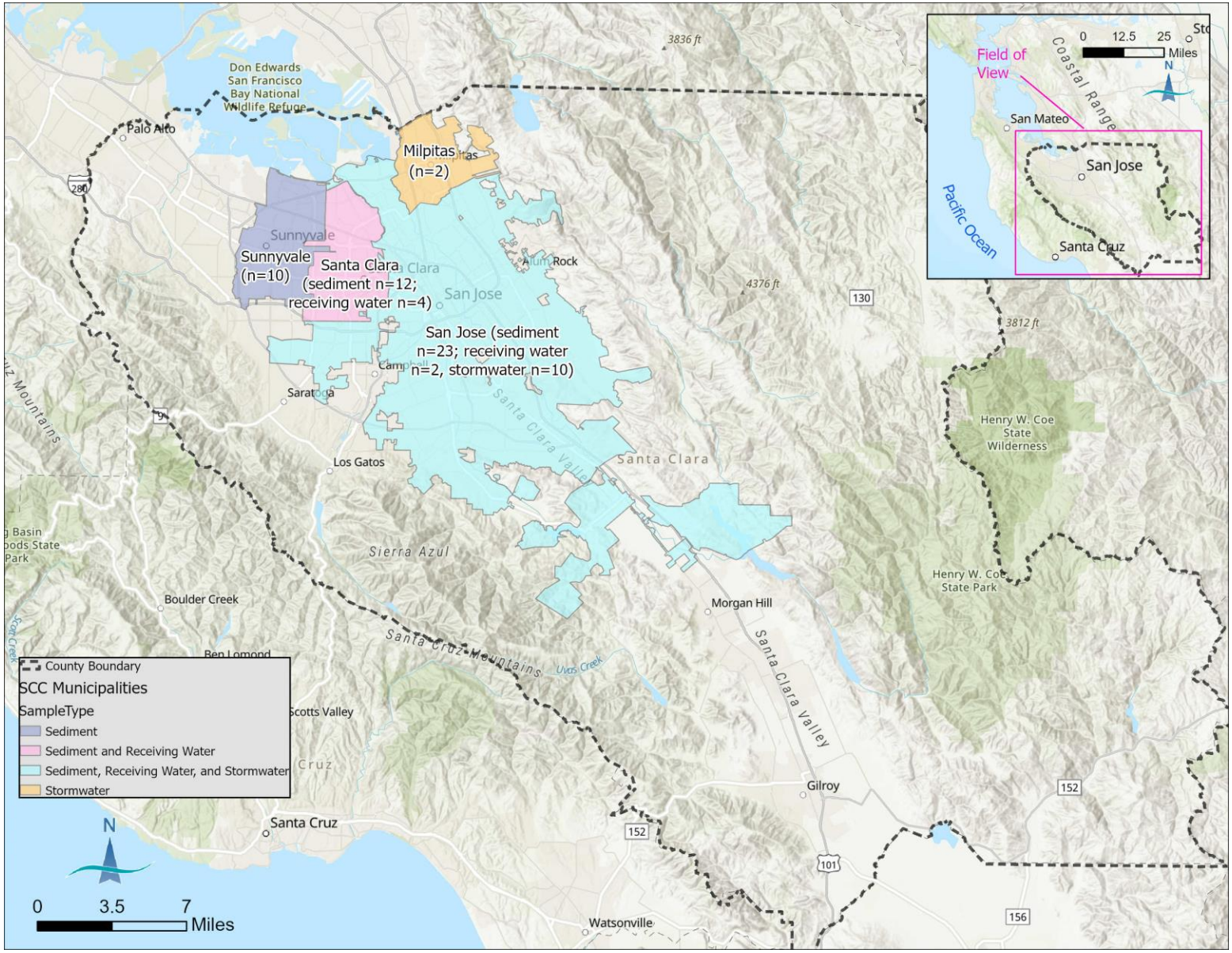

Figure E.2. General locations of POC monitoring stations in Santa Clara County sampled, WY 2024.

D.1 PCBs, Mercury, and Copper Monitoring

In WY 2024, SCVURPPP collected a total of 59 sediment, stormwater runoff, and/or receiving water samples for POC analysis. Some samples were analyzed for multiple POCs which are listed separately in the bullets below.

- 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, concentrations of total PCBs (i.e., sum of the RMP 40 congeners) ranged from 0.01 to 1.65 mg/kg and concentrations of mercury ranged from 0.01 to 0.94 mg/kg. Missing data will be reported with the 2026 Integrated Monitoring Report, 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 TCM6 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.

D.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 RMP's 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 emerging contaminant analytes and monitoring strategies to address priority management questions.

D.3 Receiving Water Limitations Monitoring

In WY 2024, The Program collected one dry season and three wet season samples from Saratoga Creek at station 205SAR005. Samples were analyzed for the contaminants specified

in the RWL Monitoring Plan through the RMC and submitted with the WY 2022 UCMR (SCVURPPP 2023a). 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 Integrated Monitoring Report 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.

D.4 Recommendations for WY 2025 POC Monitoring

In WY 2025, the Program will continue to collect and analyze POC samples in compliance with MRP provision C.8.f. PCBs and mercury monitoring will focus on management questions related to source identification, loads, and trends. SCVURPPP will also complete monitoring for RWL analytes at one receiving water station in the Santa Clara Valley. In addition, SCVURPPP will continue to provide financial contributions and participate in RMP workgroups focused on monitoring POCs.

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Part A: Low Impact Development (LID) Monitoring Status Report

Part B1: Trash Outfall Monitoring Progress Report

Part B2: Trash Receiving Water Monitoring Progress Report

Part C: Pesticides & Toxicity Monitoring Status Report

Part D: Pollutants of Concern Monitoring Report