SECTION 7

WATER QUALITY MONITORING PROGRAM PLAN

7. WATER QUALITY MONITORING PROGRAM PLAN

INTRODUCTION

This section serves as the Annual Monitoring Program Plan for the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP or Program). The monitoring plan provides brief descriptions of receiving water monitoring and assessment activities that will be conducted by the Program in FY 08-09. Planned activities described in this section include implementation of the sixth year of the SCVURPPP *Multi-Year Receiving Waters Monitoring Plan* (Multi-Year Plan), participation and financial support to the Regional Monitoring Program (RMP) for Water Quality in the San Francisco Bay Estuary, the Bay Area Macroinvertebrate Bioassessment Information (BAMBI) network and the BASMAA Monitoring Committee.

ONGOING AND PLANNED MONITORING ACTIVITIES

In recent years, the Program has conducted and/or actively participated in water quality monitoring activities focused on local creeks, the San Francisco Bay and the linkage between the two (i.e., tributary loading studies). These activities have been generally conducted by the three programs described in following paragraphs.

Santa Clara Valley Receiving Water (Creek) Monitoring

In 2002, the Program developed and began implementing its' Multi-Year Plan in compliance with Provision C.7 of the Program's current NPDES Permit. The Multi-Year Plan is intended to assist the Program in:

- Developing a better understanding of the chemical, biological, and physical characteristics of water bodies and watersheds relevant to the Program, which will help inform decisions about future management actions and help clarify and resolve urban runoff related issues within watersheds;
- Assessing baseline water quality conditions in representative watersheds within Program boundaries to evaluate urban runoff impacts and help solve creek drainage basin-specific water quality problems;
- Assessing whether specific pollutants of concern are found in urban runoff discharges and impact water quality in local water bodies and the San Francisco Bay; and
- Evaluating overall Program effectiveness over time.

The Multi-Year Plan was designed to assess water bodies in the Santa Clara Basin using an iterative rotating watershed approach similar to the San Francisco Bay Water Board's Surface Water Ambient Monitoring Program (SWAMP). In 2004, the Multi-Year Plan was revised (i.e., Revised Multi-Year Plan) to include a decision framework linking receiving water monitoring and watershed assessment, which includes the following steps/categories 1) Watershed Characterization; 2) Screening-Level (Status/Condition) Ambient Water Quality Monitoring; 3) Water Body Assessment; 4) Investigative Studies; and 5) Trends/Effectiveness Monitoring. The following paragraphs briefly summarize the tasks completed to-date by the Program through the Revised Multi-Year Plan. Table 7-1 lists the watersheds where monitoring and assessment activities have been conducted between FY02-03 and FY 07-08.

- Watershed Characterization is intended to assist the Program in evaluating and documenting the current understanding of beneficial use condition and potential impacts in local water bodies. As defined, watershed characterization entails two tasks. First, water quality data and watershed information collected to-date are summarized in a watershed characterization memorandum. The memorandum includes a compilation of existing data sources and a summary of the geologic and geomorphic setting, vegetation, land uses and associated water quality issues. An evaluation of the status of biological communities and relevant beneficial uses in the watershed(s) is also provided. Second, a creek survey using a Unified Stream Assessment (USA) method (Center for Watershed Protection) is conducted to identify potential impacts to beneficial uses and to assess the quality of the physical habitat. As part of this effort, field data collected is entered into a database and evaluated.
- Screening-Level Monitoring (Status and Trends) is conducted to asses the condition of aquatic life use and recreational uses in Santa Clara creeks. The program has identified and collected ecological indicators in local creeks to serve as measures that characterize ecosystems or one of its critical components. An indicator may reflect biological, chemical and/or physical attributes of ecological condition. The primary uses of an indicator are to characterize current status and to track or predict significant change. With a foundation of analytical research, an ecological indicator may also be used to identify major ecosystem stress.

Table 7-1. Summary of monitoring and assessment activities conducted between FY 03-04 and FY 07-08 by SCVURPPP.

Activity	Watershed												
	Lower Penitencia	Lower Silver-Thompson	Upper Penitencia	Stevens	Coyote Maintstem	San Tomas Aquino	Calabazas	Sunnyvale East and West	Adobe	Permanente	Matadero/Barron	San Francisquito (1)	Guadalupe (2)
Watershed Characterization				X	X	X			X	X	X		
Screening-Level Monitoring (Status and Trends)	X	X	X	X	X	X	X	X	X	X	X		
Water Body Assessments			X	X	X	X							
Investigative Studies				X									

(1) Monitoring is conducted through the San Francisquito Creek Joint Powers Authority (JPA), which includes data collected by the City of Palo Alto. Program staff track and data collected via this effort and coordinate as needed with the Program's monitoring program.

(2) Monitoring has previously been conducted by the SCVWD, the City of San Jose and the RMP/CEP. In addition, the Program and the City of San Jose conducted a first flush monitoring and analysis effort (see Journal of Environmental Management 76(2005) 309-318.)

- Water Body Assessments (Sediment and Ecosystem Function) are systematic reviews of specific resources (e.g., benthic macroinvertebrates or fish) and their habitat and riparian areas in a watershed-scale context. Water body assessment is a stage-setting process based primarily on existing information. Assessments typically address cumulative effects within a watershed; provide for more ecologically sound resource planning; and identify and help protect environmentally sensitive areas. The Program uses the results of water body assessments to identify data gaps that provide context for subsequent monitoring and follow-up studies; and to recommend feasible management actions. In the recent past, the Program has conducted two types of water body assessments in Santa Clara Basin watersheds – ecosystem functional and sediment assessments.
- Investigative Studies are conducted when water quality data indicate that a water quality impact may be occurring. Investigative studies are typically more focused in comparison to status and trends monitoring, and are designed to collect additional information that is needed to better understand the magnitude and extent impacts that may be occurring.

FY 08-09 Implementation Tasks

Regional Monitoring Collaborative (RMC)

In current and previous municipal stormwater NPDES permits, large and medium sized municipalities in the San Francisco Bay area have been required to implement monitoring programs to measure stormwater impacts on receiving waters, determine sources of pollutants and measure effectiveness. Some activities, such as participation in the San Francisco Bay Regional Monitoring Program (RMP) and more recent TMDL-related special studies, have been coordinated consistently among permitees. Building on these experiences, the Program intends to begin participating in the development of a Regional Monitoring Collaborative (RMC) in FY 08-09. Activities that will be conducted as part of the development of the RMC may include, but are not limited to, those summarized below. As the RMC is better defined, more detailed work plans will likely be developed to better define tasks, deliverables and schedules for completion.

1. RMC Organizational Structure – Program staff will actively participate in the development of an organizational structure that will define tasks to be completed by the RMC, the decision-making process and membership, and communication structure. It is anticipated that Program staff will participate in a series of meetings between BASMAA member agencies and actively participate in the development of materials and deliverables.
2. Development of Monitoring (Experimental) Design – Although not fully clear at the time this work plan was completed, it is assumed that the RMC will undergo a development of a regional monitoring design for the following monitoring activities: 1) Status Monitoring; 2) Long-Term Trends Monitoring; 3) Monitoring Projects; and 4) Pollutant of Concern Monitoring. The monitoring design will likely include input and/or direct involvement from scientists and statisticians (i.e., subcontractors) heavily experienced in designing monitoring programs. Deliverables for this activity are expected to include sampling and analysis plans (SAPs), presentations and meeting summaries.
3. Quality Assurance and Control Programs – To ensure that the highest quality of data are being collected through the RMC, the Program will actively participate in the

development of a data quality assurance and control program. Tasks completed through this program will likely include the development of field and laboratory standard operating procedures (SOPs) and forms; data quality objectives specific to the RMC; and data entry and review procedures.

4. Information Management System – As data are collected by RMC participants and received from laboratories, it must be stored and managed in a cost effective manner that allows data users to easily access data and information. It is highly likely that the most cost effective way to develop this system is collectively through the RMC. Therefore, it is assumed that Program staff will actively participate in the development of an information management system that will serve as a regional data center for water quality monitoring data collected by BASMAA member agencies. Deliverables will likely include data structures, technical user manuals and databases.
5. Data Analysis and Reporting – Based on the tasks agreed to by RMC members, regional data analysis tools and reporting structures may also be developed in FY 08-09. Program staff will likely be heavily involved in the develop of such tools and reporting formats, considering our experience in developing annual monitoring reports, multi-year data summaries and fact sheets.

San Francisco Estuary Receiving Water Monitoring

The Regional Monitoring Program (RMP) for Water Quality in the San Francisco Estuary is a long-term monitoring program that shares financial support, direction, and participation by regulatory agencies and the regulated community with the goal of assessing water quality in the Bay. In accordance with the Program's NPDES permit, the Program has contributed approximately $175,000 annually to the RMP in recent years. This funding is in addition to separate funding provided by the three South Bay POTWs (which are operated by SCVURPPP Co-permittees) to SFEI. In addition, Program staff participates on the RMP Steering Committee, Technical Review Committee, Contaminant Fate Work Group, and Sources, Pathways and Loading Work Group (SPLWG). The Program Manager serves as the BASMAA representative to the RMP Steering Committee.

FY 08-09 Implementation Tasks

The Program plans to continue to financially support the RMP in FY 08-09 at a cost of approximately $175,000. In addition, Program staff plan to continue to participate on the RMP Steering Committee, Technical Review Committee, Contaminant Fate Work Group, and Sources, Pathways and Loading Work Group (SPLWG).

Regional Biological Assessment Network (BAMBI)

In February 2002, Program staff participated in a workshop for information sharing and discussion of recent and ongoing rapid bioassessment (benthic macroinvertebrates) studies in the Bay Area. The network of individuals participating in the workshop was named the Bay Area Macroinvertebrate Bioassessment Information Network (BAMBI). BAMBI's purpose is to coordinate and share bioassessment information throughout the Bay Area. In particular, BAMBI is interested in storm water programs that include rapid bioassessments in their watershed monitoring and assessment programs. Since the initial workshop, the Program has assisted (with planning and coordination) and participated in six annual BAMBI workshops (through 2008).

In support of BAMBI, Program staff has assisted in the development of a Benthic Index of Biotic Integrity (B-IBI) for Bay Area Creeks, with the goal of developing a regional bioassessment tool necessary to provide context to data collected in Santa Clara Basin creeks. A draft BAMBI IBI Work Plan was presented at the 2005 BAMBI Workshop and Program staff has provided in-kind services to implement specific tasks identified in the work plan in recent years.

FY 08-09 Implementation Tasks

The Program plans to continue to assist in the completion of the B-IBI for Bay Area Creeks in FY 08-09. In addition, Program staff also plan to take the lead on planning and coordinating the 2009 Annual BAMBI meeting that allows local agencies (including SCVURPPP) to exchange information and discussion bioassessment related research conducted in the Bay Area.

Watershed Data Management

The Program is prepared to conduct the following activities in FY 08-09 related to data management:

Program's Website

Program staff continually updates and maintains the Program's web site (www.scvurppp.org) to ensure the effective distribution and review of draft and final products; the distribution of available water quality monitoring data and analysis; and internal communication with the Management Committee and other interested parties. In 2005, Program staff released an updated version of the Program's website. An additional update is currently underway and will be completed in 2008. In FY 08-09, the Program will continue to manage the website and post information and documents as they are completed. To date, the Program has completed over 375 work products or major reports. The vast majority of these documents are available on the website as downloadable documents.

Streams Studies Inventory

The Watershed Assessment and Monitoring Subgroup (WAMS) of Santa Clara Basin Watershed Management Initiative (SCBWMI), has a mission to provide the SCBWMI with a solid scientific foundation for watershed planning. One of WAMS's tasks is to coordinate the SCBWMI's data collection and data management efforts with stream monitoring studies within the Basin. The Stream Studies Inventory (SSI) is a result of this task and was initially prepared by the Program in November 1998. The purpose of the SSI is to promote inter-agency awareness of environmental investigations within riparian corridors and to facilitate coordination of related data collection and management. It also describes stream-related multi-stakeholder studies and projects that were in-progress in the Santa Clara Basin. The SSI was updated, revised and reissued in February 2000 (version 2.0), July 2001 (version 3.0), August 2002 (version 4.0), November 2003 (version 5.0), June 2005 (version 6.0) and September 2006 (version 7.0). The Program funded the initial development of the SSI and each of the annual updates.

In FY 07-08, the Program began to develop a new process for obtaining and displaying information on current projects that would typically be described in a SSI report. Beginning

in FY 08-09, the SSI will be web-based and allow users to query information on current and historical environmental data collection and assessment efforts that are included within the Program's metadata database. Beginning in FY 08-09, the SSI will be available through the Program's website.

SCBWMI Land Use Subgroup

In recent years, the Program supported the SCBWMI Land Use Subgroup (LUS) to assist in developing strategies for controlling impacts of land use on beneficial uses. While providing administrative support and leadership for the LUS, the Program also assisted with specific technical and training projects consistent with Program goals and objectives.

In FY 08-09, the Program will continue to provide limited support to the LUS by providing administrative support and direction; assist with training workshops for municipal staff on the connection between land development and water quality; and incorporate water quality friendly designs in development projects which are consistent with the top five priorities identified by the SCBWMI.