Santa Clara Valley
Urban Runoff
Pollution Prevention Program

Stormwater Control Measures Plan for PCBs and Mercury in the Santa Clara Valley

Version 4.0 (2016-2020)

Submitted in Compliance with NPDES Permit No. CAS612008 - Provisions C.11.a.iii(2)/C.12.a.iii(2) by the Santa Clara Valley Urban Runoff Pollution Prevention Program on behalf of all Co-permittees in Santa Clara County

September 30, 2019

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	Santa Clara Valley Water District

Prepared for:

Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP)

Prepared by:

EOA, Inc.
1410 Jackson St., Oakland, CA 94612

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ATTACHMENTS

A - PRELIMINARY MAPS OF EXISTING GREEN STORMWATER INFRASTRUCTURE FACILITIES

List of Abbreviations

BASMAA	Bay Area Stormwater Management Agencies Association
BMP	Best Management Practice
CW4CB	Clean Watersheds for a Clean Bay
CWA	Clean Water Act
FY	Fiscal Year
GE	General Electric
GIS	Geographic Information System
GSI	Green Stormwater Infrastructure
HDS	Hydrodynamic Separator Unit
HHW	Household Hazardous Waste
LID	Low Impact Development
MIP	Model Implementation Process
MRP	Municipal Regional Permit
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollution Discharge Elimination System
O&M	Operation and Maintenance
PPM	Parts Per Million
PCBs	Polychlorinated Biphenyls
PG&E	Pacific Gas and Electric
POC	Pollutant of Concern
POTW	Publicly Owned Treatment Works
Program	Santa Clara Valley Urban Runoff Pollution Prevention Program
RAA	Reasonable Assurance Analysis
Regional Water Board	San Francisco Bay Regional Water Quality Control Board
ROW	Right-of-Way
SAP	Sampling and Analysis Plan
SFEP	San Francisco Estuary Partnership
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
TMDL	Total Maximum Daily Load
USEPA	United Stated Environmental Protection Agency
Valley Water	Santa Clara Valley Water District
WMA	Watershed Management Area

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SECTION 1 - INTRODUCTION

Regulatory Background

Fish tissue monitoring in San Francisco Bay (Bay) has revealed the bioaccumulation of Polychlorinated Biphenyls (PCBs), mercury, and other pollutants in Bay sportfish. The levels found are thought to pose a health risk to people consuming these fish and as a result, an interim advisory has been issued on the consumption of sportfish from the Bay. The advisory led to the Bay being designated as an impaired water body on the Clean Water Act (CWA) "Section 303(d) list" due to elevated levels of PCBs and mercury. In response, the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) has developed Total Maximum Daily Load (TMDL) water quality restoration programs targeting PCBs and mercury in the Bay. The general goals of the TMDLs are to identify sources of PCBs and mercury to the Bay, implement actions to control the sources, and restore water quality.

The PCBs and mercury TMDLs indicate that a 90% reduction in PCBs and 50% reduction in mercury from urban stormwater runoff to the Bay are needed to achieve water quality standards and restore beneficial uses. Provisions C.11 and C.12 of the previous Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit (MRP 1.0; Order R2-2009-0074) required Co-permittees to implement pilot-scale control measures during the permit term to reduce PCBs and mercury discharges from Municipal Separate Storm Sewer Systems (MS4s). These pilot studies were intended to enhance our collective knowledge about the costs and benefits of different control measures to reduce the levels of PCBs and mercury in urban stormwater.

The reissued Municipal Regional Permit (MRP 2.0, Order R2-2015-0049), requires municipal agencies (i.e., Co-permittees) to move from pilot-scale work to focused implementation and the achievement of defined load reduction goals (e.g., 3 kg/year region wide for PCBs). The strategies and control measures that will be applied to meet the load reduction goals are anticipated, at a minimum, to include:

- Source property identification and referrals for further investigation and abatement;
- Green stormwater infrastructure/treatment controls; and
- Management of PCBs in building materials during demolition.

Although not specifically required by MRP 2.0, Co-permittees may also implement additional types of controls to address PCBs and mercury reduction goals. The methodology used to account for PCBs and mercury reductions associated with these controls is described in the *PCBs and Mercury Interim Load Reduction Accounting Method Report* (BASMAA 2017), approved by the Regional Water Board's Executive Officer in April 2017.

Purpose of Control Measures Plan

Provisions C.11.a.iii (2) and C.12.a.iii (2) of MRP 2.0 require Co-permittees to report on the development of a prioritized list of Watershed Management Areas (WMAs) as a way to more easily track control measures and load reductions on a watershed and stormwater catchment scale. The WMA selection process is a logical next step in the efforts of Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) Co-permittees taken to-date to identify sources of PCBs and mercury to the MS4s within the Santa Clara Basin. This control measures plan complies with MRP 2.0 provisions C.11/12.a.iii (2) by:

- Providing lists of WMAs where control measure are being implemented or will be implemented during the term of the Permit;
- Describing a preliminary implementation schedule for control measure implementation;
- Identifying the number, type and locations and/or frequency (if applicable) of control measures;
- Providing a cumulative listing of all potentially mercury or PCB-contaminated sites that Co-permittees have discovered and referred to the Water Board to-date, with a brief summary description of each site and where to obtain additional information;
- Describing the scope, start date, and interim implementation progress milestones for PCB/mercury control measures;
- Reporting the PCBs and mercury loads reduced for all control measures implemented to-date during the current permit term, and,
- Providing statements of the roles and responsibilities of each participating Permittee for the implementation of control measures.

This Plan (Version 4.0) is an update of the Version 3.0 Plan that was submitted in September 2018. The information contained with this Plan will continue to be updated annually during MRP 2.0 based on new or revised information regarding SCVURPPP Permittee implementation strategies, existing and planned control measures, and associated load reductions.

Approach to Identifying Management Areas and Control Measures

Watershed Management Areas

The selection and classification of Watershed Management Areas (WMAs) is a multi-year process designed to identify land areas that disproportionately contribute PCBs and mercury to MS4s in the Santa Clara Basin. The process is fully described in the Program's *Progress Report on Identifying WMAs* that was submitted to the Regional Water Board in April 2016 (SCVURPPP 2016). The intent of the WMA selection process is to identify WMAs that would provide the most benefit for PCBs and/or mercury reduction and therefore could be the focus of control measure implementation. The process being implemented by SCVURPPP Co-permittees is consistent with (and expands upon) the framework developed by BASMAA member agencies in consultation with Regional Water Board staff in preparation for MRP 2.0 PCBs and mercury load reduction requirements. Consistent with MRP 2.0, the selection of WMAs is primarily focused on PCBs, with ancillary/secondary benefits to mercury.

Stormwater catchments were chosen as the initial geographical scale at which WMAs are identified. This scale is consistent with the intention of MRP 2.0 provision C.11/12.a.ii and will allow Co-permittees to more easily track control measure implementation. Although stormwater catchments will form the basis for WMAs moving forward, adjustments may be made. Catchment areas are based on the Program's current understanding of the stormwater and runoff patterns and hydrology in the Basin, which may also assist with the eventual development of the model used to conduct a Reasonable Assurance Analysis (RAA) for PCBs and mercury, which is also required by MRP 2.0.

Table 1.1 provides the current categorization of WMAs in the Santa Clara Valley. WMAs are categorized based on evidence collected by SCVURPPP indicating that significant source(s) of PCBs or mercury are present. This evidence includes data indicating that PCBs in sediment collected from the MS4 in the WMA were observed at concentrations >0.5 mg/kg or in

stormwater at PCBs to sediment ratios >0.5 mg/kg).[1] For WMAs with observed concentrations above these thresholds, source property investigations have been conducted, are in process, or are planned. If these investigations identify specific properties in a WMA as "source properties", then these WMAs are considered WMAs with confirmed sources. To-date, six WMAs (one in Santa Clara, four in San José and one in Sunnyvale) have been confirmed as containing source properties. Source investigations have been conducted or are currently ongoing in fourteen (14) WMAs that have been identified as high priority. Active investigations are currently ongoing in 9 WMAs.

Table 1.1. Current classification of 161 Watershed Management Areas (WMAs) that represent stormwater catchments in the Santa Clara Valley Basin.

Co-permittees within Catchments	Current WMA Classification			Total
	# WMAs with Confirmed Source Properties	# WMAs with Source Property Investigations Completed or Ongoing	# Unclassified WMAs	
San José	4	8	67	**75**
Sunnyvale	1	1	25	**26**
Santa Clara	1	2	23	**25**
Mountain View	-	1	12	**13**
Cupertino	-	-	3	**3**
Milpitas	-	-	14	**14**
Palo Alto	-	2	11	**13**
County of Santa Clara	-	-	20	**20**
Los Altos	-	-	1	**1**
West Valley Communities	-	-	13	**13**
Los Altos Hills	-	-	1	**1**
Total	**6**	**14**	**147**	**161**

Selection of Control Measures

Co-permittees have implemented a variety of control measures since the development of PCBs and mercury urban stormwater loading estimates incorporated into the TMDLs (i.e., circa 2002). Control measures were implemented to reduce PCBs and/or mercury in stormwater or the overall impacts of stormwater. These control measures have a direct benefit towards reducing the impacts of PCBs and mercury on the Bay, and therefore are documented in this Plan.

Because these control measures can vary both in space and time, the geographical extent and implementation level of these control measures has been challenging to track in the past. The Program recently developed a new web-based Green Stormwater Infrastructure (GSI) database for Co-permittees to use for tracking all constructed or planned GSI projects and stormwater treatment measures, including parcel-based new and re-development, public green streets,

[1] The threshold for determining "elevated" PCBs concentrations in stormwater are preliminary and may be adjusted in the future based on additional information.

regional GSI retrofit facilities, and full trash capture systems. Use of this new tracking system will improve the overall management of information necessary to track load reductions associated with these controls. Co-Permittees began using the new GSI database for tracking constructed and planned projects late in FY 18-19, and will continue to use this system into the future. This Plan provides a summary of existing PCBs and mercury control measures implemented to-date based on the information currently incorporated into the Program's GIS database, as well as information gathered to date on other types of control measures.

The selection of new or enhanced control measures that may assist Co-permittees in achieving load reduction goals in MRP 2.0 and in the TMDLs is ideally based on an understanding of PCBs and mercury sources within WMAs and of the costs and benefits of different control measures. As previously described, source investigations are currently being conducted by SCVURPPP in an attempt to identify WMAs where the most cost-effective and beneficial controls (i.e., source property referral and abatement) can be implemented.

Should the Program and Co-permittees be unable to identify specific source properties in a WMA where there is evidence that it contains significant PCBs or mercury sources, Co-permittees will evaluate the most cost-effective control measure strategies to reduce PCBs/mercury contributions from the WMA. This evaluation will include factors such as the magnitude and extent of PCB/mercury sources, the feasibility and costs of control measure implementation, the level of current control measure implementation, opportunities to leverage redevelopment or capital improvement projects, and the benefits of implementing different types of control measures. It is anticipated that these evaluations will mostly be conducted as part of the RAA development and control measure implementation during MRP 3.0 (post-2020) and as part of the implementation of GSI plans being developed by each Permittee during MRP 2.0.

Approach to Reporting PCBs and Mercury Loads Reduced

Beginning with the 2017 Annual Reports, MRP 2.0 Co-permittees are required to report the annual PCBs and mercury load reductions achieved due to control measures implemented each year of the permit term. For each Permittee, the data needed to calculate the loads reduced by all currently implemented (i.e., existing) control measures, including the total acres (and associated land-uses) addressed by each type of control measure are provided in Section 3. The estimated loads reduced for control measures implemented during FYs 13-14 through 18-19 are reported in Section 4 for all information available to-date. The methods used to estimate the loads reduced are consistent with the methodologies and data collection programs that were developed by BASMAA member agencies in consultation with the Regional Water Board, and in accordance with MRP provisions C.11.B.iii(1) and C.12.B.iii(1). These methods are fully described in the ***Interim Accounting Methodology for TMDL Loads Reduced*** (BASMAA, 2017), which was approved by the Executive Officer of the Regional Water Board in May 2017.

Note: Due to the timing of MRP reporting, not all GSI facilities constructed or planned for future years are reported in this document. At a minimum, control measures implemented through FY 18-19 will be fully reported in the final version of this control measure plan, which will be submitted to the Water Board by September 30, 2020.

SECTION 2 - SUMMARY OF CONTROL MEASURE TYPES

Background

The types of control measures implemented to control PCBs and mercury in stormwater were previously described in the Program's Integrated Monitoring Report – Part B (BASMAA 2014) and Part C (SCVURPPP 2014). Controls generally fall into the following three categories:

- **True Source Controls (Load Avoidance)** – Controls that focus on the original source or use of a potential pollutant, True Source Controls include regulations and laws adopted to minimize or eliminate the use of a pollutant for specific activities and pollution prevention activities, such as inspections, that identify high risk practices that could release PCBs or mercury into the environment. The one true source control for mercury is the reduction of mercury in devices and equipment as a result of legislation or voluntary reduction by manufacturers. No additional true source controls are currently available for PCBs due to the production of these organic compounds being banned in the 1970s, and the regulation of PCBs still in use.

- **Source Controls (Load Reduction)** – Source Controls are load reduction control measures that reduce the risk of the pollutant entering the environment after it has already been used in devices/materials/equipment, or that intercept the pollutant before it is discharged to a receiving water body. The control measure types that fall into this category include: source property abatement, enhanced street sweeping, MS4 and flood control operation and maintenance, mercury device recycling, and the control of PCB-containing material during building demolition.

- **Treatment Controls (Load Reduction)** – Treatment controls are load reduction control measures that remove pollutants via physical, biological, or chemical processes. The control measure types that fall into this category include stormwater treatment measures, GSI, and diversions of stormwater to Publicly Owned Treatment Works (POTWs).

Control measures needed to address PCBs and mercury load reduction criteria included in MRP 2.0 are currently under development by Co-permittees based on continued evaluations of sources of these contaminants and load reduction benefits associated with control measures recently implemented. To the extent possible, control measures implemented to-date and those planned for implementation within each WMA during the term of MRP 2.0 are summarized in Section 3, consistent with MRP requirements. Descriptions of each control measure type that Co-permittees may implement or cause to be implemented by other responsible parties to control PCBs and/or mercury are provided below.

Control Measure Types

Source Property Referrals and Abatement

PCBs and mercury source properties are those that disproportionately contribute pollutants to MS4s. Identification and subsequent abatement of these properties and/or focused control measure implementation in the public right-of-way (ROW) around source properties to reduce pollutant release can provide an opportunity for meaningful PCBs and mercury stormwater load reductions. Reductions occur through the abatement of properties via referrals to the Water Board or through enforcement actions brought against property owners by Co-permittees.

SCVURPPP Co-permittees have identified and referred properties to the Water Board in the recent past, and continue to conduct source property investigations in high priority WMAs (see Section 3). These investigations typically include the following tasks:

1) Property Records and Aerial Photography Review;
2) Property Inspections and Public Right-of-Way (ROW) Surveys;
3) Private Property and Public ROW Soil/Sediment Sampling; and
4) Reporting and Planning/Identifying Control Measures (including referrals to regulatory agencies).

As source properties are identified and referred to the Regional Water Board, information regarding pollutant concentrations observed, evidence of transport to the MS4, property ownership, previous stormwater violations, and other pertinent information is entered into the PCBs and Mercury Tracking System. Additionally, the location and geographical extent of the referred property is delineated in GSIS to facilitate the calculation of PCBs and mercury load reductions.

To-date, SCVURPPP Co-permittees have referred three PCBs source properties to the Regional Water Board. The first source property referral was the Union Pacific railroad track ROW in WMA 083CTC990 (Leo Avenue) in the City of San José. The property was discovered based on the Leo Avenue source investigation project, which provided evidence that high concentrations of PCBs and mercury originating from the Union Pacific railroad track ROW were entering the City's stormwater system. This evidence resulted in the City of San José, in collaboration with the Program, referring the property to the Regional Water Board for follow-up investigation and abatement. Additional details about the Leo Avenue project and the resulting referral can be found in the SCVURPPP FY 15-16 Annual Report – Section 11. The second source property referral was the former Westinghouse Superfund Site in Sunnyvale. Additional details about the Westinghouse property and the resulting referral are provided in the SCVURPPP FY17-18 Annual Report – Section 11. The third source property referral was the 335 Brokaw Road property in Santa Clara. This referral was submitted in July 2019. Additional details about the 335 Brokaw Road property and the resulting referral are provided in the SCVURPPP FY18-19 Annual Report – Section 11.

Categorical Source Properties

One aspect of source property identification is the designation of a categorical source property. The categorical source property designation was developed specifically to address potential sources of PCBs that are widespread and distributed across multiple jurisdictions, such as electrical utility applications and rail lines. MRP Permittees, as a group, can refer an entire source category to the Regional Water Board in order to facilitate a regional approach to addressing PCBs from a categorical source.

Electrical utility applications are a potential source of PCBs to the MS4 that are particularly challenging for municipalities to control because of their quantity, dispersed nature, and municipalities general lack of authority over these sources. A categorical source property referral to the Regional Water Board is one possible approach to address this source. As a first step, in FY 17-18 the Program developed a report that summarizes Co-permittees current state of knowledge about electrical utility applications and PCBs titled *Potential Contributions of PCBs to Stormwater from Electrical Utilities in the San Francisco Bay Area*, included as Appendix 11-2 to the SCVURPPP FY 17-18 Annual Report. In FY 18-19, the Program participated in a BASMAA regional project to further evaluate the extent and magnitude of electrical utilities as a categorical source of PCBs to urban stormwater runoff. As part of that project, BASMAA

developed a regional stressor source identification (SSID) project work plan to investigate sources of PCBs from electrical utility equipment in watersheds draining to the San Francisco Bay. This work plan provides partial fulfillment of requirements of MRP Provision C.8.e.iii that requires Permittees to conduct SSID projects during the permit term to identify and reduce sources of pollutants, alleviate stressors, and address water quality problems. The work plan was submitted with the SCVURPPP Urban Creeks Monitoring Report that was submitted to the Regional Water Board in March 2019 (SCVURPPP 2019). BASMAA will implement the regional SSID work plan in FY 19-20.

Green Stormwater Infrastructure and Other Stormwater Treatment Controls

In addition to source property abatement, the installations of green stormwater infrastructure (GSI) facilities on private property and on public property or rights-of-way has and will continue to provide significant benefits to stormwater quality and PCBs and mercury loads reduced over time in the Santa Clara Basin. GSI facilities include Infrastructure that uses vegetation, soils, and natural processes to manage water and create healthier urban environments. Examples of GSI include bioretention, low impact development (LID), green/complete streets, and other systems that generally use the natural filtration or infiltration of stormwater.

As described in Section 3, numerous GSI facilities treating thousands of acres of land in the Santa Clara Valley have been implemented on private properties as a result of new and redevelopment stormwater requirements. Co-permittees have little control over the pace and extent to which redevelopment occurs, however, as redevelopment projects are permitted, Co-permittees ensure that stormwater treatment controls are incorporated into those projects. Based on the level of recent redevelopment in the Santa Clara Valley and the "planned" projects listed in Section 3, the Program anticipates that the number of GSI facilities on private property will continue to grow during the remainder of MRP 2.0 and within the next decade. Co-permittees continue to track the installation of these GSI facilities to ensure proper maintenance and operation, and to assist with demonstrating pollutant load reductions.

Additionally, a number of GSI facilities (e.g., green streets or regional stormwater control retrofit projects) have been implemented by SCVURPPP Co-permittees on public property or rights-of-way. Many of these projects have served as demonstration projects and are also summarized in Section 3 for each applicable Permittee. As a result of Permittee GSI plans developed under MRP 2.0, however, the number of public GSI projects are anticipated to increase in the future. The identification and prioritization of public GSI projects in the Santa Clara Valley will occur as the result of the GSI Plans submitted by each Permittee with their FY 18-19 Annual Reports and with the GSI RAA efforts that will be completed by the end of MRP 2.0. Project prioritization will likely be based on a number of factors (including PCBs and mercury contributions). Similar to GSI facilities on private property, Co-permittees will continue to track the installation of public GSI facilities to ensure proper maintenance and operation, and to assist with demonstrating pollutant load reductions.

Trash Capture Systems (Large and Small Devices)

Full trash capture systems are devices or series of devices that trap all particles retained by a 5mm mesh screen and have a design treatment capacity of not less than the peak flow rate resulting from a one-year, one-hour, storm in the tributary drainage catchment area. The State and Regional Water Boards have approved a variety of proprietary devices as achieving the full capture definition. These devices grouped into two general categories - "large devices", treating hundreds of acres, or "small devices", typically treating an acre or less of land. Examples of large devices include hydrodynamic separators, end-of-pipe netting systems, and in-line gross solid removal devices. Small devices are generally screens or baskets that are installed in storm drain inlets.

SCVURPPP Co-permittees have installed numerous full trash capture systems to-date, treating thousands of acres of land. In addition to trash/litter, these systems also remove sediment and associated pollutants (e.g., PCBs and mercury). The extent of land areas treated by full capture devices are included in Section 3 for each Co-permittee.

Please note: Because hydrodynamic separators are very effective at removing sediment-bound pollutants, these types of systems are described separately in Section 3 from other full capture systems, such as inlet-based screens.

MS4 Operation and Maintenance Practices

Street Sweeping and Flushing

All Co-permittees conduct street sweeping and have documented the amount of material removed via their street sweeping activities since the early 2000's. Additionally, sweeping frequencies and the level of parking enforcement (or equivalent actions) that Co-permittees conduct were documented in the Program's GSIS geodatabase in 2009 as part of trash/litter management strategy development. Existing street sweeping frequencies for each Permittee are summarized in Section 3, along with enhancements made by Co-permittees to-date to enhance stormwater pollutant (i.e., trash or other pollutants) reduction or for other non-pollutant reduction reasons.

In addition to traditional street sweeping, street flushing may also provide pollutant reduction benefits for stormwater. Street flushing includes pressure washing and/or the use of water to flush streets of sediment, trash and sediment-associated pollutants, then collecting and properly disposing of the water, sediments and pollutants. Street flushing pilot projects have been conducted in the Bay Area, but street flushing has not occurred in the Santa Clara Valley to-date based on readily available information. Street flushing is therefore not discussed in Section 3. If street flushing projects are implemented by SCVURPPP Co-permittees in the future, load reductions associated with this control measure will be documented.

MS4 Line Flushing

Occasionally, opportunities present themselves to remove PCBs or mercury associated sediment deposited in MS4 lines. These opportunities typically do not occur often because the traditional MS4 is intended to convey stormwater (and associated sediments) effectively though the system. Based on readily available information, to-date one such opportunity associated with elevated PCBs or mercury concentrations has occurred in the Santa Clara Valley. The line flushing project that occurred in WMA 083CTC990 (Leo Avenue) in the City of San José was documented in the final report for the Clean Watersheds for a Clean Bay (CW4CB) project administered by BASMAA (BASMAA, 2017). Load reductions associated with the Leo Avenue line flushing project and future opportunistic line flushing projects will be documented by SCVURPPP and/or Co-permittees.

Storm Drain Inlet Cleaning

All Co-permittees periodically conduct storm drain inlet maintenance (i.e., cleaning). Through these efforts, sediment and organic material (and associated pollutants) are removed from the MS4. Based on readily available information, the majority of SCVURPPP Co-permittees inspect and maintain their inlets annually. In recent years, many SCVURPPP Co-permittees have increased cleaning frequencies due to additional maintenance requirements for newly installed inlet-based trash full trash capture devices. Current maintenance practices and enhancements are summarized in Section 3. Other potential enhancements will be evaluated as part of source property investigations and control measure prioritization planned to occur as part of RAA

development. Enhancements will be tracked by the Program and/or Co-permittees to account for future PCBs and mercury reductions.

Channel Maintenance

In addition to Permittee maintenance and operation of MS4s (e.g., inlet cleaning and flushing), flood control agencies such as the Santa Clara Valley Water District (Valley Water) periodically remove sediment from facilities and stream channels as part of their stream/channel maintenance programs. As sediment and organic material is removed from channels, sediment-associated pollutants such as PCBs and mercury are also removed. A summary of Valley Water's existing stream maintenance program is included in Section 3. Enhancements in sediment removal will be tracked by the Program and/or Valley Water in the future to account for increases in PCBs and mercury reductions associated with this control measure.

Managing PCBs in Building Materials

PCBs were used in many applications and materials in buildings constructed between 1950 and 1980. MRP 1.0 required the implementation of a pilot project to assist in developing management practices that address legacy caulks containing PCBs. Co-permittees complied with this requirement by participating in a regional project led by the San Francisco Estuary Partnership (SFEP) that: 1) evaluated PCBs levels in caulk in buildings; and developed preliminary Best Management Practices (BMPs), a Model Implementation Process (MIP), and associated model policies and ordinances to reduce or prevent the release of PCB-laden caulks to the environment during demolition of Bay Area buildings and the subsequent conveyance of the PCB-laden caulks by urban stormwater runoff to San Francisco Bay.

Building upon the requirements in MRP 1.0, MRP 2.0 provision C.12.f requires Co-permittees to develop and implement (or cause to be developed and implemented) an effective protocol for managing materials with PCBs concentrations of 50 ppm or greater in applicable structures at the time such structures undergo demolition so that PCBs do not enter municipal storm drain systems. Applicable structures include, at a minimum, commercial, public, institutional and industrial structures constructed or remodeled between the years 1950 and 1980 with building materials with PCBs concentrations of 50 ppm or greater. Single-family residential and wood frame structures are exempt.

SCVURPPP Co-permittees participated in a BASMAA regional project conducted over the past several years that developed regionally consistent model tools and guidance in order to assist Co-permittees in developing and implementing programs to control PCBs in building materials. All SCVURPPP Co-permittees developed PCBs in Building materials control programs by July 1, 2019, as required by the MRP. These programs are summarized in Section 3.

Managing PCBs in Storm Drain or Roadway Infrastructure

Recent studies in areas outside of the Bay Area have shown that PCBs may be present in storm drain and/or roadway infrastructure due to their use in caulks and sealants in the mid to late 20th century. Provision C.12.e of MRP 2.0 requires Co-permittees to evaluate the presence of PCBs in caulks/sealants used in storm drain or roadway infrastructure in public rights-of-way by collecting samples of caulk and other sealants used in storm drains and between concrete curbs and street pavement. BASMAA conducted a regional project to address this permit requirement on behalf of Co-permittees. The final project report is provided in Appendix 11-3 of the FY 17-18 SCVURPPP Annual Report. Co-permittees are currently evaluating the need for future enhanced controls to manage PCBs in storm drain and roadway infrastructure based on the results of the BASMAA project.

Diversions of Urban Runoff to Wastewater Treatment Facilities

The diversion of urban runoff (i.e., dry weather or stormwater) to wastewater treatment facilities can reduce PCBs and mercury loads in stormwater to the Bay. Currently, one structure is present in the Santa Clara Valley that diverts dry and wet weather flows from the MS4 to a wastewater treatment facility. The structure is located in the City of Palo Alto and was evaluated as part of a pilot project conducted during MRP 1.0. A summary of the diversion structure is included in Section 3. Although no additional diversions are currently planned, Co-permittees may choose to divert additional flows to wastewater treatment facilities in the future. Should diversions be implemented, pollutant load reductions from these control measures will be tracked by the Program and/or applicable Co-permittees.

Removal of Illegally Dumped or In-use PCB-containing Materials and Products

This source control measure category entails clean-up of construction and demolition debris from illegal dumping areas where it poses a risk to entering MS4s, and the removal of PCB-containing equipment currently in-use. Additionally, it includes the proper clean-up and disposal of stockpiles, spills, and/or improperly disposed quantities of PCBs. The measure would involve, for instance, a concentrated source of PCBs (e.g., a barrel) that is found and cleaned-up or properly disposed. The Program is currently evaluating whether this control measure is currently being implemented by Co-permittees and if there are opportunities to enhance this control measure for PCBs or mercury load reduction purposes.

Mercury Reduction via True Source Controls and Recycling

Many types of devices and equipment (e.g., thermometers, switches, and fluorescent lamps) contain substantial amounts of mercury. When these devices are not adequately managed at their end-of-life, mercury can be released into the environment and become available to stormwater. Control measures currently implemented by Co-permittees that address the potential for mercury releases include: 1) the support of policies and laws that reduce the mass of mercury in specific devices/equipment; and 2) the implementation of recycling programs that reduce the risk of mercury from being released during the end-of-life of these devices and equipment.

SCVURPPP Co-permittees currently promote, facilitate and/or participate in the collection and recycling of mercury-containing devices and equipment at the consumer level via their participation in the Santa Clara County Environmental Health Department's and City of Palo Alto's Household Hazardous Waste Program (HHW Programs). The HHW Programs offers residents the opportunity to drop-off mercury-containing devices and equipment and other hazardous wastes at designated drop-off points free of charge. The HHW Programs provide an inexpensive hazardous waste disposal option to eligible businesses. SCVURPPP Co-permittees promote the availability of the HHW Programs on their agency websites.

Roles and Responsibilities for Control Measure Implementation

SCVURPPP Co-permittees are responsible for the implementation of PCBs and mercury control measures, or causing control measures to be implemented by other parties. Depending on the size and complexity of the public agency and the type of control measure, implementation can occur via an array of Permittee departments and divisions.

The SCVURPPP (Program) provides assistance to Co-permittees by developing guidance on control measure implementation, assisting with the identification and prioritization of control measure types and locations, and tracking, monitoring and reporting on control measures and

the resulting load reduction benefits. SCVURPPP does not directly implement PCBs and mercury control measures.

Similar to SCVURPPP, BASMAA does not directly implement control measures. BASMAA conducts projects of regional benefit that develop guidance and tools to assist Co-permittees with control measures implementation. Regional projects are typically conducted to reduce costs and/or to develop regional consistency.

SECTION 3 - EXISTING & PLANNED CONTROL MEASURES

Permittee PCBs and mercury stormwater control measures currently implemented by Co-permittees (i.e., existing) and the control measures under development (i.e., planned) are summarized in this section. Summaries for Co-permittees are organized by population (largest to smallest) and include information on control measures compiled by SCVURPPP to-date and may not include all existing or planned control measures. The inventory of control measures implemented or caused to be implemented by Co-permittees will continue to be updated and refined as additional information becomes available and as new or enhanced actions are implemented. To the extent possible, control measure summaries are geographically organized by Permittee and WMA. Specifically, generalized locations of GSI facilities and full trash capture systems are illustrated on preliminary control measure maps included as **Attachment A**.

CITY OF SAN JOSÉ

Watershed Management Areas

Table 3.1 provides a listing of all Watershed Management Areas (WMAs) identified to-date in the City of San José. Total land area in the WMA and associated land uses are also included. WMAs presented in Table 3.1 have been updated from the tables provided in Version 3.0 of this report based on new information. That said, these WMAs should continue to be considered preliminary because they may be refined in the future based on data/information currently being evaluated and collected through source investigations and other activities.

A total of 75 WMAs (or portions of WMAs[2]) have been identified in the City of San José. These WMAs include all land area (i.e., >97,000 acres) within the City's jurisdictional boundaries that is downstream of significant water impoundments located on receiving water bodies (i.e., reservoirs). WMAs form the management units that are used to report control measure implementation in this section and PCBs and mercury load reductions reported in Section 4.

Table 3.1. City of San José preliminary PCBs and mercury Watershed Management Areas (WMAs) and associated land uses.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
034AVS120	Alviso Slough	231	13%	8%	42%	8%	28%	0%
035CTC700	Coyote Creek	0	0%	94%	0%	2%	3%	0%
035GAC010	Guadalupe River	915	0%	5%	18%	62%	15%	0%
035GAC015	Guadalupe River	529	14%	0%	0%	80%	5%	0%
036BYC320	Berryessa Creek	0	0%	81%	19%	0%	0%	0%
036PCL800	Lower Penitencia Creek	890	10%	38%	11%	36%	4%	0%
036PCL810	Lower Penitencia Creek	184	13%	46%	0%	38%	3%	0%
050CTC100	Coyote Creek	105	28%	38%	0%	33%	2%	0%
050GAC020	Guadalupe River	843	15%	30%	0%	42%	13%	0%
050GAC020B	Guadalupe River	584	2%	13%	0%	80%	5%	0%
050GAC400	Guadalupe River	42	0%	100%	0%	0%	0%	0%
050GAC580	Guadalupe River	31	0%	100%	0%	0%	0%	0%
050GAC600	Guadalupe River	34	41%	49%	9%	0%	1%	0%
051CTC150	Coyote Creek	40	9%	85%	0%	6%	0%	0%
051CTC275	Coyote Creek	454	31%	39%	0%	24%	6%	0%
051CTC400	Coyote Creek	140	67%	21%	0%	11%	2%	0%
051CTC450	Coyote Creek	244	11%	14%	2%	58%	15%	0%
051CTC850	Coyote Creek	101	16%	34%	41%	7%	2%	0%
051CTC950	Coyote Creek	22	25%	42%	14%	15%	4%	0%
066GAC110	Guadalupe River	276	9%	46%	5%	35%	5%	0%
066GAC150	Guadalupe River	114	41%	59%	0%	0%	0%	0%

[2] Some WMAs overlap with multiple Co-permittees.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
066GAC152	Guadalupe River	379	37%	63%	0%	0%	0%	0%
066GAC550	Guadalupe River	1495	16%	22%	59%	3%	1%	0%
066GAC810	Guadalupe River	131	14%	81%	1%	0%	4%	0%
066GAC850	Guadalupe River	137	46%	19%	27%	3%	5%	0%
066GAC900	Guadalupe River	593	4%	30%	64%	0%	2%	0%
067CTC030	Coyote Creek	81	56%	31%	1%	9%	3%	0%
067CTC150	Coyote Creek	64	58%	25%	1%	14%	2%	0%
067CTC250	Coyote Creek	41	63%	20%	0%	17%	0%	0%
067CTC350	Coyote Creek	99	25%	16%	6%	52%	1%	0%
067CTC351	Coyote Creek	34	76%	15%	0%	9%	0%	0%
067CTC750	Coyote Creek	73	12%	39%	46%	3%	1%	0%
067CTC810	Coyote Creek	230	7%	16%	76%	0%	1%	0%
067GAC010	Guadalupe River	527	2%	27%	62%	1%	7%	0%
067GAC075	Guadalupe River	391	3%	30%	60%	0%	7%	0%
067GAC150	Guadalupe River	298	16%	27%	49%	1%	7%	0%
067GAC190	Guadalupe River	318	14%	42%	43%	1%	0%	0%
067SCL063	Lower Silver Creek	141	18%	44%	37%	0%	1%	0%
067SCL066	Lower Silver Creek	1148	0%	29%	69%	0%	2%	0%
067SCL080	Lower Silver Creek	42	86%	6%	0%	7%	1%	0%
067SCL120	Lower Silver Creek	27	48%	4%	0%	46%	2%	0%
068SCL150	Lower Silver Creek	100	2%	34%	63%	0%	1%	0%
068SCL230	Lower Silver Creek	405	1%	25%	70%	0%	4%	0%
068SCL270	Lower Silver Creek	25	2%	14%	82%	0%	2%	0%
083CTC350	Coyote Creek	426	7%	27%	54%	3%	9%	0%
083CTC650	Coyote Creek	157	3%	23%	41%	22%	10%	0%
083CTC990	Coyote Creek	456	64%	18%	12%	4%	2%	0%
083GAC240	Guadalupe River	275	27%	24%	46%	2%	1%	0%
083GAC246	Guadalupe River	44	31%	30%	29%	10%	1%	0%
083GAC300	Guadalupe River	27	36%	20%	21%	20%	2%	0%
083GAC575	Guadalupe River	139	2%	28%	69%	0%	1%	0%
083GAC800	Guadalupe River	221	7%	30%	60%	0%	3%	0%
083GAC900	Guadalupe River	608	29%	10%	28%	6%	28%	0%
083LGC090	Los Gatos Creek	41	74%	7%	2%	16%	1%	0%
083LGC225	Los Gatos Creek	20	90%	9%	0%	1%	0%	0%
083LGC430	Los Gatos Creek	59	35%	21%	40%	0%	4%	0%
083LGC525	Los Gatos Creek	233	15%	45%	39%	1%	0%	0%
083LGC686	Los Gatos Creek	39	86%	10%	2%	2%	1%	0%
084CTC625	Coyote Creek	205	24%	42%	3%	27%	4%	0%
099GAC240	Guadalupe River	298	30%	33%	18%	15%	4%	0%

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
099GAC500	Guadalupe River	88	4%	37%	53%	0%	6%	0%
099LGC180	Los Gatos Creek	825	2%	32%	65%	1%	1%	0%
100CTC050	Coyote Creek	48	5%	86%	1%	7%	2%	0%
100CTC190	Coyote Creek	139	1%	27%	70%	1%	2%	0%
100CTC400	Coyote Creek	305	11%	17%	59%	2%	12%	0%
100CTC500	Coyote Creek	722	15%	20%	37%	0%	28%	0%
100CTC600	Coyote Creek	740	0%	23%	69%	1%	7%	0%
113LGC010	Los Gatos Creek	628	0%	20%	69%	11%	0%	0%
128GAC490	Guadalupe River	60	1%	41%	51%	2%	5%	0%
129CNC165	Canoas Creek	1230	16%	14%	53%	6%	10%	0%
130CNC022	Canoas Creek	2499	4%	9%	53%	19%	15%	0%
GAC-B	Guadalupe River	229	4%	35%	33%	2%	26%	0%
LGC-C3	Los Gatos Creek	173	23%	18%	50%	5%	5%	0%
Miguelita Creek	Coyote Creek	1235	2%	26%	67%	3%	1%	0%
Other - San José	Multiple	72483	1%	11%	47%	10%	31%	0%
	Totals	**97,212**	**4%**	**15%**	**45%**	**12%**	**25%**	**0%**

Existing and Planned Control Measures

PCBs and mercury control measures currently in place or planned for future implementation are described in this section. A preliminary list of existing and planned control measures for the City of San José is listed in Table 3.2.

Table 3.2. Existing (E) and planned (P) PCBs and mercury control measures in City of San José WMAs.

WMA ID#	Control Measure Categories										
						Operation and Maintenance Practices					
	Source Property Identification and Abatement	Green Stormwater Infrastructure and Treatment Control Measures	Full trash capture Systems	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning	Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCB-containing Materials and Products	Reduction/Recycling of Mercury-containing Devices & Products
034AVS120		E		E		E		E			E
035GAC010		E		E		E		E			E
035GAC015		E		E		E		E			E
036PCL800		E		E		E		E			E
036PCL810		P		E		E		E			E
050CTC100				E		E		E			E
050GAC020	E	E/P		E		E		E			E

WMA ID#	Control Measure Categories										
	Source Property Identification and Abatement	Green Stormwater Infrastructure and Treatment Control Measures	Full trash capture Systems	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Operation and Maintenance Practices			Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCB-containing Materials and Products	Reduction/Recycling of Mercury-containing Devices & Products
						Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning			
050GAC401				E		E		E			E
050GAC300				E		E		E			E
050GAC600				E		E		E			E
051CTC150				E		E		E			E
051CTC275	E	E		E		E		E			E
051CTC400	E	E/P		E		E		E			E
051CTC450		E		E		E		E			E
051CTC850		E		E		E		E			E
051CTC950				E		E		E			E
066GAC110		E		E		E		E			E
066GAC151				E							
066GAC152		E/P		E		E		E			E
066GAC550		E/P	E	E		E		E			E
066GAC810				E		E		E			E
066GAC850		E		E		E		E			E
066GAC900		E		E		E		E			E
067CTC030		E		E		E		E			E
067CTC150				E		E		E			E
067CTC250	E			E		E		E			E
067CTC350		E		E		E		E			E
067CTC351				E		E		E			E
067CTC750				E		E		E			E
067CTC810		E/P	E	E		E		E			E
067GAC010		E		E		E		E			E
067GAC075		E		E		E		E			E
067GAC150		E		E		E		E			E
067GAC190		E/P	E	E		E		E			E
067SCL063		E		E		E		E			E
067SCL066		E	E	E		E		E			E
067SCL080	E	E		E		E		E			E
067SCL120	E	E		E		E		E			E
068SCL150		E/P		E		E		E			E
068SCL230				E		E		E			E
068SCL270		E		E		E		E			E
083CTC350		E	E	E		E		E			E
083CTC650		E/P	E	E		E		E			E
083CTC990 (Leo Ave)	E	E	E	E		E	E	E			E
083GAC240		E/P		E		E		E			E
083GAC246		E		E		E		E			E

WMA ID#	Control Measure Categories										
	Source Property Identification and Abatement	Green Stormwater Infrastructure and Treatment Control Measures	Full trash capture Systems	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Operation and Maintenance Practices			Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCB-containing Materials and Products	Reduction/Recycling of Mercury-containing Devices & Products
						Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning			
083GAC300		E/P		E		E		E			E
083GAC575				E		E		E			E
083GAC800		P		E		E		E			E
083GAC900	E	E/P	E	E		E		E			E
083LGC090		E	E	E		E		E			E
083LGC225		P		E		E		E			E
083LGC430		E		E		E		E			E
083LGC525		E/P	E	E		E		E			E
083LGC686		E		E		E		E			E
084CTC625		E	E	E		E		E			E
099GAC240		E		E		E		E			E
099GAC500		E/P		E		E		E			E
099LGC180		E/P	E	E		E		E			E
100CTC050		E	E	E		E		E			E
100CTC190		E/P		E		E		E			E
100CTC400		E		E		E		E			E
100CTC500		E	E	E		E		E			E
100CTC600		E	E	E		E		E			E
113LGC010		E		E		E		E			E
128GAC490				E		E		E			E
129CNC165		E/P		E		E		E			E
130CNC022		E/P		E		E		E			E
GAC-B				E		E		E			E
LGC-C3		E		E		E		E			E
Miguelita Creek		E/P		E		E		E			E
Other - San José		E/P	E	E		E		E			E

Source Property Identification and Abatement (including Referrals)

The following summaries describe the status of source property investigation projects completed or currently underway. Based on the results of future monitoring designed to identify WMAs that likely contain source properties, additional source property investigations may be conducted by the Program or Co-permittees, resulting in additional source property referrals and/or actions by the City to eliminate the discharge of PCBs of mercury into the MS4 by property owners.

WMA 083CTC990 (Leo Avenue Watershed)

Source Investigation

During MRP 1.0, SCVURPPP Co-permittees focused on identifying source properties in the Leo Avenue watershed (WMA 083CTC990) located in an older industrial area of San José. There, SCVURPPP and the City of San José in coordination with the CW4CB project conducted a source property identification project that was completed in FY 14-15. The goal of the Leo Avenue project was to help the City of San José identify source properties and provide information to support referrals of those properties to the Regional Water Board and other appropriate agencies for abatement. Alternatively, the City could take actions to require the property owner to effectively eliminate the contribution of pollutants from a property to the stormwater conveyance system.

Property Referral

The Leo Avenue project provided evidence that high concentrations of PCBs and mercury originating from the Union Pacific railroad track ROW were entering the City's stormwater system immediately downstream of the railroad track ROW. This evidence resulted in the City of San José, in collaboration with the Program, referring the Union Pacific Railroad ROW parcel to the Regional Water Board for follow-up investigation and abatement. The final project report and referral was included in the Leo Avenue Source Property Investigation Report, attached to the Program's FY 14-15 Annual Report.

On August 11, 2016 the Regional Water Board issued a request for monitoring data to Union Pacific Railroad based on the information provided by the City of San José and the Program in September 2015. The request was issued under California Water Code section 13267 and required Union Pacific to develop, submit and implement a Sampling and Analysis Plan (SAP) that would effectively characterize PCBs concentrations in sediment on the railroad ROW and in the public ROW adjacent to the rail line. The City and the Program provided comments on the proposed SAP in FY 16-17 and sampling was conducted in FY 16-17.

Union Pacific provided a remedial investigation report with the sampling results to the Regional Water Board in September 2017. PCBs concentrations on the railroad property were as high as 127 mg/kg. Following review of the investigation report by both City of San José and Program staff, the Regional Water Board directed Union Pacific to prepare a work plan to stabilize the soil on site and prevent off-site transport. Following evaluation of the flow patterns on site, Union Pacific installed filter rolls secured to the chain link fence along the ROW in February 2018, and agreed to evaluate the effectiveness during subsequent rain events. In March 2018, Water Board and EPA staff continued discussions with Union Pacific Railroad representatives about requirements for additional soil stabilization at the site. In early FY 18-19, UPRR submitted a "Removal Action Work Plan" to EPA and Regional Water Board staff for review, which was subsequently forwarded to City and Program staff. The "Removal Action Work Plan" provided details on the actions UPRR planned to take to conduct the cleanup and soil stabilization work at the Leo Avenue location. Comments on the UPRR work plan and input on additional action items were provided to the Regional Water Board by City and Program staff, and US EPA. After the work plan has been finalized, UPRR is expected to commence cleanup and soil stabilization actions at the site during FY 19-20.

Enhanced Operation and Maintenance Activities

In an effort to reduce the on-going contribution of PCB-containing sediment to the City's stormwater conveyance system that originates from the Pacific Union ROW, three enhanced operation and maintenance measures have been implemented on Leo Avenue. First, as an interim measure, the City of San José required property owners along Leo Avenue to conduct street sweeping on the Leo Avenue cul-de-sac daily. Second, Union Pacific installed a reinforced fence along their ROW to eliminate tracking of sediment from the railroad ROW to

the street by vehicles. Lastly, the City installed a large Hydrodynamic Separator (HDS) unit in the stormwater conveyance system directly downstream of Leo Avenue that receives and treats runoff from the entire Leo Avenue cul-de-sac and adjacent properties.

WMA 051CTC275

Source Investigation

Based on elevated mercury and PCBs concentrations observed via the Program's Pollutant of Concern (POC) monitoring, this WMA was identified as likely containing a source property(s). This WMA covers 443 acres in the City of San José northwest of the intersection of Highway 880 and Highway 101, and drains north into Coyote Creek. The businesses in the WMA include heavy metal recycling facilities, metal manufacturing, and auto repair businesses. The Program conducted a source property investigation in this WMA during FYs 16-17 and 17-18. As part of this investigation, the Program compiled information for 130 parcels and prioritized 62 parcels of high interest for PCBs or mercury. After review of aerial photos and further review of associated businesses, Program staff conducted right of way (ROW) surveys and visited businesses associated with 44 parcels in early Fall, 2016. During these visits, the Program identified potential sites for follow-up sampling. In spring 2017, the Program collected nine soil/sediment samples from public ROW locations in the WMA, including sediment migrating off suspect parcels and a sample collected from a roadway where an electrical transformer had released insulation oils in the week prior to the sampling event. All samples were sent to a laboratory for chemical analysis of PCBs and mercury concentrations. PCBs concentrations ranged from 0.01 mg/Kg to 12 mg/Kg. Total mercury concentrations ranged from 0.04 mg/Kg to 3.0 mg/Kg.

Based on these results, the Program identified two PCBs and mercury source properties in this WMA. The City of San José is currently evaluating options for enhanced O&M actions in public ROWs adjacent to these properties, and reviewing next steps for source property referrals to the Regional Water Board. The full results of this source property investigation were provided as an appendix to the Program's FY 17-18 Annual Report.

In addition to the source properties that were identified, the Program also identified two additional properties that may be PCBs source properties and one additional property that may be a mercury source property. In FY 18-19, the Program continued to investigate these potential source properties. These investigations will continue during FY 19-20, and properties may or may not be referred to the Regional Water Board based on the results of the investigations.

WMA 051CTC400

Source Investigation

Based on elevated mercury and PCBs concentrations observed via the Program's Pollutant of Concern (POC) monitoring, this WMA was identified as likely containing a source property(s). This WMA covers 130 acres in the City of San José northeast of the intersection of Highway 880 and Highway 101, and drains north into Coyote Creek. The railroad, which comprises the eastern boundary of the WMA, transported scrap metal to and from Markovitis and Fox Metals, a site known to have had soils contaminated with PCBs. The Program conducted a source property investigation in this WMA during FY 16-17 and FY 17-18. As part of this investigation, the Program compiled information for 34 parcels and prioritized 28 parcels of high interest for PCBs or mercury. After review of aerial photos and further review of records for 200 associated businesses, Program staff conducted right of way (ROW) surveys and visited businesses at 28 parcels in early FY 16-17 and identified 16 sites for follow-up sampling. In spring 2017, the Program collected eight soil/sediment samples from public ROW locations in the WMA, including sediment migrating off suspect parcels. All samples were sent to a laboratory for

chemical analysis of PCBs and mercury concentrations. PCBs concentrations ranged from 0.004 mg/Kg to 2.8 mg/Kg. Total mercury concentrations ranged from 0.06 mg/Kg to 0.38 mg/Kg.

Based on review of the sampling results and other information gained during the investigation, the Program identified one PCBs source property in this WMA. The City of San José is currently evaluating options for enhanced O&M actions in the public ROW adjacent to the property, and reviewing next steps for source property referral to the Regional Water Board. The full results of this source property investigation were provided as an appendix with the FY 17-18 Annual Report.

In addition to the source property that was identified, the Program also identified two additional properties that may be PCBs source properties and one additional property that may be a mercury source property. In FY 18-19, the Program continued to investigate these potential source properties. These investigations will continue during FY 19-20 and properties may or may not be referred to the Regional Water Board based on the results of the investigations.

WMA 067SCL080

Source Investigation

Based on elevated PCBs to sediment ratios observed via the Program's Pollutant of Concern (POC) monitoring, this WMA was identified as likely containing a source property(s). This WMA covers 28 acres in the City of San José north of the intersection of Highway 101 and Lower Silver Creek. The WMA includes past railroad use and the DAP clean-up site for various chemicals associated with caulk and glazing compounds. Present businesses include mechanical engineering/construction, electrical construction, and asphalt/cement distributor. The Program conducted a source property investigation in this WMA during FY 16-17 and FY 17-18. As part of this investigation, the Program compiled information for 9 parcels and prioritized 7 parcels of high interest for PCBs. After review of aerial photos and the further review of associated businesses, the Program conducted public ROW surveys and visited businesses associated with 7 parcels in early FY 16-17. Follow-up sampling was conducted in spring, 2017, and seven soil/sediment samples were collected from public ROW locations. All samples were sent to a laboratory for chemical analysis of PCBs and mercury concentrations. PCBs concentrations ranged from 0.01 mg/Kg to 0.12 mg/Kg. Total mercury concentrations ranged from 0.03 mg/Kg to 0.26 mg/Kg.

Based on the sampling results and other information gained during the investigation, the Program did not identify any PCBs or mercury source properties in this WMA. The full results of this source property investigation were provided as an appendix with the FY 17-18 Annual Report.

The Program identified one high-interest property in this WMA that requires additional investigation. In FY 18-19, the Program continued to investigate these potential source properties. These investigations will continue during FY 19-20 and properties may or may not be referred to the Regional Water Board based on the results of the investigations.

WMA 083GAC900

Source Investigation

Based on elevated mercury and PCBs concentrations observed via the Program's Pollutant of Concern (POC) monitoring, this WMA was identified as likely containing a source property(s). This WMA covers 611 acres in San José and is adjacent to WMA 083CTC990 (Leo Avenue). The WMA includes the largest metal recycling facility in Santa Clara County, railroad parcels with

the same ownership as the known source of the PCBs in the Leo Avenue watershed, and the Tamien Park, PG&E and General Electric (GE) clean-up sites. The Program conducted a source property investigation in this WMA during FY 16-17 and FY 17-18. As part of this investigation, the Program compiled information for 114 parcels and prioritized 66 parcels of high interest for PCBs. After review of aerial photos and further review of associated businesses, the Program conducted right-of-way (ROW) surveys and visited businesses associated with 43 parcels in early FY 16-17. Follow-up sampling was conducted in spring, 2017, and seven soil/sediment samples were collected from public ROW locations. All samples were sent to a laboratory for chemical analysis of PCBs and mercury concentrations. PCBs concentrations ranged from 0.07 mg/Kg to 7.1 mg/Kg. Total mercury concentrations ranged from 0.32 mg/Kg to 1.95 mg/Kg.

Based on the sampling results and other information gained during the investigation, the Program identified one PCBs and Mercury source property in this WMA. The City of San José is currently evaluating options for enhanced O&M actions in the public ROW adjacent to the property, and reviewing next steps for source property referral to the Regional Water Board. The full results of this source property investigation were provided as an appendix with the FY 17-18 Annual Report.

The Program also identified one additional property in this WMA that may be a PCBs and Mercury source property, as well as other areas within the WMA that require further investigation. In FY 18-19, the Program continued to investigate these potential source properties. These investigations will continue during FY 19-20 and properties may or may not be referred to the Regional Water Board based on the results of the investigations.

WMA050GAC020

Source Investigation

In WY 2017, POC monitoring conducted by the Program found elevated PCBs sediment ratio in a stormwater sample collected from the WMA. Based on this result, WMA 050GAC020, which drains to the Guadalupe River, was identified as a priority WMA for further source property investigation. The Program began a source property investigation in this WMA in FY 17-18, which continued through FY 18-19 and will be ongoing during FY 19-20. Based on the results of the investigations, properties within this WMA may or may not be referred to the Regional Water Board.

WMA067SCL120

Source Investigation

In WY 2017, POC monitoring conducted by the Program found elevated PCBs concentration in a stormwater sample collected from the WMA. Based on this result, WMA 067SCL120, which drains to the Lower Silver Creek, was identified as a priority WMA for further source property investigation. The Program began a source property investigation in this WMA in FY 17-18, which continued through FY 18-19 and will be ongoing during FY 19-20. Based on the results of the investigations, properties within this WMA may or may not be referred to the Regional Water Board.

WMA067CTC250

Source Investigation

In WY 2017, POC monitoring conducted by the Program found elevated PCBs concentration in a stormwater sample collected from the WMA. Based on this result, WMA 067CTC250, which drains to Coyote Creek, was identified as a priority WMA for further source property investigation. The Program began a source property investigation in this WMA in FY 17-18, which continued through FY 18-19 and will be ongoing during FY 19-20. Based on the results of

the investigations, properties within this WMA may or may not be referred to the Regional Water Board.

Green Stormwater Infrastructure and Treatment Controls[3]

Green stormwater infrastructure (GSI) and other treatment controls may be installed on roadways and public storm drain infrastructure to treat stormwater runoff in public rights-of-way (e.g., green streets). In addition, applicable public or private properties undergoing new or redevelopment are subject to MRP requirements to treat stormwater via low impact development (LID) techniques or equivalent. Based on the information compiled to-date, new and redevelopment project sites currently addressed by stormwater facilities treat over 1,931acres of land to-date[4], including 569 acres of old industrial and 613 acres of old urban land uses that are distributed among the 75 WMAs in the City of San José (**Attachment A**). As listed in Table 3.3, a total of 1,287 acres are currently treated by GSI facilities that were completed between July 1, 2013 and June 30, 2019 (i.e., FY13-14 through FY18-19).

An additional 298 acres of new and redevelopment project sites currently under construction will also treat stormwater once the development/redevelopment is complete. The Program will continue working with the City to update and refine the information as these projects are completed.

The City has constructed 20 green street projects during MRP 2.0 to-date (Table 3.3). These projects treat 64 acres of public right-of-way (ROW) areas and include GSI features such as permeable pavement, underground infiltration trenches, and bioretention facilities. For more information please refer to the City's Fiscal Year FY 18-19 Annual Report.

Table 3.3. Extent of land area in City of San José WMAs that is addressed by Green Stormwater Infrastructure (GSI) and Other Stormwater Treatment Measures completed between July 1, 2013 and June 30, 2019.[1,2,3,4]

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Other	Open Space
Parcel-based New & Redevelopment or Retrofit	034AVS120	54.03	-	0.04	-	-	53.99
	035GAC010	75.68	-	14.99	34.23	-	26.47
	035GAC015	41.55	-	0.00	41.55	-	-
	036PCL800	2.86	-	1.73	1.13	-	-
	050GAC020	50.16	19.26	0.72	23.16	-	7.01
	051CTC275	2.91	-	-	-	-	2.91
	051CTC400	10.82	10.82	0.00	-	-	-
	051CTC450	29.58	23.93	5.65	-	-	-
	066GAC110	32.48	4.43	28.05	0.00	-	-
	066GAC152	58.60	58.60	-	-	-	-

[3] Acres reported in this section as addressed by green infrastructure and treatment controls should be considered preliminary and may be revised in the future as additional information is available.
[4] The acres treated to date include all projects completed since the TMDL baseline was established in 2002.

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Other	Open Space
	066GAC550	21.14	17.09	3.51	-	-	0.54
	066GAC900	14.19	-	14.19	-	-	-
	067CTC030	0.35	0.35	-	-	-	-
	067CTC350	3.78	0.11	2.80	0.07	-	0.81
	067GAC010	0.60	-	0.60	-	-	-
	067GAC075	1.01	-	1.01	-	-	-
	067GAC150	1.12	1.12	0.00	-	-	-
	067GAC190	3.68	-	3.68	-	-	-
	067SCL063	1.88	0.01	1.87	-	-	-
	067SCL080	4.26	4.26	-	-	-	-
	067SCL120	1.83	1.83	-	-	-	-
	068SCL150	31.47	-	31.47	-	-	-
	068SCL270	0.40	-	-	-	-	0.40
	083CTC350	3.61	-	3.61	-	-	-
	083CTC990	3.27	3.27	0.00	-	-	-
	083GAC240	8.45	6.04	2.39	-	-	0.02
	083GAC800	0.71	-	0.71	-	-	-
	083GAC900	27.61	21.51	4.09	-	-	2.01
	083LGC525	4.17	-	4.17	-	-	-
	083LGC686	3.04	3.04	-	-	-	-
	084CTC625	5.48	5.48	-	-	-	-
	099GAC240	2.52	2.52	-	-	-	-
	099LGC180	7.26	-	6.42	-	-	0.84
	100CTC500	17.72	11.02	4.99	-	-	1.71
	100CTC600	0.55	-	0.55	-	-	-
	113LGC010	9.23	-	9.23	-	-	-
	129CNC165	119.04	49.24	0.75	-	-	69.04
	130CNC022	38.24	21.87	-	13.01	-	3.36
	LGC-C3	5.93	5.93	-	-	-	-
	Miguelita Creek	30.44	0.00	29.06	1.38	-	-
	Other - San José	490.75	40.57	153.67	132.96	-	163.55
	Parcel-based Total	**1,222.42**	**312.31**	**329.95**	**247.50**	**-**	**332.66**
Green Street/Regional Retrofit	035GAC010	0.51	-	-	0.51	-	-
	035GAC015	0.46	-	-	0.46	-	-
	066GAC152	2.57	2.57	-	-	-	-

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Other	Open Space
	083GAC246	3.23	1.00	2.23	-	-	-
	083GAC800	0.72	-	0.61	-	-	0.11
	129CNC165	32.83	7.23	8.41	6.02	-	11.17
	LGC-C3	1.27	-	1.27	-	-	-
	Other - San José	22.69	-	6.51	10.52	-	5.66
	Green Street/Regional Retrofit Total	**64.29**	**10.81**	**19.04**	**17.51**	**-**	**16.94**
Total Acres - All Project Types		**1286.70**	**323.11**	**348.99**	**265.01**	**-**	**349.59**

1 – Acres presented may not include all acres currently treated by GSI and other treatment controls.
2 – GSI and Treatment Control Measures include: (1) parcel based new development, redevelopment, or retrofit projects; and (2) green street projects or regional retrofit projects.
3 Includes all projects completed during FY13 14 through FY 18-19 that were not reported in the 2014 IMR (BASMAA, 2014).
4 GSI and treatment controls may include proprietary vault based systems.

Large Full Trash Capture Systems (Hydrodynamic Separators)

The City of San José has installed 27 large full trash capture treatment systems (i.e., public hydrodynamic separators). These devices and devices in neighboring municipalities treat nearly 13,000 acres of land, including 925 acres of old industrial and 10,838 acres of old urban land uses (Table 3.4). These systems are owned and operated by the City and are distributed over many WMAs.

In addition to the area currently treated by these systems, the City also plans to install additional large full trash capture systems to treat additional land areas during the term of MRP 2.0. Installation of these devices will not only assist the City in achieving its trash load reduction goals, but will also provide additional load reduction benefits for PCBs and mercury.

Table 3.4. Extent of land area in City of San José WMAs that is addressed by publicly owned Hydrodynamic Separators (i.e., Large Full Trash Capture Systems).[1,2,3]

WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
		Old Industrial	Old Urban	New Urban	Other	Open Space
066GAC550	1,492.99	241.28	1,200.16	41.09	-	10.46
067CTC810	228.13	16.05	209.58	0.53	-	1.98
067GAC190	314.84	44.18	265.61	3.85	-	1.20
067SCL066	757.27	2.20	732.74	-	-	22.33
083CTC350	385.57	29.15	328.55	10.05	-	17.82
083CTC650	156.73	5.16	101.29	35.09	-	15.18
083CTC990	178.08	116.27	49.52	6.59	-	5.70
083GAC800	220.54	17.22	197.42	-	-	5.90
083GAC900	609.84	174.72	231.73	34.51	-	168.88

WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
		Old Industrial	Old Urban	New Urban	Other	Open Space
083LGC525	360.61	34.09	322.82	2.28	-	1.42
084CTC625	282.01	90.43	119.49	62.98	-	9.12
099LGC180	1,144.90	10.82	1,121.63	4.13	-	8.33
100CTC050	48.46	2.07	41.49	3.00	-	1.91
100CTC500	838.69	134.53	461.58	7.22	-	235.36
100CTC600	742.75	-	683.01	6.46	-	53.28
Other - San José	5,029.37	6.92	4,771.36	210.60	-	40.49
HDS Total	**12,790.78**	**925.08**	**10,837.98**	**428.37**	**-**	**599.36**

1 – Acres presented may not include all acres currently treated by trash full capture treatment systems.
2 – Trash systems only include hydrodynamic separators that are publicly owned. Inlet based full trash capture devices are described in the operation and maintenance practices section.
3 - Includes all existing full trash capture systems in the City of San José that were installed between January 2010 and June 2019.

Managing PCBs during Building Demolition

The City of San José participated in the BASMAA regional project to develop tools and guidance for implementing a protocol for managing PCBs during building demolition. The City began implementing a program to require the management of PCBs in building materials during demolition activities by July 1, 2019, consistent with MRP 2.0.

MS4 Operation and Maintenance Practices

- **Street Sweeping**

  The City of San José's street sweeping program includes four routes with four different sweeping frequencies. The residential route (RSS) sweeping frequency is once a month and includes most residential streets. The arterial route (ACB) sweeping frequency is twice a month, and includes most arterial roads. The north business district route (NBD) sweeping frequency is once per week and includes many arterial roads and streets around the downtown area. The central business district route (CBD) sweeping frequency is twice a week and includes most of the downtown area. Parking enforcement signs for street sweeping are in place on many residential streets and some arterial roads. Parking is not allowed on approximately half of the CBD and NBD routes.

  In addition, the City requires certain property owners on Leo Avenue to sweep the street frequently between municipal sweeping events. This enhanced street sweeping serves as the operation and maintenance required by the MRP to claim reductions associated with source property referrals to the Water Board.

  The City also took part in a street sweeping pilot project as part of the CW4CB project, which was completed in FY 16-17. The primary goals of the pilot project were to conduct street sweeping studies in older industrial areas where PCBs may still be found in roadway sediments; assess the effectiveness of current actions; and predict the effectiveness of enhanced sweeping if it were to occur. The increased cumulative effectiveness of enhanced street sweeping practices, compared to baseline, will be a

measure of the potential for enhanced street sweeping to reduce loads to the Bay. The final project report, including results, was incorporated in the CW4CB Final Project Report, which was completed in spring 2017 and is available on the BASMAA website (http://basmaa.org/Clean Watersheds for a Clean Bay Project).

The City will continue to evaluate the benefits of more frequent street sweeping on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

- **MS4 Line Flushing**

  In 2004 and 2014, the storm drain line on Leo Avenue was cleaned out to remove contaminated sediments and improve the operation of the line. The cleanout was conducted as part of a CW4CB pilot project designed to evaluate the pollutant load reduction effectiveness and cost of the project, and inform the potential future implementation of similar project by the City and/or other Co-permittees. Although no additional cleanouts are currently planned, the City continues to evaluate the need/opportunity for additional cleanout events on the Leo Avenue line and other locations in the City.

- ***Inlet Cleaning***

  The City currently inspects and maintains all storm drain inlets one time per year, with the exception of those with full trash capture systems, which are cleaned more often. The City has installed 118 inlet-based full trash capture devices since 2002 that treat 3 acres of old industrial and 119 acres of old urban land uses. Because of additional maintenance requirements for these devices, the Program is currently documenting enhanced cleaning frequencies and will provide that information in future reports. The City will continue to evaluate the benefits of more frequent inlet cleaning on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

Reduction/Recycling of Mercury containing Devices & Products

The City currently promotes the collection and recycling of mercury containing devices and equipment at the consumer level via their participation in the Santa Clara County Environmental Health Department's Household Hazardous Waste Program (HHW Program). No enhancements associated with this control measure are currently planned.

CITY OF SUNNYVALE

Watershed Management Areas

Table 3.5 provides a listing of all Watershed Management Areas (WMAs) identified to-date in the City of Sunnyvale. Total land area in the WMA and associated land uses are also included. WMAs presented in Table 3.5 have been updated from the tables provided in Version 3.0 of this report based on new information. That said, these WMAs should continue to be considered preliminary because they may be refined in the future based on data/information currently being evaluated and collected through source investigations and other activities.

A total of 26 WMAs (or portions of WMAs[5]) have been identified in the City. These WMAs include all land area (i.e., >12,000 acres) within the City's jurisdictional boundaries that is below significant water impoundments located on receiving water bodies (i.e., reservoirs). WMAs form the management units that are used to report control measure implementation in this section and PCBs and mercury load reductions reported in Section 4.

Table 3.5. City of Sunnyvale preliminary PCBs and mercury Watershed Management Areas (WMAs) and associated land uses.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
032SVC490	Stevens Creek	90	0%	8%	0%	0%	92%	0%
033SVW950	Sunnyvale West Channel	92	20%	70%	0%	6%	4%	0%
033SVW955	Sunnyvale West Channel	259	10%	42%	37%	9%	2%	0%
034BFL230A	San Francisco Bay	153	29%	62%	0%	8%	1%	0%
034BFL230B	San Francisco Bay	213	13%	59%	0%	25%	2%	0%
034BFL230C	San Francisco Bay	223	4%	27%	0%	47%	21%	0%
034CZC155	Calabazas Creek	487	10%	28%	56%	5%	2%	0%
034SVE490	Sunnyvale East Channel	295	6%	20%	69%	3%	2%	0%
047SVC150	Stevens Creek	20	1%	7%	93%	0%	0%	0%
048SVE395	Sunnyvale East Channel	12	32%	68%	0%	0%	0%	0%
048SVE550	Sunnyvale East Channel	32	20%	36%	15%	28%	0%	0%
048SVW998	Sunnyvale West Channel	1,555	2%	23%	71%	3%	0%	0%
048SVW999	Sunnyvale West Channel	67	12%	57%	28%	0%	3%	0%
049CZC200	Calabazas Creek	710	18%	43%	4%	34%	2%	0%
049CZC800	Calabazas Creek	199	49%	31%	4%	16%	0%	0%
049CZC900	Calabazas Creek	70	30%	64%	0%	6%	0%	0%
049CZC910	Calabazas Creek	34	19%	55%	0%	26%	0%	0%
049ECS900	Calabazas Creek	88	37%	4%	43%	16%	0%	0%
049STA710	San Tomas Aquino Creek	4	84%	16%	0%	0%	0%	0%

[5] Some WMAs overlap with multiple Co-permittees.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
049SVE410	Sunnyvale East Channel	54	19%	55%	25%	1%	0%	0%
049SVE720	Sunnyvale East Channel	126	9%	18%	71%	1%	0%	0%
049SVE900	Sunnyvale East Channel	480	18%	33%	47%	1%	1%	0%
Other - Sunnyvale	Multiple	6,202	0%	16%	76%	3%	5%	0%
SVC-A	Stevens Creek	5	12%	20%	67%	0%	1%	0%
SVW-A	Sunnyvale West Channel	147	18%	38%	1%	11%	32%	0%
SVW-B	Sunnyvale West Channel	682	76%	15%	0%	1%	8%	0%
	Totals	**12,300**	**10%**	**24%**	**55%**	**6%**	**5%**	**0%**

Existing and Planned Control Measures

PCBs and mercury control measures currently in place or planned for future implementation are described in this section. A preliminary list of control measures for the City of Sunnyvale are listed in Table 3.6.

Table 3.6. Existing (E) and planned (P) PCBs and mercury control measures in City of Sunnyvale WMAs.

WMA ID	Control Measure Categories										
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Large Full trash capture Systems (Hydrodynamic Separators)	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Operation and Maintenance Practices			Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
						Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning			
032SVC490				E		E		E			E
033SVW950		E/P		E		E		E			E
033SVW955		E/P		E		E		E			E
034BFL230A		E/P		E		E		E			E
034BFL230B		E/P		E		E		E			E
034BFL230C		E		E		E		E			E
034CZC155		E/P		E		E		E			E
034SVE490		E/P		E		E		E			E
047SVC150				E		E		E			E
048SVE395				E		E		E			E
048SVE550		E		E		E		E			E

WMA ID	Control Measure Categories										
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Large Full trash capture Systems (Hydrodynamic Separators)	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Operation and Maintenance Practices			Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
						Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning			
048SVW998		E/P		E		E		E			E
048SVW999		E		E		E		E			E
049CZC200		E/P	E	E		E		E			E
049CZC800		E/P		E		E		E			E
049CZC900		E		E		E		E			E
049CZC910				E		E		E			E
049ECS900		E		E		E		E			E
049STA710				E		E		E			E
049SVE410				E		E		E			E
049SVE720		E/P		E		E		E			E
049SVE900	E	E/P	E	E		E		E			E
Other - Sunnyvale		E/P	E	E		E		E			E
SVC-A				E		E		E			E
SVW-A		E		E		E		E			E
SVW-B		E/P		E		E		E			E

Source Property Identification and Abatement (including Referrals)

The following summary describes the status of the source property investigation project completed to-date in the City of Sunnyvale and the referral to the appropriate regulatory agency that resulted from the project. Based on the results of future monitoring designed to identify WMAs that likely contain source properties, additional source property investigations may be conducted by the Program or Co-permittees that may result in additional source property referrals and/or actions by the City. The goal of referrals is to eliminate the discharge of PCBs and mercury into the MS4 by property owners.

WMA 049SVE900

Source Investigation

Elevated concentrations of PCBs in sediments and stormwater collected adjacent to and downstream of a property located in the Sunnyvale East Channel watershed in the City of Sunnyvale have been observed during source investigations conducted since the early 2000's. As recently as FY 15-16, the Program measured multiple sediment concentrations above 1 ppm in the MS4 adjacent to the property. Between 2011 and 2014, the San Francisco Bay Regional Monitoring Program (RMP) collected 45 stormwater samples in the Sunnyvale East Channel located downstream of the property. The PCBs in these samples averaged 97 ng/L,

and the highest concentration was 980 ng/L. Based on a preliminary analysis conducted by the Program, the PCBs in these samples appear to have originated from the 74-acre former Westinghouse property located at 401 East Hendy Avenue. This property has a history of PCBs related contamination in soils and groundwater, and is currently a Superfund site overseen by the U.S. Environmental Protection Agency (USEPA).

The preliminary data analysis was forwarded to USEPA. Based on the results, the City and Program engaged in discussions with USEPA in FY 16-17 during the issuance of the Fourth Five-Year Review Report associated with the Consent Order between USEPA and the site owner (CAD001864081). The communications with USEPA were an attempt to incorporate follow up actions associated with stormwater monitoring and management into the permit. In response, USEPA requested that the property owner develop a Sampling and Analysis Plan (SAP) to characterize PCBs in stormwater being discharged from the site. Five stormwater sampling events were conducted by the property owner at multiple locations on and adjacent to the property, including two events during the 2016-17 wet weather season, and three events during the 2017-18 wet weather season. The PCBs concentrations of the stormwater samples ranged from 13 ng/L to 2,330 ng/L. Seven of these samples had some of the highest PCBs concentrations observed in stormwater in the Bay Area to-date.

Property Referral

The most recent stormwater data from the property provided confirmation that the former Westinghouse property is a source of PCBs to the City's stormwater system. In January 2018, the City of Sunnyvale, in collaboration with the Program, submitted a referral of this property to both the Regional Water Board and USEPA for follow-up investigation and abatement. The property is currently owned by Northrop Grumman Systems Corporation (Northrop Grumman).

Abatement Activities and Enhanced Operation and Maintenance

Under the oversight of US EPA, Northrop Grumman has implemented or plans to implement a number of actions to reduce PCBs in stormwater from the property, and reduce PCB-bound sediment in the adjacent public ROWs, including the following:

- Fitted storm drain inlets with gravel bags, filtrexx-type socks with gravel bag anchors, or geotech filter fabric; these are inspected prior to the rainy season to remove accumulated sediments;
- Installed fiber rolls near the facility boundary along Fair Oaks Avenue and California Avenue to slow the flow of stormwater off-site;
- Covered unpaved areas around the property with gravel to reduce erosion;
- Cleared sediment from the valley gutter next to building 41;
- Inspect areas around drains before forecasted rain events to verify BMPs are in place and functioning. BMPs will be repaired or replaced if not functioning.
- Weekly sweeping of all accessible areas of the property;
- Twice annual intensive area sweeping with a HEPA filter vacuum throughout the property;
- Biweekly street sweeping in the public streets on the property's perimeter to supplement the current biweekly sweeping conducted by the City of Sunnyvale; the property owner will conduct sweeping during the weeks the City does not sweep.

In addition, Northrop Grumman is currently conducting a survey of buried storm drain pipelines to confirm locations and connections, evaluate the integrity of the storm drain pipe, and identify accumulated sediment. Pipe locations and facility drawings will be updated. Pipelines requiring maintenance will be addressed by jetting out accumulated sediment and replacing

selected storm drain piping. Completion of this work will support the overall evaluation of PCBs sources on the property that have a potential to impact stormwater.

The City of Sunnyvale has worked with Northrop Grumman and their contractor to begin the additional street sweeping in the public right-of-way in FY 18-19 to fulfill the requirement for enhanced monitoring. The City and Program will continue to coordinate with USEPA throughout the property abatement process and identify additional next steps.

Green Stormwater Infrastructure and Other Stormwater Treatment Controls[6]

Green stormwater infrastructure (GSI) and other treatment controls may be installed on roadways and public storm drain infrastructure to treat stormwater runoff in public rights-of-way (e.g., green streets). In addition, applicable public or private properties undergoing new or redevelopment are subject to MRP requirements to treat stormwater via low impact development (LID) techniques or equivalent. Based on the information compiled to-date, over 1,180 acres of land to-date[7], including 736 acres of old industrial and 366 acres of old urban land uses are currently addressed by GSI and other stormwater treatment facilities (**Attachment A**). As listed in Table 3.7, 319 acres are associated with facilities that were completed between July 1, 2013 and June 30, 2019 (i.e., FY13 14 through FY 18-19). Treatment areas associated with these facilities are distributed among the 26 WMAs in the City.

GSI projects currently under construction will also treat approximately 147 acres of land, once the development/redevelopment is complete. The Program will continue working with the City to update the information on completed projects.

The City has also recently constructed a green street project as part of the Calabazas Creek Bridge replacement at Old Mountain View Alviso Road. This project includes nearly 500 square feet of bioretention area that will treat runoff from impervious areas associated with the bridge. The City also has two additional green street/regional retrofit projects that are in progress. A summary of the status of these projects is included in the table below. Further, as part of the City's recent effort to screen capital projects for GSI potential, the City has identified up to 9 public projects that will be carried out over the Permit term that will be subject to the Permit's C3 requirements and will include stormwater treatment systems

Table 3.7. Extent of land area in City of Sunnyvale WMAs that is addressed by Green Stormwater Infrastructure (GSI) and Other Stormwater Treatment Measures completed between July 1, 2013 and June 30, 2019.[1,2,3,4]

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Other	Open Space
Parcel-based New & Redevelopment or Retrofit	033SVW950	5.19	5.19	-	-	-	-
	033SVW955	15.14	11.22	3.92	0.00	-	-
	034BFL230A	9.66	2.08	7.58	-	-	-
	034BFL230B	36.95	-	36.92	-	-	0.03
	034BFL230C	15.51	-	1.42	14.09	-	-
	034CZC155	6.70	-	6.70	-	-	-
	034SVE490	11.39	5.97	5.42	-	-	-
	048SVE550	2.33	2.33	0.00	-	-	-
	048SVW998	16.54	1.68	14.86	-	-	-
	048SVW999	5.73	-	3.56	-	-	2.17
	049CZC200	60.06	14.72	44.42	0.91	-	-

[6] Acres reported in this section as addressed by green infrastructure and treatment controls should be considered preliminary and may be revised in the future as additional information is available.
[7] The acres treated to date include all projects completed since the TMDL baseline was established in 2002.

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Other	Open Space
	049CZC800	31.71	18.89	12.81	-	-	0.01
	049SVE720	12.77	7.38	4.23	1.16	-	-
	049SVE900	36.68	-	36.68	0.00	-	-
	Other - Sunnyvale	33.91	2.53	22.25	-	-	9.14
	SVW-A	5.40	4.48	0.92	-	-	-
	SVW-B	8.88	5.03	3.85	-	-	-
	Total	314.55	81.51	205.54	16.16	-	11.35
Green Street/Regional Retrofit	049SVE900	4.16	0.40	3.69	0.07	-	-
	Total	4.16	0.40	3.69	0.07	-	-
Total Acres - All Project Types		**318.71**	**81.91**	**209.22**	**16.23**	**-**	**11.35**

1 – Acres presented may not include all acres currently treated by GSI and treatment controls.
2 – GSI and Treatment Control Measures include: (1) parcel based new development, redevelopment, or retrofit projects; and (2) green street projects or regional retrofit projects.
3 Includes all projects completed during FY13 14 through FY 18-19 that were not reported in the 2014 IMR (BASMAA, 2014).
4 GSI and treatment controls may include proprietary vault based systems.

The City is currently planning two additional public green street projects. The first is the Caribbean Avenue Green Street project, which will retrofit an existing arterial street with bioretention areas to treat stormwater runoff from the north side of Caribbean Avenue between Borregas Avenue and Mathilda Avenue. Bioretention areas will be interspersed with parking for San Francisco Bay Trail users. The project increases visibility and access to the Bay Trail, and serves as an opportunity to educate Bay Trail users and high-tech company commuters about the connection between urban landscapes and the Bay. The second project is the Persian Drive Green Street. The City proposed the inclusion of a green street and new sidewalk along a portion of Persian Drive in north Sunnyvale as part of a proposed affordable housing development project. The new sidewalk will complete a missing link in the neighborhood's sidewalk network and will connect the area to one of Sunnyvale's employment centers. Bioretention areas have been included in the design to treat road run off from a portion of Persian Drive between Morse Avenue and Borregas Avenue. Construction of both projects is expected to be completed by the end of the next fiscal year.

Large Full Trash Capture Systems (Hydrodynamic Separators)

The City of Sunnyvale publicly owns and operates 3 large full trash capture treatment systems (i.e., public hydrodynamic separators). These systems currently treat stormwater runoff from nearly 1,100 acres of land in the City, including 127 acres of old industrial and 667 acres of old urban land uses (Table 3.8).

Table 3.8. Extent of land area in City of Sunnyvale WMAs that is addressed by publicly owned Hydrodynamic Separators (i.e., Large Full trash capture Systems).[1,2,3]

WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
		Old Industrial	Old Urban	New Urban	Open Space	Other
049CZC200	716.95	125.90	331.59	242.18	11.94	-
049SVE900	10.46	1.39	8.22	0.64	0.22	-
Other Sunnyvale	330.97	-	327.31	-	3.66	-
TOTAL	***1058.38***	***127.28***	***667.11***	***242.82***	***15.82***	***-***

1 – Acres presented may not include all acres currently treated by full trash capture treatment systems.

2 – Trash systems only include hydrodynamic separators that are publicly owned. Inlet based full trash capture devices are described in the operation and maintenance practices section.
3 - Includes all existing full trash capture systems in the City of Sunnyvale that were installed between January 2010 and June 2019.

Managing PCBs during Building Demolition

The City of Sunnyvale participated in the BASMAA regional project to develop tools and guidance for implementing a protocol for managing PCBs during building demolition. The City began implementing a program to require the management of PCBs in building materials during demolition activities by July 1, 2019, consistent with MRP 2.0.

MS4 Operation and Maintenance Practices

- **Street Sweeping**

  The City of Sunnyvale's current street sweeping program includes sweeping at a frequency of every other week for most of the City's streets and medians, with the exception of the downtown Murphy Street Business Improvement District (BID), where sweeping occurs three times per week.

  In addition, the City took part in a street sweeping pilot project as part of the CW4CB project that was completed in FY 16-17. The primary goals of the pilot project were to conduct street sweeping studies in older industrial areas where PCBs may still be found in roadway sediments; assess the effectiveness of current actions; and predict the effectiveness of enhanced sweeping if it were to occur. The increased cumulative effectiveness of enhanced street sweeping practices, compared to baseline, will be a measure of the potential for enhanced street sweeping to reduce loads to the Bay. The final project report, including results, was incorporated in the CW4CB Final Project Report, which was completed in spring 2017 and is available on the BASMAA website (http://basmaa.org/Clean Watersheds for a Clean Bay Project).

  The City will continue to evaluate the benefits of more frequent street sweeping on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

- **Inlet Cleaning**

  The City currently inspects and maintains all storm drain inlets one time per year on average, with the exception of those with full capture systems, which are cleaned more often. The City has installed 173 inlet-based full trash capture devices since 2002 that treat 9 acres of old industrial and 292 acres of old urban land uses. Because of additional maintenance requirements for these devices, the Program is currently documenting enhanced cleaning frequencies and will provide that information in future reports. The City will continue to evaluate the benefits of more frequent inlet cleaning on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

Reduction/Recycling of Mercury containing Devices & Products

The City currently promotes the collection and recycling of mercury containing devices and equipment at the consumer level via their participation in the Santa Clara County Environmental Health Department's Household Hazardous Waste Program (HHW Program). No enhancements associated with this control measure are currently planned.

CITY OF SANTA CLARA

Watershed Management Areas

Table 3.9 provides a listing of all Watershed Management Areas (WMAs) identified to-date in the City of Santa Clara. Total land area in the WMA and associated land uses are also included. WMAs presented in Table 3.9 have been updated from the tables provided in Version 3.0 of this report based on new information. That said, these WMAs should continue to be considered preliminary because they may be refined in the future based on data/information currently being evaluated and collected through source investigations and other activities.

A total of 25 WMAs (or portions of WMAs[8]) have been identified in the City. These WMAs include all land area (i.e., >11,600 acres) within the City's jurisdictional boundaries that is below significant water impoundments located on receiving water bodies (i.e., reservoirs). WMAs form the management units that are used to report control measure implementation in this section and PCBs and mercury load reductions reported in Section 4.

Table 3.9. City of Santa Clara preliminary PCBs and mercury Watershed Management Areas (WMAs) and associated land uses.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
035GAC150	Guadalupe River	46	15%	24%	0%	59%	2%	0%
049CZC690	Calabazas Creek	29	0%	89%	0%	7%	4%	0%
049CZC800	Calabazas Creek	152	47%	50%	0%	3%	0%	0%
049CZC810	Calabazas Creek	65	1%	83%	0%	16%	1%	0%
049CZC900	Calabazas Creek	2	40%	60%	0%	0%	0%	0%
049CZC910	Calabazas Creek	3	9%	89%	0%	0%	3%	0%
049ECS900	Calabazas Creek	1	19%	45%	12%	0%	24%	0%
049STA050	San Tomas Aquino Creek	382	16%	27%	27%	29%	1%	0%
049STA300	San Tomas Aquino Creek	154	26%	45%	0%	28%	2%	0%
049STA500	San Tomas Aquino Creek	40	54%	28%	0%	18%	1%	0%
049STA550	San Tomas Aquino Creek	247	29%	46%	0%	25%	0%	0%
049STA600	San Tomas Aquino Creek	36	42%	56%	0%	1%	1%	0%
049STA710	San Tomas Aquino Creek	273	11%	45%	43%	1%	0%	0%
049STA800	San Tomas Aquino Creek	246	5%	17%	76%	2%	0%	0%
050GAC030	Guadalupe River	535	17%	33%	33%	15%	1%	0%
050GAC190	Guadalupe River	145	31%	67%	0%	0%	0%	0%
050GAC400	Guadalupe River	676	30%	33%	26%	11%	0%	0%
050GAC410	Guadalupe River	4	29%	70%	1%	0%	0%	0%

[8] Some WMAs overlap with multiple Co-permittees.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
050GAC580	Guadalupe River	302	59%	19%	0%	21%	0%	0%
050GAC600	Guadalupe River	655	7%	37%	43%	6%	6%	0%
066GAC150	Guadalupe River	386	17%	24%	49%	6%	3%	0%
066GAC850	Guadalupe River	2	56%	5%	27%	12%	0%	0%
066GAC900	Guadalupe River	83	0%	30%	52%	0%	17%	0%
081SRC530	Saratoga Creek	81	64%	22%	11%	4%	0%	0%
Other - Santa Clara	Multiple	7071	2%	23%	52%	16%	8%	0%
	Totals	**11,615**	**10%**	**27%**	**43%**	**15%**	**6%**	**0%**

Existing and Planned Control Measures

PCBs and mercury control measures currently in place or planned for future implementation are described in this section. A preliminary list of control measures for the City of Santa Clara are listed in Table 3.10.

Table 3.10. Existing (E) and planned (P) PCBs and mercury control measures in City of Santa Clara WMAs.

WMA ID	Control Measure Categories										
						Operation and Maintenance Practices					
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Large Full trash capture Systems (Hydrodynamic Separators)	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning	Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
035GAC150				E		E		E			E
049CZC690				E		E		E			E
049CZC800				E		E		E			E
049CZC810				E		E		E			E
049CZC900				E		E		E			E
049CZC910				E		E		E			E
049ECS900				E		E		E			E
049STA050		E/P		E		E		E			E
049STA300		E/P		E		E		E			E
049STA500		E/P		E		E		E			E
049STA550		E/P		E		E		E			E
049STA600		E/P		E		E		E			E
049STA710		E		E		E		E			E
049STA800				E		E		E			E
050GAC030		E/P		E		E		E			E
050GAC190				E		E		E			E
050GAC400	E	E/P		E		E		E			E
050GAC410				E		E		E			E
050GAC580		E/P		E		E		E			E
050GAC600		E/P		E		E		E			E
066GAC150	E	E/P		E		E		E			E

WMA ID	Control Measure Categories										
						Operation and Maintenance Practices					
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Large Full trash capture Systems (Hydrodynamic Separators)	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning	Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
066GAC850				E		E		E			E
066GAC900				E		E		E			E
081SRC530		E		E		E		E			E
Other - Santa Clara		E/P		E		E		E			E

Source Property Identification and Abatement (including Referrals)

The following summaries describe the status of source property investigation projects completed or currently underway. Based on the results of future monitoring designed to identify WMAs that likely contain source properties, additional source property investigations may be conducted by the Program or Co-permittees, resulting in additional source property referrals and/or actions by the City to eliminate the discharge of PCBs of mercury into the MS4 by property owners.

WMA 050GAC400

Source Investigation

Based on elevated mercury and PCBs concentrations observed via the Program's Pollutant of Concern (POC) monitoring, this WMA was identified as likely containing a source property(s). This WMA covers 759 acres mostly in Santa Clara with 41 acres located in the City of San José. It is located north and west of the San José Airport, and drains into the Guadalupe River at the Laurelwood Pump Station. The WMA contains both the Certainteed and Monsanto cleanup sites, both known for soil contamination by PCBs.

The Program conducted a source property investigation in this WMA during FY 16-17 and FY17-18. As part of this investigation, the Program compiled information for 335 parcels and prioritized 246 parcels of high interest for PCBs or mercury. After review of aerial photos and further evaluation of associated businesses, the Program prioritized 115 parcels for site visits or right of way (ROW) surveys, of which 76 sites visits/ROW surveys were conducted by the City of Santa Clara and Program staff in early FY 16-17. A total of 14 possible sample site locations were identified for further POC monitoring to confirm source property identification. In spring 2017, the Program collected 6 soil/sediment samples from public ROW areas, and an additional 8 samples of sediment migrating off suspect parcels in the WMA. All samples were sent to a laboratory for chemical analysis of PCBs and mercury concentrations. PCBs concentrations ranged from 0.004 mg/Kg to 0.29 mg/Kg. Total mercury concentrations ranged from 0.05 mg/Kg to 0.81 mg/Kg.

Based on the sampling results and other information gained during the investigation, the Program identified two properties that may be PCBs source properties and two properties that may be mercury source properties in this WMA. The full results of the FY16-17 and FY17-18

source property investigation in this WMA were detailed in a separate report provided as an attachment to the FY17-18 Annual Report.

In FY 18-19, the Program continued to investigate the potential source properties in this WMA. These investigations will continue in FY 19-20. Based on the results of the investigations, properties within this WMA may or may not be referred to the Regional Water Board.

WMA 066GAC150

Source Investigation

Based on elevated mercury and PCBs concentrations observed via the Program's Pollutant of Concern (POC) monitoring, this WMA was identified as likely containing a source property(s). This WMA covers 504 acres mostly in Santa Clara with 124 acres located in San José. It is located west of the San José Airport, and drains into the Guadalupe River on the east side of the Airport. It includes parcels that are part of the FMC clean up with known PCBs in soils and railroad properties with known mercury contamination of soils on the property.

The Program conducted a source property investigation in this WMA during FY 16-17 and FY 17-18. As part of this investigation project, the Program compiled information for 1,087 parcels and prioritized 51 parcels of high interest for PCBs or mercury. After review of aerial photos and further review, the Program ranked 44 parcels in the City of Santa Clara for site visits or ROW surveys, of which 35 site visits/ROW surveys were conducted by the City of Santa Clara and Program staff. A total of 11 possible sample site locations were identified for further POC monitoring to confirm source property identification. In spring 2017, the Program collected 3 soil/sediment samples from public ROW areas, and an additional 8 samples of sediment migrating off suspect parcels in the WMA. All samples were sent to a laboratory for chemical analysis of PCBs and mercury concentrations. PCBs concentrations ranged from 0.006 mg/Kg to 3.8 mg/Kg. Total mercury concentrations ranged from 0.06 mg/Kg to 0.48 mg/Kg.

Based on the sampling results and other information gained during the investigation, the Program identified one PCBs source property in this WMA. The Program also identified one potential PCBs and Mercury source property, as well as other areas within the WMA that require further investigation. The full results of this source property investigation were provided as an appendix with the FY 17-18 Annual Report.

The City of Santa Clara submitted a referral to the Regional Water Board for this source property located at 335 Brokaw Road in July 2019. Additional details about the 335 Brokaw Road property and the resulting referral are provided in the SCVURPPP FY18-19 Annual Report – Section 11. In FY 18-19, the Program continued to investigate additional potential source properties in this WMA. These investigations will continue during FY 19-20 and based on the results of the investigations, properties within this WMA may or may not be referred to the Regional Water Board.

Green Stormwater Infrastructure and Other Stormwater Treatment Controls[9]

Green stormwater infrastructure (GSI) and other treatment controls may be installed on roadways and public storm drain infrastructure to treat stormwater runoff in public rights-of-way (e.g., green streets). In addition, applicable public and private properties undergoing new or redevelopment are subject to MRP requirements to treat stormwater via low impact development (LID) techniques or equivalent. Based on the information compiled to-date, over 574 acres of land to-date[10], including 136 acres of old industrial and 271 acres of old urban

[9] Acres reported in this section as addressed by green stormwater infrastructure and treatment controls should be considered preliminary and may be revised in the future as additional information is available.
[10] The acres treated to-date include all projects completed since the TMDL baseline was established in 2002.

land uses are currently addressed by GSI and other stormwater treatment facilities (**Attachment A**). Of this total, 420 acres are associated with facilities that were completed between July 1, 2013 and June 30, 2019 (i.e., FY13 14 through FY 18-19). Treatment areas associated with these facilities are distributed among the 25 WMAs in the City (Table 3.11).

GSI projects currently under construction will also treat approximately 194 acres of land, once the development/redevelopment is complete. The Program will continue working with the City to update and refine the information on completed projects.

The City is currently in the coordination and planning stages to construct GSI facilities on public lands or right of ways. Coordination is underway between the City's Engineering and Planning Departments, as well as with other impacted departments/agencies such as the Silicon Valley Power, Parks and Recreation, and the Public Works Streets Maintenance Division. The City's GSI framework to guide its GSI planning process was adopted in FY 16-17. The design and installation of additional GSI facilities should commence within the next few years.

Table 3.11. Extent of land area in City of Santa Clara WMAs that is addressed by Green Stormwater Infrastructure (GSI) and Other Stormwater Treatment Control Measures completed between July 1, 2013 and June 30, 2019.[1,2,3,4]

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Other	Open Space
Parcel-based New & Redevelopment or Retrofit	049STA050	4.22	-	-	4.22	-	-
	049STA300	57.43	15.59	32.20	9.64	-	-
	049STA500	5.82	5.82	-	-	-	-
	049STA550	1.56	1.56	-	-	-	-
	049STA600	12.89	12.64	0.25	-	-	-
	050GAC580	2.17	0.49	1.68	-	-	-
	050GAC600	3.64	-	1.22	2.11	-	0.32
	066GAC150	12.65	12.65	0.00	-	-	-
	081SRC530	5.39	-	5.39	-	-	-
	Other - Santa Clara	314.42	34.28	176.28	48.13	-	55.73
	TOTAL	**420.17**	**83.01**	**217.02**	**64.09**	**-**	**56.05**

1 – Acres presented may not include all acres currently treated by GSI and treatment controls.
2 – GSI and Treatment Control Measures include: (1) parcel based new development, redevelopment, or retrofit projects; and (2) green street projects or regional retrofit projects.
3 Includes all projects completed during FY13 14 through FY 18-19 that were not reported in the 2014 IMR (BASMAA, 2014).
4 GSI and treatment controls may include proprietary vault based systems.

Large Full trash capture Systems (Hydrodynamic Separators)

The City of Santa Clara has not installed hydrodynamic separators to-date. Should the City do so in the future, the installation of these systems will not only assist the City in achieving its trash load reduction goals, but may also provide load reduction benefits for PCBs and mercury.

Managing PCBs during Building Demolition

The City of Santa Clara participated in the BASMAA regional project to develop tools and guidance for implementing a protocol for managing PCBs during building demolition. The City began implementing a program to require the management of PCBs in building materials during demolition activities by July 1, 2019, consistent with MRP 2.0.

MS4 Operation and Maintenance Practices

- **Street Sweeping**

  The City of Santa Clara recently enhanced its street sweeping program, increasing the frequency from two to three times per month in all land areas. In the future, the City plans to continue to evaluate the benefits of increased sweeping or targeted sweeping in priority areas.

- **Inlet Cleaning**

  The City currently inspects and maintains all storm drain inlets one time per year, with the exception of those with full capture systems, which are cleaned more often. The City has installed 584 inlet-based full trash capture devices since 2002 that treat 128 acres of old industrial and 956 acres of old urban land uses. Because of additional maintenance requirements for these devices, the Program is currently documenting enhanced cleaning frequencies and will provide that information in future reports. The City will continue to evaluate the benefits of more frequent inlet cleaning on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

Reduction/Recycling of Mercury containing Devices & Products

The City currently promotes the collection and recycling of mercury containing devices and equipment at the consumer level via their participation in the Santa Clara County Environmental Health Department's Household Hazardous Waste Program (HHW Program). No enhancements associated with this control measure are currently planned.

CITY OF MOUNTAIN VIEW

Watershed Management Areas

Table 3.12 provides a listing of all Watershed Management Areas (WMAs) identified to-date in the City of Mountain View. Total land area in the WMA and associated land uses are also included. WMAs presented in Table 3.12 have been updated from the tables provided in Version 3.0 of this report based on new information. That said, these WMAs should continue to be considered preliminary because they may be refined in the future based on data/information currently being evaluated and collected through source investigations and other activities.

A total of 13 WMAs have been identified in the City. These WMAs include all land area (i.e., >7,200 acres) within the City's jurisdictional boundaries that is below significant water impoundments located on receiving water bodies (i.e., reservoirs). WMAs form the management units that are used to report control measure implementation in this section and PCBs and mercury load reductions reported in Section 4.

Table 3.12. City of Mountain View preliminary PCBs and mercury Watershed Management Areas (WMAs) and associated land uses.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
017XXX010	San Francisco Bay	808	14%	30%	42%	12%	2%	0%
032PMC100	Permanente Creek	47	29%	19%	1%	48%	2%	0%
032PMC130	Permanente Creek	15	0%	57%	43%	0%	0%	0%
032PMC200	Permanente Creek	69	29%	60%	1%	9%	0%	0%
032SVC470	Stevens Creek	71	30%	48%	12%	9%	1%	0%
032SVC490	Stevens Creek	418	21%	30%	30%	18%	1%	0%
032SVC550	Stevens Creek	36	7%	23%	70%	0%	0%	0%
047SVC150	Stevens Creek	284	10%	26%	62%	2%	0%	0%
047SVC200	Stevens Creek	26	26%	74%	0%	0%	0%	0%
048SVW998	Sunnyvale West Channel	149	0%	33%	67%	0%	1%	0%
Other - Mountain View	Multiple	4940	3%	26%	53%	5%	12%	0%

Existing and Planned Control Measures

PCBs and mercury control measures currently in place or planned for future implementation are described in this section. A preliminary list of control measures for the City of Mountain View are listed in Table 3.13.

Table 3.13. Existing (E) and planned (P) PCBs and mercury control measures in City of Mountain View WMAs.

WMA ID	Control Measure Categories										
						Operation and Maintenance					
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Large Full trash capture Systems (Hydrodynamic Separators)	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning	Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
017XXX010		E/P	E	E		E		E			E
032PMC100		E		E		E		E			E
032PMC130		E		E		E		E			E
032PMC200		E		E		E		E			E
032SVC470		E		E		E		E			E
032SVC490		E/P		E		E		E			E
032SVC550				E		E		E			E
047SVC150		E		E		E		E			E
047SVC200				E		E		E			E
048SVW998		E		E		E		E			E
Other - Mountain View		E/P	E	E		E		E			E
SVC-A		E		E		E		E			E
SVW-B				E		E		E			E

Source Property Identification and Abatement (including Referrals)

No source property investigations are currently underway in the City of Mountain View. Based on the results of future monitoring designed to identify WMAs that likely contain source properties, additional source property investigations may be conducted by the Program or the City, resulting in additional source property referrals and/or actions by the City to eliminate the discharge of PCBs of mercury into the MS4 by property owners.

Green Stormwater Infrastructure and Other Stormwater Treatment Controls[11]

Green stormwater infrastructure (GSI) and other treatment controls may be installed on roadways and public storm drain infrastructure to treat stormwater runoff in public rights-of-way (e.g., green streets). In addition, applicable public and private properties undergoing new or redevelopment are subject to MRP requirements to treat stormwater via low impact development (LID) techniques or equivalent. Based on the information compiled to-date, over 434 acres of land to-date[12], including 111 acres of old industrial and 275 acres of old urban land uses are currently addressed by GSI and other stormwater treatment facilities (**Attachment A**). As listed in Table 3.14, of this total, 200 acres are associated with facilities that were completed between July 1, 2013 and June 30, 2019 (i.e., FY13 14 through FY 18-19). Treatment areas associated with these facilities are distributed among 8 WMAs in the City.

GSI projects currently under construction will also treat roughly an additional 141 acres of land, once the development/redevelopment is complete. The Program will continue working with the City to update and refine the information on completed projects.

Table 3.14. Extent of land area in City of Mountain View WMAs that is addressed by Green Stormwater Infrastructure (GSI) and Treatment Control Measures completed between July 1, 2013 and June 30, 2019.[1,2,3,4]

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Other	Open Space
Parcel-based New & Redevelopment or Retrofit	017XXX010	42.56	29.62	9.67	-	-	3.26
	032PMC100	5.36	5.36	-	-	-	-
	032PMC130	2.02	-	2.02	-	-	-
	032SVC470	7.55	2.18	4.49	0.87	-	-
	032SVC490	68.60	37.48	31.08	0.01	-	0.03
	047SVC150	2.03	-	2.03	-	-	-
	048SVW998	2.30	-	2.30	-	-	-
	Other - Mountain View	69.09	8.82	36.22	5.52	-	18.53
	TOTAL	**199.50**	**83.47**	**87.81**	**6.40**	**-**	**21.82**

1 – Acres presented may not include all acres currently treated by GSI and treatment controls.
2 – GSI and Treatment Control Measures include: (1) parcel based new development, redevelopment, or retrofit projects; and (2) green street projects or regional retrofit projects.
3 Includes all projects completed during FY13 14 through FY18-19 that were not reported in the 2014 IMR (BASMAA, 2014).
4 GSI and treatment controls may include proprietary vault based systems.

Large Full trash capture Systems (Hydrodynamic Separators)

The City of Mountain View has treated over 1,235 acres of land to-date with 6 hydrodynamic separators owned and operated by the City (Table 3.15). The treatment areas are distributed over a number of WMAs, and are comprised of 138 acres of old industrial and 910 acres of old urban land uses. In addition to the areas currently treated by these systems, the City also plans

[11] Acres reported in this section as addressed by green stormwater infrastructure and treatment controls should be considered preliminary and may be revised in the future as additional information is available.
[12] The acres treated to date include all projects completed since the TMDL baseline was established in 2002.

to install additional large full capture devices in future years to treat additional areas during the term of MRP 2.0. Installation of these devices will not only assist the City in achieving its trash load reduction goals, but also provide load reduction benefits for PCBs and mercury.

Table 3.15. Extent of land area in City of Mountain View WMAs that is addressed by publicly owned Full Trash Capture Systems (i.e., Hydrodynamic Separator or Debris Separating Baffle Box).[1,2,3]

WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
		Old Industrial	Old Urban	New Urban	Other	Open Space
017XXX010	909.40	136.11	591.32	101.03	-	80.94
Other - Mountain View	326.46	2.26	318.78	0.00	-	5.43
TOTAL	**1,235.87**	**138.37**	**910.11**	**101.03**	**-**	**86.37**

1 – Acres presented may not include all acres currently treated by full trash capture treatment systems.
2 – Trash systems only include hydrodynamic separators or debris separating baffle boxes that are publicly owned. Inlet based full trash capture devices are described in the operation and maintenance practices section.
3 - Includes all existing full trash capture systems in the City of Mountain View that were installed between January 2010 and June 2019.

Managing PCBs during Building Demolition

The City of Mountain participated in the BASMAA regional project to develop tools and guidance for implementing a protocol for managing PCBs during building demolition. The City is began implementing a program to require the management of PCBs in building materials during demolition activities by July 1, 2019, consistent with MRP 2.0.

MS4 Operation and Maintenance Practices

- **Street Sweeping**

  The City of Mountain View street sweeping program includes sweeping nearly all streets in the City twice per month. Parking enforcement signs for street sweeping are posted on some streets in high density residential neighborhoods, and parking enforcement that allows sweepers to sweep to the curb occurs on some arterial streets.

- **Inlet Cleaning**

  The City currently inspects and maintains all storm drain inlets one time per year, with the exception of those with full trash capture systems, which are maintained more often. The City has installed 4 inlet-based full trash capture devices since 2002 that treat 2 acres of old industrial and 2 acres of old urban land uses. Because of the additional maintenance requirements for these devices, the Program is currently documenting enhanced cleaning frequencies and will provide that information in future reports. The City will continue to evaluate the benefits of more frequent inlet cleaning on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

Reduction/Recycling of Mercury containing Devices & Products

The City currently promotes the collection and recycling of mercury containing devices and equipment at the consumer level via their participation in the Santa Clara County Environmental Health Department's Household Hazardous Waste Program (HHW Program). No enhancements associated with this control measure are currently planned.

CITY OF MILPITAS

Watershed Management Areas

Table 3.16 provides a listing of all Watershed Management Areas (WMAs) identified to-date in the City of Milpitas. Total land area in the WMA and associated land uses are also included. WMAs presented in Table 3.16 have been updated from the tables provided in Version 3.0 of this report based on new information. That said, these WMAs should continue to be considered preliminary because they may be refined in the future based on data/information currently being evaluated and collected through source investigations and other activities.

A total of 14 WMAs have been identified in the City. These WMAs include all land area (i.e., >8,600 acres) in the City's jurisdictional boundaries that is below significant water impoundments located on receiving water bodies (i.e., reservoirs). WMAs form the management units that are used to report control measure implementation in this section and PCBs and mercury load reductions reported in Section 4.

Table 3.16. City of Milpitas preliminary PCBs and mercury Watershed Management Areas (WMAs) and associated land uses.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
021CLA060	Calera Creek	33	57%	0%	43%	0%	0%	0%
021PIC060	Piedmont Creek	53	16%	21%	0%	63%	0%	0%
035CTC700	Coyote Creek	321	0%	44%	0%	55%	2%	0%
036BYC091	Berryessa Creek	121	29%	67%	1%	4%	0%	0%
036BYC320	Berryessa Creek	37	8%	91%	0%	1%	0%	0%
036PCL576	Lower Penitencia Creek	61	21%	33%	15%	25%	5%	0%
036PCL800	Lower Penitencia Creek	2	16%	84%	0%	0%	0%	0%
036PCL810	Lower Penitencia Creek	11	2%	97%	1%	0%	0%	0%
036PEC800	Lower Penitencia Creek	38	43%	42%	1%	13%	1%	0%
036PEC822	Lower Penitencia Creek	29	45%	43%	3%	7%	2%	0%
050CTC100	Coyote Creek	1	0%	97%	0%	0%	2%	0%
Ford Creek	Wrigley-Ford Creek	317	40%	43%	10%	6%	1%	0%
Other - Milpitas	Multiple	7182	1%	13%	30%	25%	30%	0%
Wrigley Creek	Wrigley-Ford Creek	461	21%	4%	2%	72%	2%	0%
	Totals	**8,667**	**5%**	**17%**	**26%**	**28%**	**25%**	**0%**

Existing and Planned Control Measures

PCBs and mercury control measures currently in place or planned for future implementation are described in this section. A preliminary list of control measures for the City of Milpitas are listed in Table 3.17.

Table 3.17. Existing (E) and planned (P) PCBs and mercury control measures in City of Milpitas WMAs.

WMA ID	Control Measure Categories										
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Large Full trash capture Systems (Hydrodynamic Separators)	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Operation and Maintenance Practices			Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
						Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning			
021CLA060		E		E		E		E			E
021PIC060				E		E		E			E
035CTC700		E		E		E		E			E
036BYC091		E		E		E		E			E
036BYC320		E		E		E		E			E
036PCL576		E/P		E		E		E			E
036PCL800				E		E		E			E
036PCL810		E		E		E		E			E
036PEC800		E/P		E		E		E			E
036PEC822		E/P		E		E		E			E
050CTC100				E		E		E			E
Ford Creek		P		E		E		E			E
Other - Milpitas		E/P		E		E		E			E
Wrigley Creek		E/P		E		E		E			E

Source Property Identification and Abatement (including Referrals)

No source property investigations are currently underway in the City of Milpitas. Based on the results of future monitoring designed to identify WMAs that likely contain source properties, additional source property investigations may be conducted by the Program or the City, resulting in additional source property referrals and/or actions by the City to eliminate the discharge of PCBs of mercury into the MS4 by property owners.

Green Stormwater Infrastructure and Other Stormwater Control Measures[13]

Green stormwater infrastructure (GSI) and other treatment controls may be installed on roadways and public storm drain infrastructure to treat stormwater runoff in public rights-of-way (e.g., green streets). In addition, applicable public and private properties undergoing new or redevelopment are subject to MRP requirements to treat stormwater via low impact development (LID) techniques or equivalent. Based on the information compiled to-date, over 307 acres of land to-date[14], including 77 acres of old industrial and 80 acres of old urban land uses are currently addressed by GSI and other stormwater treatment facilities (**Attachment A**). As listed in Table 3.18, of this total, 271 acres are associated with facilities that were completed between July 1, 2013 and June 30, 2019 (i.e., FY13 14 through FY18-19). Treatment areas associated with these facilities are distributed among the 12 WMAs in the City.

GSI projects currently under construction will also treat roughly an additional 128 acres of land, once the development/redevelopment is complete. The Program will continue working with the City to update and refine the information on completed projects.

Table 3.18. Extent of land area in City of Milpitas WMAs that is addressed by Green Stormwater Infrastructure (GSI) and Other Stormwater Treatment Control Measures completed between July 1, 2013 and June 30, 2019.[1,2,3,4]

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Other	Open Space
Parcel-based New & Redevelopment or Retrofit	021PIC060	2.59	2.59	-	-	-	-
	035CTC700	4.29	-	4.29	0.00	-	0.00
	036BYC091	4.55	4.53	0.02	-	-	-
	036BYC320	1.76	-	1.76	-	-	-
	036PCL576	2.69	-	2.69	-	-	-
	036PCL810	9.02	0.00	9.02	-	-	-
	036PEC800	6.05	0.66	0.00	5.06	-	0.33
	036PEC822	12.25	12.25	0.01	-	-	-
	Other - Milpitas	169.06	9.95	48.18	84.71	-	26.22
	Wrigley Creek	59.11	41.57	2.15	13.92	-	1.47
	TOTAL	**271.36**	**71.56**	**68.11**	**103.69**	**-**	**28.01**

1 – Acres presented may not include all acres currently treated by GSI and treatment controls.
2 – GSI and Treatment Control Measures include: (1) parcel based new development, redevelopment, or retrofit projects; and (2) green street projects or regional retrofit projects.
3 - Includes all projects completed during FY13 14 through FY18-19 that were not reported in the 2014 IMR (BASMAA, 2014).
4 - GSI and treatment controls may include proprietary vault-based systems.

[13] Acres reported in this section as treated by green stormwater infrastructure should be considered preliminary and may be revised in the future as additional information is available.
[14] The acres treated to date include all projects completed since the TMDL baseline was established in 2002.

Large Full trash capture Systems (Hydrodynamic Separators)

The City current has no hydrodynamic separators (HDS) that are publicly owned and operated. In FY 16-17, the City evaluated the feasibility and costs of installing large full trash capture systems to treat additional areas during the term of MRP 2.0. Based on this analysis, the costs of installing a HDS unit was prohibitive and therefore the City installed nearly 100 inlet based full capture devices to address the trash reduction goals in the MRP. The City currently does not have plans to install HDS units in the future.

Managing PCBs during Building Demolition

The City of Milpitas participated in the BASMAA regional project to develop tools and guidance for implementing a protocol for managing PCBs during building demolition. The City began implementing a program to require the management of PCBs in building materials during demolition activities by July 1, 2019, consistent with MRP 2.0.

Operation and Maintenance Practices

- **Street Sweeping**

  The City of Milpitas's current street sweeping program includes sweeping streets in most residential areas and arterial roads twice per month, and most retail areas once per week. The City sweeps some residential areas once a week during the months of November and December. The City does not post parking enforcement signs for street sweeping, but parking enforcement occurs on many arterial roads and streets in industrial and commercial areas.

- **Inlet Cleaning**

  The City currently inspects and maintains all storm drain inlets once per year, on average, with the exception of those with full capture systems, which are maintained more often. The City has installed 94 inlet-based full trash capture devices since 2002 that treat 3 acres of old industrial and 98 acres of old urban land uses. Because of additional maintenance requirements for these devices, the Program is currently documenting enhanced cleaning frequencies and will provide that information in future reports. The City will continue to evaluate the benefits of more frequent inlet cleaning on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

Reduction/Recycling of Mercury containing Devices & Products

The City currently promotes the collection and recycling of mercury containing devices and equipment at the consumer level via their participation in the Santa Clara County Environmental Health Department's Household Hazardous Waste Program (HHW Program). No enhancements associated with this control measure are currently planned.

CITY OF PALO ALTO

Watershed Management Areas

Table 3.19 provides a listing of all Watershed Management Areas (WMAs) identified to-date in the City of Palo Alto. Total land area in the WMA and associated land uses are also included. WMAs presented in Table 3.16 have been updated from the tables provided in Version 3.0 of this report based on new information. That said, these WMAs should continue to be considered preliminary because they may be refined in the future based on data/information currently being evaluated and collected through source investigations and other activities.

A total of 13 WMAs have been identified in the City. These WMAs include all land area (i.e., >12,000 acres) within the City's jurisdictional boundaries that is below significant water impoundments located on receiving water bodies (i.e., reservoirs). WMAs form the management units that are used to report control measure implementation in this section and PCBs and mercury load reductions reported in Section 4.

Table 3.19. City of Palo Alto preliminary PCBs and mercury Watershed Management Areas (WMAs) and associated land uses.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
001SFC100A	San Francisquito Creek	36	12%	64%	23%	1%	0%	0%
016MTC910	Matadero Creek	301	13%	34%	50%	2%	0%	0%
017ADC600	Adobe Creek	51	73%	6%	1%	18%	2%	0%
017BCK200	Barron Creek	18	37%	60%	3%	0%	0%	0%
017XXX010	San Francisco Bay	54	43%	35%	18%	2%	1%	0%
031MTC400	Matadero Creek	66	0%	82%	0%	4%	14%	0%
031MTC410	Matadero Creek	80	72%	27%	0%	1%	0%	0%
031SCH250	Matadero Creek	68	63%	10%	0%	27%	0%	0%
Other - EPA	Multiple	2	0%	1%	59%	0%	40%	0%
Other - MPK	Multiple	7	1%	26%	50%	1%	23%	0%
Other - Palo Alto	Multiple	10,807	2%	16%	40%	2%	40%	0%
Other - PVY	Multiple	3	0%	0%	0%	10%	89%	0%
Other - SMC	Multiple	1	0%	0%	32%	10%	58%	0%
PMC-D1	Permanente Creek	537	0%	0%	0%	0%	100%	0%
SCH-K	Matadero Creek	123	47%	27%	25%	1%	0%	0%
Totals		**12,155**	**4%**	**16%**	**37%**	**2%**	**40%**	**0%**

Existing and Planned Control Measures

PCBs and mercury control measures currently in place or planned for future implementation are described in this section. A preliminary list of control measures for the City of Palo Alto are listed in Table 3.20.

Table 3.20. Existing (E) and planned (P) PCBs and mercury control measures in City of Palo Alto WMAs.

WMA ID	Control Measure Category										
						Operation and Maintenance Practices					
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Large Full trash capture Systems (Hydrodynamic Separators)	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning	Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
001SFC100A	E	E		E		E		E			E
016MTC910		E/P		E		E		E			E
017ADC600		E		E		E		E			E
017BCK200				E		E		E			E
017XXX010		E		E		E		E			E
031MTC400				E		E		E			E
031MTC410		E		E		E		E			E
031SCH250	E	E		E		E		E			E
Other - EPA				E		E		E			E
Other - MPK				E		E		E			E
Other - Palo Alto		E/P	E	E		E		E			E
PMC-D1				E		E		E			E
SCH-K		E		E		E		E			E

Source Property Identification and Abatement (including Referrals)

The following summaries describe the status of source property investigation projects completed or currently underway In the City of Palo Alto. Based on the results of future monitoring designed to identify WMAs that likely contain source properties, additional source property investigations may be conducted by the Program or Co-permittees, resulting in additional source property referrals and/or actions by the City to eliminate the discharge of PCBs of mercury into the MS4 by property owners.

WMA 001SFC100

Source Investigation

Based on elevated mercury and PCBs concentrations observed via the Program's Pollutant of Concern (POC) monitoring, this WMA was identified as likely containing a source property(s). This WMA covers 35 acres in Palo Alto. The WMA is on the southern edge of downtown Palo Alto and drains to a structure that diverts a portion of storm flows into the sanitary sewer (see SCVURPPP FY 14-15 Annual Report for more information about the diversion structure).

The Program conducted a source property investigation in this WMA during FY 16-17 and FY 17-18. As part of this investigation, the Program compiled information for 247 parcels and prioritized 5 parcels of high interest for PCBs or mercury. Program staff conducted right of way (ROW) surveys and visited businesses associated with 7 parcels in early fall 2016. During these visits, the Program identified potential sites for follow up sampling. Palo Alto staff videotaped (CCTV) the MS4 upstream of a sample site with elevated PCBs to record breaks in the main pipe. The video identified a break in the pipe, a potential sub surface source of sediment.

In spring 2017, the Program also collected 7 soil/sediment samples from public ROW locations in the WMA, including sediment migrating off suspect parcels. Two additional samples were collected from the MS4 near or upstream of the previously identified subsurface source of sediment. All samples were sent to a laboratory for chemical analysis of PCBs and mercury concentrations. PCBs concentrations ranged from 0.006 mg/Kg to 0.17 mg/Kg. Total mercury concentrations ranged from 0.04 mg/Kg to 0.15 mg/Kg.

Based on the results of this investigation, the Program did not identify any PCBs or Mercury source properties in this WMA. Given the most recent PCBs and mercury concentrations were all below urban background (< 0.2 mg/Kg) and no other evidence of sources in the WMA were uncovered, the Program recommended no further action in this WMA at this time. The full results of this investigation were provided as an appendix to the Program's FY 17-18 Annual Report.

WMA031SCH250

Source Investigation

In WY 2017, POC monitoring conducted by the Program found elevated PCBs sediment ratio in a stormwater sample collected from the Stanford Channel. Based on this result, WMA 031SCH250, which drains to the Stanford Channel, was identified as a priority WMA for further source property investigation. The Program began a source property investigation in this WMA in FY 17-18, which continued through FY 18-19 and will be ongoing during FY 19-20. Based on the results of the investigations, properties within this WMA may or may not be referred to the Regional Water Board.

Green Stormwater Infrastructure and Treatment Controls[15]

Green stormwater infrastructure (GSI) and other treatment controls may be installed on roadways and public storm drain infrastructure to treat stormwater runoff in public rights-of-way (e.g., green streets). In addition, applicable public and private properties undergoing new or redevelopment are subject to MRP requirements to treat stormwater via low impact development (LID) techniques or equivalent. Based on the information compiled to-date, over 306 acres of land to-date[16], including 84 acres of old industrial and 218 acres of old urban land uses are currently addressed by GSI and other stormwater treatment facilities (**Attachment A**).

[15] Acres reported in this section as addressed by green stormwater infrastructure and treatment controls should be considered preliminary and may be revised in the future as additional information is available.
[16] The acres treated to date include all projects completed since the TMDL baseline was established in 2002.

As listed in Table 3.21, of this total, 219 acres are associated with facilities that were completed between July 1, 2013 and June 30, 2019 (i.e., FY13 14 through FY18-19). Treatment areas associated with these facilities are distributed among 8 WMAs in the City.

GSI projects currently under construction will also treat roughly an additional 27 acres of land, once the development/redevelopment is complete. The Program will continue working with the City to update and refine the information on completed projects.

The City has also recently constructed a GSI facility on public land that treats over 36 acres of mostly old urban land use (Table 3.21). The Southgate Neighborhood Green Streets Project is located within the Southgate neighborhood in the City of Palo Alto. The City decided to retrofit the neighborhood to improve surface drainage and incorporate green street elements to improve water quality. The treatment measures include bioretention and bioinfiltration areas, porous pavement crosswalks, and a porous pavement "paseo" (pedestrian walkway connecting two streets). The bioretention areas were incorporated into the street right-of-way and existing parkway strips (vegetated areas between the sidewalks and the streets). The project included installation of 16 bioretention areas. The bioretention areas were sited in locations that optimize the amount of tributary area draining to each system.

Table 3.21. Extent of land area in City of Palo Alto WMAs that is addressed by Green Stormwater Infrastructure (GSI) and Other Stormwater Treatment Control Measures completed between July 1, 2013 and June 30, 2019.[1,2,3,4]

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Other	Open Space
Parcel-based New & Redevelopment or Retrofit	001SFC100A	0.60	-	0.60	-	-	-
	016MTC910	11.54	9.68	1.86	-	-	-
	017XXX010	0.60	-	0.60	-	-	-
	031MTC410	9.92	9.92	0.00	-	-	0.00
	031SCH250	0.85	0.85	-	-	-	-
	Other - Palo Alto	136.65	17.28	117.28	1.89	-	0.21
	SCH-K	22.33	20.31	2.02	-	-	-
	Total	**182.50**	**58.04**	**122.36**	**1.89**	**-**	**0.21**
Green Street/Regional Retrofit	Other - Palo Alto	36.07	0.24	35.84	-	-	-
TOTAL ACRES - ALL PROJECT TYPES		**218.57**	**58.27**	**35.84**	**1.89**	**-**	**0.21**

1 – Acres presented may not include all acres currently treated by GSI and treatment controls.
2 – GSI and Treatment Control Measures include: (1) parcel based new development, redevelopment, or retrofit projects; and (2) green street projects or regional retrofit projects.
3 - Includes all projects completed during FY13 14 through FY18-19 that were not reported in the 2014 IMR (BASMAA, 2014).
4 - GSI and treatment controls may include proprietary vault-based systems.

Large Full trash capture Systems (Hydrodynamic Separators)

The City of Palo Alto has treated over 168 acres of land to-date with 2 hydrodynamic separators owned and operated by the City (Table 3.22). These areas are distributed over a number of WMAs, and are comprised of 3 acres of old industrial and 164 acres of old urban

land uses. The treatment areas are distributed over a number of WMAs, and are comprised of 3 acres of old industrial and 164 acres of old urban land uses. In addition to the area currently treated by these devices, the City may install additional devices if strategic locations are identified that are not currently being addressed by other actions. Should additional devices be installed, they will not only assist the City in achieving its trash load reduction goals, but will also provide load reduction benefits for PCBs and mercury.

Table 3.22. Extent of land area in City of Palo Alto WMAs that is addressed by publicly owned Hydrodynamic Separators (i.e., Large Full trash capture Systems).[1,2,3]

WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
		Old Industrial	Old Urban	New Urban	Open Space	Other
Other Palo Alto	167.97	2.65	164.23		1.09	

1 – Acres presented may not include all acres currently treated by full trash capture treatment systems.
2 – Trash systems only include hydrodynamic separators that are publicly owned. Inlet based full trash capture devices are described in the operation and maintenance practices section.
3 Includes all existing full trash capture systems in the City of Palo Alto that were installed between January 2010 and June 2019.

Managing PCBs during Building Demolition

The City of Palo Alto participated in the BASMAA regional project to develop tools and guidance for implementing a protocol for managing PCBs during building demolition. The City began implementing a protocol/program to require the management of PCBs in building materials during demolition activities by July 1, 2019, consistent with MRP 2.0.

MS4 Operation and Maintenance Practices

- **Street Sweeping**

  The City of Palo Alto's current street sweeping program includes sweeping three times per week in the two main commercial areas, weekly on El Camino Real, and every other week in the remaining areas during non "leaf season", when these areas are swept weekly. The City of Palo Alto uses multiple strategies to enhance the effectiveness of street sweeping, including staff walking ahead of sweepers with leaf blowers in the downtown area to address parked cars and tree wells, and enforcing parking restrictions in some areas to allow access to the curb during sweeping operations.

- **Inlet Cleaning**

  The City currently inspects and maintains all storm drain inlets one time per year, on average. The City will continue to evaluate the benefits of more frequent inlet cleaning on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

Reduction/Recycling of Mercury containing Devices & Products

The City currently operates a Household Hazardous Waste Program that collects and recycles mercury containing devices and equipment via weekly drop off events. The City promotes the collection and recycling of these devices and equipment via their website. No enhancements associated with this control measure are currently planned.

CITY OF CUPERTINO

Watershed Management Areas

Table 3.23 provides a listing of all Watershed Management Areas (WMAs) identified to-date in the City of Cupertino. Total land area in the WMA and associated land uses are also included. WMAs presented in Table 3.23 have been updated from the tables provided in Version 3.0 of this report based on new information. That said, these WMAs should continue to be considered preliminary because they may be refined in the future based on data/information currently being evaluated and collected through source investigations and other activities.

A total of 3 WMAs have been identified in the City. These WMAs include all land area (i.e., >7,197 acres) within the City's jurisdictional boundaries that is below significant water impoundments located on receiving water bodies (i.e., reservoirs). WMAs form the management units that are used to report control measure implementation in this section and PCBs and mercury load reductions reported in Section 4.

Table 3.23. City of Cupertino preliminary PCBs and mercury Watershed Management Areas (WMAs) and associated land uses.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
080JSC600	Junipero Serra Channel	273	2%	66%	26%	6%	1%	0%
Other - Cupertino	Multiple	6671	3%	20%	50%	10%	17%	0%
PMC-D1	Permanente Creek	114	0%	0%	0%	3%	97%	0%
	Totals	**7,197**	**3%**	**21%**	**48%**	**10%**	**18%**	**0%**

Existing and Planned Control Measures

PCBs and mercury control measures currently in place or planned for future implementation are described in this section. A preliminary list of control measures for the City of Cupertino are listed in Table 3.24.

Table 3.24. Existing (E) and planned (P) PCBs and mercury control measures in City of Cupertino WMAs.

WMA ID #	Control Measure Categories										
						Operation and Maintenance Practices					
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Large Full trash capture Systems (Hydrodynamic Separators)	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning	Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and	Reduction/Recycling of Mercury containing Devices & Products
PMC D1		E		E		E		E			E
080JSC600				E		E		E			E
Other Cupertino		E/P		E		E		E			E

Source Property Identification and Abatement (including Referrals)

No source property investigations are currently underway in the City of Cupertino. Based on the results of future monitoring designed to identify WMAs that likely contain source properties, additional source property investigations may be conducted by the Program or the City, resulting in additional source property referrals and/or actions by the City to eliminate the discharge of PCBs of mercury into the MS4 by property owners.

Green Stormwater Infrastructure and Treatment Controls[17]

Green stormwater infrastructure (GSI) and other treatment controls may be installed on roadways and public storm drain infrastructure to treat stormwater runoff in public rights-of-way (e.g., green streets). In addition, applicable public and private properties undergoing new or redevelopment are subject to MRP requirements to treat stormwater via low impact development (LID) techniques or equivalent. Based on the information compiled to-date, over 333 acres of land to-date[18], including 49 acres of old industrial and 254 acres of old urban land uses are currently addressed by GSI and other stormwater treatment facilities. As listed in Table 3.25, 235 acres are associated with facilities that were completed between July 1, 2013 and June 30, 2019 (i.e., FY13 14 through FY18-19). Treatment areas associated with these facilities are distributed across the 2 WMAs in the City as illustrated in **Attachment A**.

GSI projects currently under construction will also treat roughly an additional 65 acres of land, once the development/redevelopment is complete. The Program will continue working with the City to update and refine the information on completed projects.

Table 3.25. Extent of land area in City of Cupertino WMAs that is addressed by Green Stormwater Infrastructure (GSI) and Treatment Control Measures completed between July 1, 2013 and June 30, 2019.[1,2,3,4]

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Other	Open Space
Parcel-based New & Redevelopment or Retrofit	Other - Cupertino	234.88	25.64	190.25	0.03	-	18.96

1 – Acres presented may not include all acres currently treated by GSI and treatment controls.
2 – GSI and Treatment Control Measures include: (1) parcel based new development, redevelopment, or retrofit projects; and (2) green street projects or regional retrofit projects.
3 - Includes all projects completed during FY13 14 through FY18-19 that were not reported in the 2014 IMR (BASMAA, 2014).
4 - GSI and treatment controls may include proprietary vault-based systems.

Large Full trash capture Systems (Hydrodynamic Separators)

The City of Cupertino currently has no hydrodynamic separators (HDS) that are publicly owned and operated. The City has over installed 118 inlet based devices to treat land areas and will be evaluating the need for additional full capture systems, including HDS units, during the term of MRP 2.0. Should the City install HDSs, the Program will work with the City to document the area treated by these systems for inclusion in future reports. Installation of these systems will not

[17] Acres reported in this section as addressed by green stormwater infrastructure and treatment controls should be considered preliminary and may be revised in the future as additional information is available.
[18] The acres treated to date include all projects completed since the TMDL baseline was established in 2002.

only assist the City in achieving its trash load reduction goals, but also provide load reduction benefits for PCBs and mercury.

Managing PCBs during Building Demolition

The City of Cupertino participated in the BASMAA regional project to develop tools and guidance for implementing a protocol for managing PCBs during building demolition. The City began implementing a protocol/program to require the management of PCBs in building materials during demolition activities by July 1, 2019, consistent with MRP 2.0.

Operation and Maintenance Practices

- **Street Sweeping**

  The City of Cupertino's current street sweeping program includes sweeping streets in residential and retail areas, and arterial roads twice per month. Parking enforcement signs for street sweeping are posted in some residential areas, and parking enforcement that allows sweepers to sweep to the curb occurs on most arterial streets.

- **Inlet Cleaning**

  The City currently inspects and maintains all storm drain inlets once every other year, on average, with the exception of those with full capture systems, which are maintained more often. The City has installed 141 inlet-based full trash capture devices since 2002 that treat 173 acres of old urban land use. Because of additional maintenance requirements for these devices, the Program is currently documenting enhanced cleaning frequencies and will provide that information in future reports. The City will continue to evaluate the benefits of more frequent inlet cleaning on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

Reduction/Recycling of Mercury containing Devices & Products

The City currently promotes the collection and recycling of mercury containing devices and equipment at the consumer level via their participation in the Santa Clara County Environmental Health Department's Household Hazardous Waste Program (HHW Program). No enhancements associated with this control measure are currently planned.

UNINCORPORATED SANTA CLARA COUNTY

Watershed Management Areas

Table 3.26 provides a listing of all Watershed Management Areas (WMAs) identified to-date in the County of Santa Clara. Total land area in the WMA and associated land uses are also included. WMAs presented in Table 3.26 have been updated from the tables provided in Version 3.0 of this report based on new information. That said, these WMAs should continue to be considered preliminary because they may be refined in the future based on data/information currently being evaluated and collected through source investigations and other activities.

A total of 25 WMAs have been identified in the County. These WMAs include all land area (i.e., >93,557 acres) within the County's jurisdictional boundaries that is below significant water impoundments located on receiving water bodies (i.e., reservoirs). WMAs form the management units that that are used to report control measure implementation in this section and PCBs and mercury load reductions reported in Section 4.

Table 3.26. County of Santa Clara preliminary PCBs and mercury Watershed Management Areas (WMAs) and associated land uses.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
016MTC910	Matadero Creek	1188	0%	51%	7%	1%	41%	0%
032SVC490	Stevens Creek	5	0%	100%	0%	0%	0%	0%
049STA710	San Tomas Aquino Creek	5	100%	0%	0%	0%	0%	0%
067GAC010	Guadalupe River	45	0%	12%	86%	0%	2%	0%
068SCL230	Lower Silver Creek	115	0%	3%	97%	0%	0%	0%
083CTC990	Coyote Creek	0	0%	100%	0%	0%	0%	0%
083GAC900	Guadalupe River	2	33%	67%	0%	0%	0%	0%
083LGC525	Los Gatos Creek	128	0%	9%	91%	0%	0%	0%
099LGC180	Los Gatos Creek	264	0%	45%	54%	0%	1%	0%
100CTC190	Coyote Creek	107	0%	97%	3%	0%	0%	0%
100CTC400	Coyote Creek	41	9%	91%	0%	0%	0%	0%
100CTC500	Coyote Creek	21	90%	9%	0%	0%	1%	0%
113LGC010	Los Gatos Creek	115	0%	10%	90%	0%	0%	0%
130CNC022	Canoas Creek	1148	0%	0%	0%	0%	100%	0%
Miguelita Creek	Coyote Creek	993	0%	1%	38%	12%	49%	0%
Other - Milpitas	Multiple	0	0%	0%	0%	0%	100%	0%
Other – MPK	Multiple	0	0%	37%	0%	0%	63%	0%
Other - PVY	Multiple	8	0%	10%	31%	0%	60%	0%
Other - San José	Multiple	0	0%	0%	0%	0%	100%	0%
Other - Santa Clara County	Multiple	87003	0%	1%	4%	3%	92%	0%

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
Other – SMC	Multiple	21	0%	4%	13%	0%	82%	0%
PMC-D1	Permanente Creek	1886	6%	36%	0%	0%	57%	0%
SCH-K	Matadero Creek	448	0%	11%	59%	0%	30%	0%
SVC-A	Stevens Creek	10	2%	62%	0%	0%	37%	0%
SVW-B	Sunnyvale West Channel	5	47%	23%	1%	0%	29%	0%
	Totals	**93,557**	**0.3%**	**3%**	**5%**	**3%**	**89%**	**0%**

Existing and Planned Control Measures

PCBs and mercury control measures currently in place or planned for future implementation are described in this section. A preliminary list of control measures for the County of Santa Clara are listed in Table 3.27.

Table 3.27. Existing (E) and planned (P) PCBs and mercury control measures in Unincorporated Santa Clara County WMAs.

WMA ID	Control Measure Categories										
						Operation and Maintenance Practices					
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Large Full trash capture Systems (Hydrodynamic Separators)	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning	Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
016MTC910		E/P		E		E		E			E
032SVC490				E		E		E			E
049STA710				E		E		E			E
067GAC010				E		E		E			E
068SCL230		E		E		E		E			E
083CTC990				E		E		E			E
083GAC900				E		E		E			E
083LGC525				E		E		E			E
099LGC180				E		E		E			E
100CTC190				E		E		E			E
100CTC400				E		E		E			E
100CTC500				E		E		E			E
113LGC010				E		E		E			E

WMA ID	Control Measure Categories										
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Large Full trash capture Systems (Hydrodynamic Separators)	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Operation and Maintenance Practices			Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
						Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning			
130CNC022				E		E		E			E
Miguelita Creek				E		E		E			E
Other - Milpitas		E		E		E		E			E
Other - MPK				E		E		E			E
Other - PVY				E		E		E			E
Other - San José		E		E		E		E			E
Other - Santa Clara County		E/P	E	E		E		E			E
Other - SMC				E		E		E			E
PMC-D1				E		E		E			E
SCH-K				E		E		E			E
SVC-A				E		E		E			E
SVW-B				E		E		E			E
049SVE900		E	E	E		E		E			E
050GAC030		E		E		E		E			E
050GAC400			E	E		E		E			E
066GAC550		E		E		E		E			E
Other - Palo Alto		P		E		E		E			E

Source Property Identification and Abatement (including Referrals)

No source property investigations are currently underway in the County. Based on the results of future monitoring designed to identify WMAs that likely contain source properties, additional source property investigations may be conducted by the Program or the County, resulting in additional source property referrals and/or actions by the County to eliminate the discharge of PCBs of mercury into the MS4 by property owners.

Green Stormwater Infrastructure and Treatment Controls[19]

Green stormwater infrastructure (GSI) and other treatment controls may be installed on roadways and public storm drain infrastructure to treat stormwater runoff in public rights-of-

[19] Acres reported in this section as addressed by green stormwater infrastructure and treatment controls should be considered preliminary and may be revised in the future as additional information is available.

way (e.g., green streets). In addition, applicable public and private properties undergoing new or redevelopment are subject to MRP requirements to treat stormwater via low impact development (LID) techniques or equivalent. Based on the information compiled to-date, over 220 acres of land to-date[20], including 150 acres of old urban land uses are currently addressed by GSI and other stormwater treatment facilities. As listed in Table 3.28, 125 acres are associated with facilities that were completed between July 1, 2013 and June 30, 2019 (i.e., FY13 14 through FY18-19). Treatment areas associated with these facilities are distributed among the 15 WMAs in the County as illustrated in **Attachment A**.

GSI projects currently under construction will also treat roughly an additional 47 acres of land, once the development/redevelopment is complete. The Program will continue working with the County to update and refine the information on completed projects.

Table 3.28. Extent of land area in Unincorporated Santa Clara County WMAs that is addressed by Green Stormwater Infrastructure (GSI) and Treatment Control Measures completed between July 1, 2013 and June 30, 2019.[1,2,3,4]

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Other	Open Space
Parcel-based New & Redevelopment or Retrofit	016MTC910	27.61	-	27.61	-	-	-
	066GAC550	3.54	-	3.54	-	-	-
	068SCL230	0.98	-	0.98	-	-	-
	Other - Los Gatos Above Vasona	1.29	-	1.29	-	-	-
	Other - San José	2.81	-	1.29	0.78	-	0.74
	Other - Santa Clara County	55.26	-	48.88	-	-	6.38
Parcel-based New & Redevelopment or Retrofit Total		**91.49**	**0.00**	**83.59**	**0.78**	**0.00**	**7.12**
Green Street/Regional Retrofit	049SVE900	12.68	0.00	12.68	-	-	-
	Other - Santa Clara County	21.00	-	-	-	-	21.00
Green Street/Regional Retrofit Total		**33.68**	**0.00**	**12.68**	**-**	**-**	**21.00**

1 – Acres presented may not include all acres currently treated by GSI and treatment controls.
2 – GSI and Treatment Control Measures include: (1) parcel based new development, redevelopment, or retrofit projects; and (2) green street projects or regional retrofit projects.
3 Includes all projects completed during FY13 14 through FY18-19 that were not reported in the 2014 IMR (BASMAA, 2014).
4 GSI and treatment controls may include proprietary vault based systems.

Large Full trash capture Systems (Hydrodynamic Separators)

The County has treated over 270 acres of land to-date with 3 hydrodynamic separators (HDS) owned and operated by the County (Table 3.29). These areas are distributed over a number of WMAs, and are comprised of 12 acres of old industrial and 213 acres of old urban land uses. In addition to the area currently treated by these devices, the County may install additional

[20] The acres treated to date include all projects completed since the TMDL baseline was established in 2002.

HDS units in the future. Should additional devices be installed, they will not only assist the City in achieving its trash load reduction goals, but will also provide load reduction benefits for PCBs and mercury.

Table 3.29. Extent of land area in Unincorporated Santa Clara County WMAs that is addressed by existing Full trash capture Treatment Systems.[1,2,3]

WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
		Old Industrial	Old Urban	New Urban	Other	Open Space
049SVE900	59.99	5.17	50.49	3.75	-	0.58
050GAC400	11.44	6.40	3.60	1.44	-	-
Other - Santa Clara County	199.03	-	159.26	-	-	39.76
TOTAL	**270.46**	**11.57**	**213.35**	**5.19**	**-**	**40.34**

1 – Acres presented may not include all acres currently treated by full trash capture treatment systems.
2 – Trash systems only include hydrodynamic separators that are publicly owned. Inlet based full trash capture devices are described in the operation and maintenance practices section.
3 Includes all existing full trash capture systems in Santa Clara County that were installed between January 2010 and June 2019.

Managing PCBs during Building Demolition

The County participated in the BASMAA regional project to develop tools and guidance for implementing a protocol for managing PCBs during building demolition. The County began implementing a protocol/program to require the management of PCBs in building materials during demolition activities by July 1, 2019, consistent with MRP 2.0.

MS4 Operation and Maintenance Practices

- **Street Sweeping**

  The County's current street sweeping program includes sweeping expressways once per month. Beginning in July 2014, the County increased the sweeping frequency on County Expressway to once per week and began sweeping the median curb. Parking enforcement signs for street sweeping are not posted in the County, but parking is not permitted on expressways.

- **Inlet Cleaning**

  The County currently inspects and maintains all storm drain inlets once per year, on average, with the exception of those with full capture systems, which are maintained more often. The County has installed 26 inlet-based full trash capture devices since 2002 that treat 6 acres of old urban land use. Because of additional maintenance requirements for these devices, the Program is currently documenting enhanced cleaning frequencies and will provide that information in future reports. The County will continue to evaluate the benefits of more frequent inlet cleaning on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

Reduction/Recycling of Mercury containing Devices & Products

The County currently promotes the collection and recycling of mercury containing devices and equipment at the consumer level via their participation in the Santa Clara County

Environmental Health Department's Household Hazardous Waste Program (HHW Program). No enhancements associated with this control measure are currently planned.

WEST VALLEY COMMUNITIES
(CAMPBELL, LOS GATOS, SARATOGA AND MONTE SERENO)

Watershed Management Areas

The West Valley Communities include the cities of Campbell, Monte Sereno, and Saratoga, and the Town of Los Gatos. Table 3.30 provides a listing of all Watershed Management Areas (WMAs) identified to-date in the West Valley Communities. Total land area in the WMAs and associated land uses are also included. WMAs presented in Table 3.30 have been updated from the tables provided in Version 3.0 of this report based on new information. That said, these WMAs should continue to be considered preliminary because they may be refined in the future based on data/information currently being evaluated and collected through source investigations and other activities.

A total of 12 WMAs have been identified in the West Valley Communities. These WMAs include all land area (i.e., >17,500 acres) within the jurisdictional boundaries of West Valley Communities that is below significant water impoundments located on receiving water bodies (i.e., reservoirs). WMAs form the management units that are used to report control measure implementation in this section and PCBs and mercury load reductions reported in Section 4.

Table 3.30. Preliminary PCBs and mercury Watershed Management Areas (WMAs) and associated land uses in West Valley communities (Campbell, Los Gatos, Saratoga and Monte Sereno).

Permittee	WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
Campbell	**099LGC180**	Los Gatos Creek	101	0%	10%	90%	0%	0%	0%
Campbell	**113LGC010**	Los Gatos Creek	298	11%	28%	56%	3%	3%	0%
Campbell	**113LGC030**	Los Gatos Creek	84	9%	57%	34%	1%	0%	0%
Campbell	**113LGC140**	Los Gatos Creek	126	13%	27%	59%	1%	0%	0%
Campbell	**113LGC510**	Los Gatos Creek	46	25%	47%	20%	8%	0%	0%
Campbell	**113LGC565**	Los Gatos Creek	83	48%	29%	15%	8%	1%	0%
Campbell	**113LGC670**	Los Gatos Creek	56	19%	73%	0%	8%	0%	0%
Campbell	**113LGC900**	Los Gatos Creek	15	5%	72%	5%	17%	0%	0%
Campbell	**Other - Campbell**	Multiple	3091	1%	24%	71%	0%	4%	0%
Los Gatos	**Other - Los Gatos**	Multiple	5003	1%	8%	42%	12%	37%	0%
Monte Sereno	**Other - Monte Sereno**	Multiple	507	0%	1%	92%	0%	7%	0%
Saratoga	**Other - Saratoga**	Multiple	8175	1%	6%	65%	11%	17%	0%
		Totals	**17,585**	**1%**	**11%**	**59%**	**9%**	**19%**	**0%**

Existing and Planned Control Measures

PCBs and mercury control measures currently in place or planned for future implementation are described in this section. A preliminary list of control measures for the West Valley Communities are listed in Table 3.31.

Table 3.31. Existing (E) and Planned (P) PCBs and mercury control measures in in West Valley communities (Campbell, Los Gatos, Saratoga and Monte Sereno) WMAs.

Permittee	WMA ID	Control Measure Categories										
							Operation and Maintenance Practices					
		Source Property Identification and Abatement	Green Stormwater Infrastructure	Large Full trash capture Systems (Hydrodynamic Separators)	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning	Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
Campbell	099LGC180				E		E		E			E
Campbell	113LGC010		E		E		E		E			E
Campbell	113LGC030		E/P		E		E		E			E
Campbell	113LGC140		E/P		E		E		E			E
Campbell	113LGC510				E		E		E			E
Campbell	113LGC565		E/P		E		E		E			E
Campbell	113LGC670				E		E		E			E
Campbell	113LGC900				E		E		E			E
Campbell	Other - Campbell		E/P		E		E		E			E
Los Gatos	Other - Los Gatos		E/P		E		E		E			E
Monte Sereno	Other - Monte Sereno				E		E		E			E
Saratoga	Other - Saratoga		E/P		E		E		E			E

Source Property Identification and Abatement (including Referrals)

No source property investigations are currently underway in the West Valley Communities. Based on the results of future monitoring designed to identify WMAs that likely contain source properties, additional source property investigations may be conducted by the Program or the County, resulting in additional source property referrals and/or actions by the cities/towns to eliminate the discharge of PCBs of mercury into the MS4 by property owners.

Green Stormwater Infrastructure and Treatment Controls[21]

Green stormwater infrastructure (GSI) and other treatment controls may be installed on roadways and public storm drain infrastructure to treat stormwater runoff in public rights-of-way (e.g., green streets). In addition, applicable public and private properties undergoing new or redevelopment are subject to MRP requirements to treat stormwater via low impact development (LID) techniques or equivalent. Based on the information compiled to-date, over 217 acres of land to-date[22], including 17 acres of old industrial and 171 acres of old urban land uses are currently addressed by GSI and other stormwater treatment facilities. As listed in Table 3.32, 135 acres are associated with facilities that were completed between July 1, 2013 and June 30, 2019 (i.e., FY13 14 through FY18-19). Treatment areas associated with these facilities are distributed among the 12 WMAs in the communities as illustrated in **Attachment A**.

GSI projects currently under construction will also treat roughly an additional 76 acres of land, once the development/redevelopment is complete. The Program will continue working with the West Valley Communities to update and refine the information on completed projects.

Table 3.32. Extent of land area in West Valley Communities WMAs that is addressed by Green Stormwater Infrastructure (GSI) and Other Stormwater Treatment Control Measures completed between July 1, 2013 and June 30, 2019.[1,2,3,4]

Project Type	Co-Permittee	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
				Old Industrial	Old Urban	New Urban	Other	Open Space
Parcel-based New & Redevelopment or Retrofit	Campbell	113LGC010	0.37	0.00	0.37	0.00	0.00	0.00
	Campbell	113LGC030	3.11	-	3.11	0.00	0.00	0.00
	Campbell	113LGC140	6.43	3.77	2.66	0.00	0.00	0.00
	Campbell	Other - Campbell	24.57	2.01	22.56	0.00	0.00	0.00
	Los Gatos	Other - Los Gatos	46.01	9.34	23.05	13.61	-	0.00
	Los Gatos	Other - Los Gatos Above Vasona	15.55	-	12.60	-	-	2.95
	Saratoga	Other - Santa Clara County	3.98	-	0.00	-	-	3.98
	Saratoga	Other - Saratoga	8.54	0.79	1.42	-	-	6.34
Parcel based New/Redevelopment or Retrofit Total			108.55	15.91	65.77	13.61	0.00	13.26
Green Street/Regional Retrofit	Campbell	Other - Campbell	26.51	-	25.66	-	-	0.85
Green Street/Regional Retrofit Total			26.51	-	25.66	-	-	0.85

1 – Acres presented may not include all acres currently treated by GSI and treatment controls.
2 – GSI and Treatment Control Measures include: (1) parcel based new development, redevelopment, or retrofit projects; and (2) green street projects or regional retrofit projects.
3 - Includes all projects completed during FY13 14 through FY18-19 that were not reported in the 2014 IMR (BASMAA, 2014).
4 - GSI and treatment controls may include proprietary vault-based systems.

[21] Acres reported in this section as addressed by green stormwater infrastructure and treatment controls should be considered preliminary and may be revised in the future as additional information is available.
[22] The acres treated to date include all projects completed since the TMDL baseline was established in 2002.

Large Full trash capture Systems (Hydrodynamic Separators)

The West Valley Communities do not currently have hydrodynamic separators (HDS) that are publicly owned and do not plan to install hydrodynamic separators during MRP 2.0. Should HDS units be installed, they will not only assist the communities in achieving their trash load reduction goals, but also provide load reduction benefits for PCBs and mercury.

Managing PCBs during Building Demolition

The West Valley Communities participated in the BASMAA regional project to develop tools and guidance for implementing a protocol for managing PCBs during building demolition. The Cities/Towns began implementing a protocol/program to require the management of PCBs in building materials during demolition activities by July 1, 2019, consistent with MRP 2.0.

MS4 Operation and Maintenance Practices

- **Street Sweeping**

  The City of Campbell's current street sweeping program that was enhanced in response to trash load reduction requirements includes sweeping streets in residential areas twice per month, the downtown area twice per week, and arterial/commercial/industrial areas weekly. Parking enforcement signs for street sweeping are not permanently posted in the City, however temporary signage is posted prior to sweeping events. Additionally, sweepers are able to sweep to the curb on arterial roads due to no parking on these streets.

  The City of Saratoga's current street sweeping program includes sweeping most streets within the City once per month and the downtown area once per week. Parking enforcement signs for street sweeping are not posted in the City, but cars generally do not park on City streets.

  The Town of Los Gatos's current street sweeping program includes sweeping industrial and residential areas once per month, commercial areas twice per month, and sweeping retail areas once per week. Parking enforcement signs are not posted in the Town.

  The City of Monte Sereno's current street sweeping program includes sweeping most streets four times per year. There are many streets within the City that are not swept. Parking enforcement signs for street sweeping are not posted, but cars generally do not park on City streets.

- **Stormwater Inlet Cleaning**

  The Cities/Towns currently inspect and maintain all storm drain inlets once every other year, on average, with the exception of those with full trash capture systems, which are maintained more often. The Cities/Towns have installed 91 inlet-based full trash capture devices since 2002 that treat 16 acres of old industrial land use and 242 acres of old urban land use. Because of additional maintenance requirements for these devices, the Program is currently documenting enhanced cleaning frequencies and will provide that information in future reports. The Cities/Towns will continue to evaluate the benefits of more frequent inlet cleaning on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

Reduction/Recycling of Mercury containing Devices & Products

The West Valley Communities currently promotes the collection and recycling of mercury containing devices and equipment at the consumer level via their participation in the Santa Clara County Environmental Health Department's Household Hazardous Waste Program (HHW Program). No enhancements associated with this control measure are currently planned.

CITY OF LOS ALTOS

Watershed Management Areas

Table 3.33 provides a listing of all Watershed Management Areas (WMAs) identified to-date in the City of Los Altos. Total land area in the WMA and associated land uses are also included. WMAs presented in Table 3.33 have been updated from the tables provided in Version 3.0 of this report based on new information. That said, these WMAs should continue to be considered preliminary because they may be refined in the future based on data/information currently being evaluated and collected through source investigations and other activities.

A total of one WMA has been identified in the City. This WMA includes all land area (i.e., >4,100 acres) within the City's jurisdictional boundaries that is below significant water impoundments located on receiving water bodies (i.e., reservoirs). WMAs form the management units that are used to report control measure implementation in this section and PCBs and mercury load reductions reported in Section 4.

Table 3.33. City of Los Altos preliminary PCBs and mercury Watershed Management Areas (WMAs) and associated land uses.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
Other - Los Altos	Multiple	4,175	0%	13%	84%	1%	2%	0%

Existing and Planned Control Measures

PCBs and mercury control measures currently in place or planned for future implementation are described in this section. A preliminary list of control measures for the City of Los Altos are listed in Table 3.34.

Table 3.34. Existing (E) and planned (P) PCBs and mercury control measures in City of Los Altos WMA.

WMA ID #	Control Measure Categories										
						Operation and Maintenance Practices					
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Full trash capture Systems	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning	Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
Other Los Altos		E/P	E	E		E		E			E

Source Property Identification and Abatement (including Referrals)

No source property investigations are currently underway in the City of Los Altos. Based on the results of future monitoring designed to identify WMAs that likely contain source properties, additional source property investigations may be conducted by the Program or the City, resulting in additional source property referrals and/or actions by the City to eliminate the discharge of PCBs of mercury into the MS4 by property owners.

Green Stormwater Infrastructure and Treatment Controls[23]

Green stormwater infrastructure (GSI) and other treatment controls may be installed on roadways and public storm drain infrastructure to treat stormwater runoff in public rights-of-way (e.g., green streets). In addition, applicable public and private properties undergoing new or redevelopment are subject to MRP requirements to treat stormwater via low impact development (LID) techniques or equivalent. Based on the information compiled to-date, over 33 acres of land to-date[24], including 58 acres of old urban land area are currently addressed by GSI and other stormwater treatment facilities. As listed in Table 3.35, 21 acres are associated with facilities that were completed between July 1, 2013 and June 30, 2019 (i.e., FY13 14 through FY18-19). Treatment areas associated with these facilities are distributed among the 1 WMA in the City as illustrated in **Attachment A**.

The land area current addressed by GSI facilities includes the David and Lucile Packard Foundation Green Street facility constructed in 2012 as part of the Packard Foundation's development of its new office building at 343 Second Street. The green street portion of the project incorporates curbside flow-through rain gardens and corner bulb-outs to capture, treat and infiltrate runoff from adjacent impervious surfaces. (The runoff from the building and associated hardscape and parking lots is captured and treated by other stormwater treatment measures).

Table 3.35. Extent of land area in City of Los Altos WMAs that is addressed by Green Stormwater Infrastructure (GSI) and Treatment Control Measures completed between July 1, 2013 and June 30, 2019.[1,2,3,4]

Project Type	WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
			Old Industrial	Old Urban	New Urban	Open Space	Other
Parcel based New & Redevelopment or Retrofit	**Other – Los Altos**	20.95	-	20.69	-	0.26	-

1 – Acres presented may not include all acres currently treated by GSI and treatment controls.
2 – GSI and Treatment Control Measures include: (1) parcel based new development, redevelopment, or retrofit projects; and (2) green street projects or regional retrofit projects.
3 - Includes all projects completed during FY13 14 through FY18-19 that were not reported in the 2014 IMR (BASMAA, 2014).
4 - GSI and treatment controls may include proprietary vault based systems.

[23] Acres reported in this section as addressed by green stormwater infrastructure and treatment controls should be considered preliminary and may be revised in the future as additional information is available.
[24] The acres treated to date include all projects completed since the TMDL baseline was established in 2002.

Large Full trash capture Systems (Hydrodynamic Separators)

The City of Los Altos has one public full trash capture device that treats over 106 acres of land to-date with full trash capture treatment systems. The majority of this area is treated by one public hydrodynamic separator owned and operated by the City (Table 3.36). The area treated is comprised of 123 acres of old urban land use. Additional areas are also treated using inlet screening devices.

In addition to the area currently treated by this system, the City is currently evaluating the need install additional systems to treat additional areas during the term of MRP 2.0. Installation of these devices will not only assist the City in achieving its trash load reduction goals, but also provide load reduction benefits for PCBs and mercury.

Table 3.36. Extent of land area in City of Los Altos WMAs that is addressed by existing Full trash capture Treatment Systems.[1,2,3]

WMA ID	Total Area (Acres)	Area by Land Use Category (Acres)				
		Old Industrial	Old Urban	New Urban	Open Space	Other
Other –Los Altos	106.42	-	105.89	0.53	-	-

1 – Acres presented may not include all acres currently treated by full trash capture treatment systems.
2 – Trash systems only include hydrodynamic separators that are publicly owned. Inlet based full trash capture devices are described in the operation and maintenance practices section.
3 - Includes all existing full trash capture systems in Santa Clara County that were installed between January 2010 and June 2019.

Managing PCBs during Building Demolition

The City of Los Altos participated in the BASMAA regional project to develop tools and guidance for implementing a protocol for managing PCBs during building demolition. The City began implementing a protocol/program to require the management of PCBs in building materials during demolition activities by July 1, 2019, consistent with MRP 2.0.

MS4 Operation and Maintenance Practices

- **Street Sweeping**

  The City of Los Altos current street sweeping program includes sweeping industrial and residential areas once per month, commercial areas twice per month, and retail areas once per week. Parking enforcement signs are not posted in the City, but cars generally do not park on City streets and the downtown areas are swept before cars arrive.

- **Inlet Cleaning**

  The City currently inspects and maintains all storm drain inlets one time per year, on average. The City will continue to evaluate the benefits of more frequent inlet cleaning on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

Reduction/Recycling of Mercury containing Devices & Products

The City currently promotes the collection and recycling of mercury containing devices and equipment at the consumer level via their participation in the Santa Clara County Environmental Health Department's Household Hazardous Waste Program (HHW Program). No enhancements associated with this control measure are currently planned.

TOWN OF LOS ALTOS HILLS

Watershed Management Areas

Table 3.37 provides a listing of all Watershed Management Areas (WMAs) identified to-date in the Town of Los Altos Hills. Total land area in the WMA and associated land uses are also included. WMAs presented in Table 3.37 have been updated from the tables provided in Version 1.0 of this report based on new information. That said, these WMAs should continue to be considered preliminary because they may be refined in the future based on data/information currently being evaluated and collected through source investigations and other activities.

A total of one WMA has been identified in the Town. This WMA includes all land area (i.e., >5,700 acres) within the Town's jurisdictional boundaries that is below significant water impoundments located on receiving water bodies (i.e., reservoirs). WMAs form the management units that are used to report control measure implementation in this section and PCBs and mercury load reductions reported in Section 4.

Table 3.37. Town of Los Altos Hills preliminary PCBs and mercury Watershed Management Areas (WMAs) and associated land uses.

WMA ID #	Outfall Water Body	Total Area (Acres)	% Old Industrial	% Old Urban Commercial	% Old Urban Residential	% New Urban	% Open Space	% Other
Other - Los Altos Hills	Multiple	5,784	0%	7%	65%	10%	19%	0%

Existing and Planned Control Measures

PCBs and mercury control measures currently in place or planned for future implementation are described in this section. A preliminary list of control measures for the Town of Los Altos Hills are listed in Table 3.38.

Table 3.38. Existing (E) and planned (P) PCBs and mercury control measures in Town of Los Altos Hills WMA.

WMA ID #	Control Measure Categories										
						Operation and Maintenance Practices					
	Source Property Identification and Abatement	Green Stormwater Infrastructure	Full trash capture Systems	Managing PCBs during Building Demolition	Managing PCBs in Stormwater Conveyance Infrastructure	Street Sweeping or Flushing	MS4 Line Flushing	Inlet Cleaning	Diversion to Wastewater Treatment Facilities	Removal of Illegally Dumped PCBs containing Materials and Products	Reduction/Recycling of Mercury containing Devices & Products
Other Los Altos Hills		P		E		E		E			E

Source Property Identification and Abatement (including Referrals)

No source property investigations are currently underway in the Town. Based on the results of future monitoring designed to identify WMAs that likely contain source properties, additional source property investigations may be conducted by the Program or the Town, resulting in

additional source property referrals and/or actions by the Town to eliminate the discharge of PCBs of mercury into the MS4 by property owners.

Green Stormwater Infrastructure and Treatment Controls[25]

Green stormwater infrastructure (GSI) and other treatment controls may be installed on roadways and public storm drain infrastructure to treat stormwater runoff in public rights-of-way (e.g., green streets). In addition, applicable public and private properties undergoing new or redevelopment are subject to MRP requirements to treat stormwater via low impact development (LID) techniques or equivalent. Based on the information compiled to-date, no land areas in the Town are currently addressed by GSI or other stormwater treatment facilities.

GSI projects currently under construction will treat roughly 13 acres of land, once the development is complete. The Program will continue working with the City to update and refine the information on completed projects.

Large Full trash capture Systems (Hydrodynamic Separators)

The Town does not currently have and has no plans to, install hydrodynamic separators during MRP 2.0. Should HDS units be installed, these units will not only assist the Town in achieving its trash load reduction goals, but also provide load reduction benefits for PCBs and mercury.

Managing PCBs during Building Demolition

The Town of Los Altos Hills participated in the BASMAA regional project to develop tools and guidance for implementing a protocol for managing PCBs during building demolition. The Town began implementing a protocol/program to require the management of PCBs in building materials during demolition activities by July 1, 2019, consistent with MRP 2.0.

MS4 Operation and Maintenance Practices

- **Street Sweeping**

  The Town of Los Altos Hills's current street sweeping program includes sweeping residential areas twice per month during the wet season and every month and a half during the dry season. Parking enforcement signs are not posted in the Town, but cars generally do not park on Town streets.

- **Inlet Cleaning**

  The Town currently inspects and maintains all storm drain inlets one time per year, on average. The Town will continue to evaluate the benefits of more frequent inlet cleaning on a site-specific basis during MRP 2.0 and as part of its control measure prioritization process via the RAA development.

Reduction/Recycling of Mercury containing Devices & Products

The Town currently promotes the collection and recycling of mercury containing devices and equipment at the consumer level via their participation in the Santa Clara County Environmental Health Department's Household Hazardous Waste Program (HHW Program). No enhancements associated with this control measure are currently planned.

[25] Acres reported in this section as addressed by green stormwater infrastructure and treatment controls should be considered preliminary and may be revised in the future as additional information is available.

SANTA CLARA VALLEY WATER DISTRICT

The Santa Clara Valley Water District (Valley Water)'s significant financial commitment to SCVURPPP supports many local and San Francisco Bay Area monitoring activities such as the Regional Monitoring Program. Although Valley Water does not generally have jurisdiction over land use planning decisions, it performs and assists other SCVURPPP Co-permittees in the implementation of control measures that have a PCBs and mercury reduction benefit. Valley Water's primary PCBs and Mercury control measures are related to sediment removal activities and activities related to the implementation of the Guadalupe River Watershed Mercury TMDL..

Because watershed land areas draining to receiving waters are generally not owned by Valley Water, no Watershed Management Areas (WMAs) are currently identified for Valley Water. That said, Valley Water owns and maintains roughly one third of the channels and creeks in the Santa Clara Valley. Valley Water led activities that have a PCBs and/or mercury reduction benefit are included in this section.

Existing and Planned Control Measures

Enhanced Operation and Maintenance Practices: Channel Maintenance and Cleaning

As part of its Stream Maintenance Program (SMP), Valley Water conducts sediment removal activities in channels, creeks and percolation ponds for the purpose of alleviating the potential for local flooding problems and to meet the requirements of the Federal Emergency Management Agency for flood protection and water supply. Valley Water follows a sediment characterization plan to determine chemical and physical properties of the sediments, including for total mercury, in order to effectively plan for disposal or beneficial reuse of the sediments and assist with determining the best management practices to implement in order to avoid and minimize impacts to water quality and aquatic life during sediment removal and disposal. Sediment removal from channels and creeks, as well as percolation ponds, allows for the opportunistic removal of sediments and associated pollutants before they reach the San Francisco Bay.

Stream Restoration Activities and Erosion Control Activities

Valley Water has conducted stream restoration activities that included the removal of mercury containing mining waste in the Guadalupe Creek, Alamitos Creek and the Guadalupe River that have resulted in a significant amount of mercury being removed from the Guadalupe River system. In addition, Valley Water has funded and or managed the removal of mercury containing sediment and stream stabilization activities for other governmental organizations. One example has been the rehabilitation of Jacques Gulch upstream of Almaden Reservoir for Santa Clara County.

Oxygenation System Activities

Valley Waterowns and operates three reservoirs (Almaden, Calero, and Guadalupe reservoirs) and one lake (Lake Almaden) within the Guadalupe River Watershed that were included in the Guadalupe River Watershed Mercury TMDL. Valley Wateroperates four hypolimnetic oxygenation systems that reduce the production of methylmercury in Almaden, Guadalupe, Calero and Stevens Creek reservoirs during months of stratification. Hypolimnetic oxygenation also improves the quality of the water discharged from the reservoir, reducing downstream

concentrations of nutrients, metals, and bioavailable mercury. Valley Water is required to provide periodic progress reports regarding its studies of methylmercury production and controls, and progress towards reducing the bioaccumulation of mercury in the watershed to the Regional Board. By reducing the amount of mercury and methylmercury in the watershed, implementation of the Guadalupe TMDL also supports the San Francisco Bay Mercury TMDL.

Reduction/Recycling of Mercury containing Devices & Products

Valley Water is a partner in the Santa Clara County Environmental Health Department's Household Hazardous Waste Program (HHW Program). Valley Water has a partnership agreement with the County's Green Business Program, which works to promote the collection and recycling of mercury containing devices and equipment by the HHW program. No enhancements associated with this control measure are currently planned.

SECTION 4 –PCBS AND MERCURY LOADS REDUCED

The PCBs and mercury loads reduced through stormwater control measures implemented or caused to be implemented by Co-permittees in the Santa Clara Valley during the current MRP term are reported in this section. The loads reduced were calculated only for those control measures and projects reported in Section 3 that were implemented and/or completed between July 1, 2013 and June 30, 2019, and may not include all existing control measures. The load reductions reported in this section do not account for operation and maintenance (O&M) enhancements implemented by Co-permittees during the permit term, including enhanced street sweeping and enhanced inlet cleaning implemented by Co-permittees as part of their operation and maintenance programs for inlet based full trash capture systems. The load reductions associated with O&M enhancements implemented by Co-permittees during MRP 2.0 will be provided in future iterations of this Control Measures Plan. The Program will continue to track control measures and update the associated load reductions as additional information becomes available and as new or enhanced actions are implemented by Co-permittees.

Summary of Loads Reduced Accounting Methodology

The accounting methodologies used to calculate the load reductions reported in this section were developed by BASMAA and approved by the Executive Officer of the Regional Water Board for the purpose of load reduction reporting during MRP 2.0. These methods and data inputs are described fully in the BASMAA Interim Accounting Methodology Report v.1.1 (BASMAA, 2017). The equations and default data inputs that are used to calculate load reductions are summarized below. The data on acres addressed by each type of control measure that are reported in Section 3 were used in the equations below to calculate the PCBs and mercury load reductions that are reported later in this section.

Source Property Identification and Abatement (including Referrals)

The pollutant of concern (POC) loads reduced through source property identification and abatement were calculated using the equation below:

$$Load\ of\ POC\ Reduced = SP_A \bullet (SP_Y - OU_Y)$$

Where:

SP_A = *Source property area (acres (ac))*
SP_Y = *Source property POC yield*
OU_Y = *Old Urban land use POC yield*

Default inputs:

PCBs Source property yield = 4,065 mg/ac/yr
PCBs Old urban land use yield = 30.3 mg/ac/yr
Mercury Source property yield = 1,300 mg/ac/yr
Mercury Old urban land use yield = 215 mg/ac/yr

Fifty percent of the load reduced is reported here for each source property referral that was identified in Section 3. The remaining 50% will be credited upon completion of the abatement process, or at ten years, whichever occurs first.

Green Stormwater Infrastructure and Treatment Controls

Parcel Based New Development, Redevelopment and Retrofit

The POC loads reduced through parcel based new development, redevelopment, and retrofit projects were calculated using the equation below:

$$Load\ of\ POC\ Reduced = P_A \bullet (P_Y - NU_Y)$$

Where:

P_A	=	*New development/redevelopment/parcel based retrofit project area (ac)*
P_Y	=	*Existing PCBs or mercury yield (mg/ac/yr)*
NU_Y	=	*New Urban PCBs or mercury yield (mg/ac/yr)*

Default inputs:

PCBs New Urban land use yield = 3.5 mg/ac/yr
Mercury New Urban land use yield = 33 mg/ac/yr

Green Streets, Regional Retrofit Projects, and Full trash capture Systems

The POC loads reduced due to green streets, regional retrofit projects, and full trash capture devices (i.e., hydrodynamic separators (HDS) units) were calculated using the equation and inputs provided below:

$$Annual\ Mass\ of\ PCB\ Reduced = P_A \bullet P_Y \bullet E_f$$

Where:

P_A	=	*Tributary area treated by green stormwater infrastructure/retrofit treatment measure/HDS unit (acres)*
P_Y	=	*Area weighted PCBs or mercury yield (mg/acre year)*
E_f	=	*Efficiency factor for green stormwater infrastructure/retrofit treatment control measure (assumed to be 70%) or HDS units (assumed to be 20%)*

PCBs Loads Reduced

Co-permittees in the Santa Clara Valley have reduced PCBs by **384 g/year** during the MRP 2.0 compliance period (i.e., FY 13-14 to present). The PCBs loads reduced by each Permittee are provided in Table 4.1.

Table 4.1. PCBs Loads Reduced by Co-permittees in the Santa Clara Valley (FY 13-14 through FY 18-19).[1]

Permittee	PCBs Loads Reduced (g/yr)						
	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	Cumulative Load Reduced
Cupertino	1.16	0.13	0.24	0.05	1.62	4.07	**7.27**
Los Altos	0.70	0.16	0.14	0.07	0.13	-	**1.20**
Los Altos Hills	-	-	-	-	-	-	**-**
Milpitas	0.14	0.14	1.69	2.31	1.89	1.62	**7.80**
Mountain View	4.18	3.69	0.51	1.68	0.40	6.91	**17.37**
Palo Alto	1.85	2.67	1.78	0.69	1.09	1.83	**9.90**
San José	18.32	8.69	32.38	45.19	6.44	17.84	**128.86**
Santa Clara	2.86	2.52	2.09	4.05	1.16	25.32	**38.01**
Santa Clara County Unincorporated	2.31	0.21	1.01	0.39	0.20	-	**4.12**
Sunnyvale	1.48	2.16	11.01	1.66	148.83	0.98	**166.11**
West Valley Communities	0.38	0.23	1.04	1.39	0.11	0.50	**3.65**
TOTAL All Co-permittees	***33.39***	***20.60***	***51.88***	***57.47***	***161.88***	***59.06***	***384.28***

1- The load reductions associated with implementation of programs to manage PCBs during building demolition will be accounted for in the FY19-20 Annual Report.

The total PCBs loads reduced by each control measure type are provided in Table 4.2. Figure 4.1 presents the distribution of PCBs load reductions achieved by control measure type for each Permittee, and across all Co-permittees.

Table 4.2. PCBs Loads Reduced within the Santa Clara Valley by Control Measure Category (FY 3-14 through FY 18-19).

Control Measure Category		PCBs Loads Reduced (g/yr)							MRP-Required Load Reductions by 2020 (g/yr)
		FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	Cumulative Load Reduced	
Source Property Identification and Referral[1]	Leo Avenue (San José)			10.09				**10.09**	
	Sunnyvale East Channel Watershed (Sunnyvale)					147.27		**147.27**	
	335 Brokaw Road Property (Santa Clara)						25.22	**25.22**	
Green Stormwater Infrastructure and Other Stormwater Treatment Controls	Parcel Based Green Stormwater Infrastructure (i.e., New & Redevelopment Projects)[2]	13.90	20.58	15.87	21.35	14.21	12.73	**98.64**	**37.00**
	Green Streets and Regional Retrofits[3]	0.43	0.01	1.83	0.24	0.39	-	**2.91**	
	Large Full trash capture Systems (Hydrodynamic Separators)[3]	19.06	-	24.09	35.89	-	21.11	**100.15**	
Enhanced O&M Measures[4]		-	-	-	-	-	-	**-**	
Manage PCBs in Building Materials[4]		-	-	-	-	-	-	**-**	
Manage PCBs in Infrastructure[4]		-	-	-	-	-	-	**-**	
Diversion to POTW[4]		-	-	-	-	-	-	**-**	
Source Controls/Other[4]		-	-	-	-	-	-	**-**	
Total - All Co-permittees & Controls		***33.39***	***20.60***	***51.88***	***57.47***	***161.88***	***59.06***	***384.28***	***940.00***

1. Load Reduced = (Source Property Area (ac)) x (4.065 – 0.0303 (g/ac/yr)). Acres associated with this control measure can be found in Section 3.
2. For parcel based GSI projects, Load Reduced = (Project Area (ac)) x (Existing Yield – 35 (g/ac/yr)). For green street or regional retrofit projects, Load Reduced = (Project Drainage Area (ac)) x (area weighted PCBs yield (g/ac/yr)) x 0.70. Acres associated with this control measure can be found in Section 3.
3. Load Reduced = (Project Drainage Area (ac)) x (area weighted PCBs yield (g/ac/yr)) x 0.20. Acres associated with this control measure can be found in Section 3.
4. Loads reduced for these control measures will be provided in future reports, as applicable.

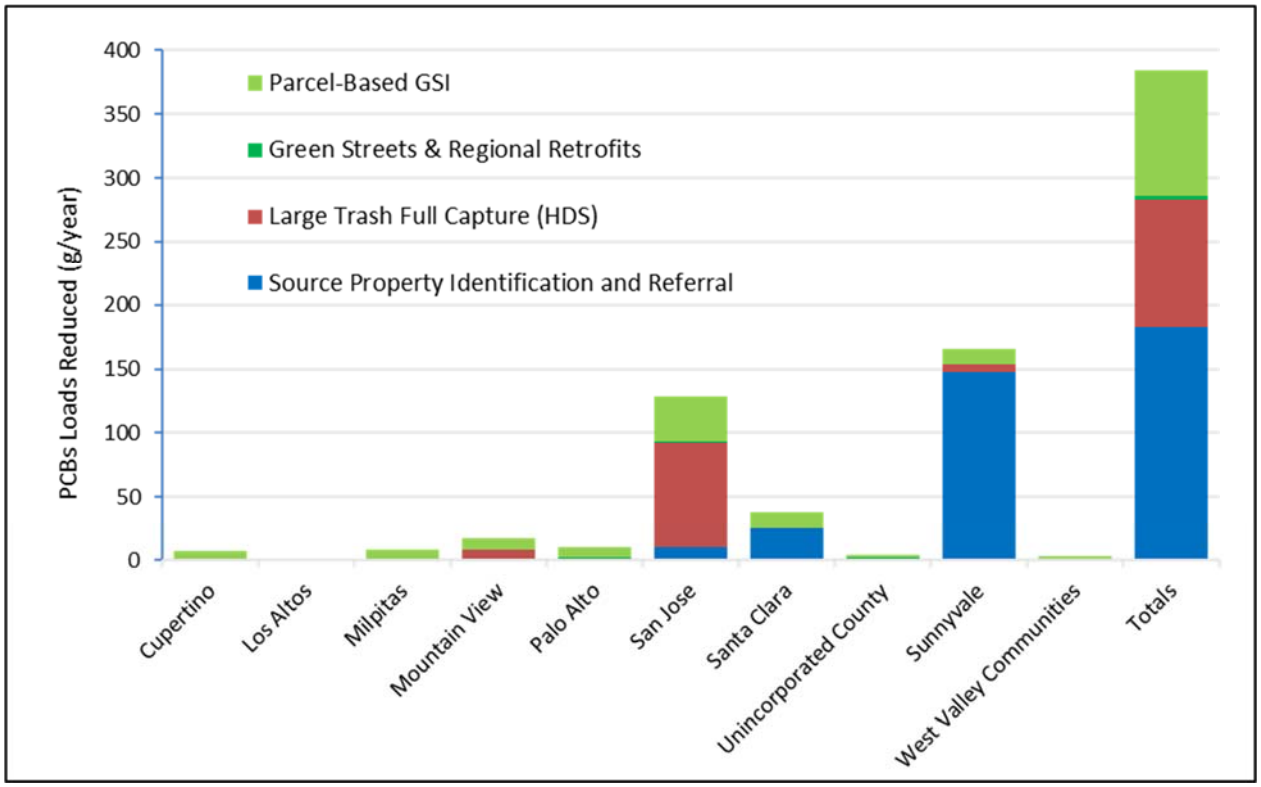

Figure 4.1. PCBs Loads Reduced by each Permittee within the Santa Clara Valley by Control Measure Category (FY 13-14 through FY 18-19).

Parcel-based GSI (i.e., re-development) projects have been and will continue to be important controls for reducing PCBs. Table 4.2 and Figure 4.1 demonstrate the importance of green stormwater infrastructure installation as part of parcel-based redevelopment projects in the Santa Clara Valley. Since FY 13-14, more than 5,348 acres have undergone new or redevelopment in the Santa Clara Valley and are currently treated by GSI facilities, including more than 1,762 acres of old industrial and 2,324 acres of old urban land uses. These projects currently account for 26% of the reported PCBs load reduction (Table 4.2).

By comparison, public green street and regional retrofit projects currently account for less than 1% of the PCBs loads reduced to-date (Table 4.2). With the development and implementation of Co-permittee GSI Implementation Plans that are required by the MRP, green street and regional projects are expected to increase over the next decade. With this increase in these projects, PCBs load reductions are expected to increase as well over time.

Large full trash capture systems (i.e., Hydrodynamic Separators) owned and operated by Co-permittees also play an important role in reducing PCBs reaching the Bay from the Santa Clara Valley. To-date, more than 15,600 acres of land, including 1,200 acres of old industrial land use, have been treated by HDS units. The bulk of land treated by these systems are located in the cities of San José and Sunnyvale. Combined, these systems account for 26% of the PCBs load reductions from the Santa Clara Valley.

Lastly, 183 grams of PCBs have been reduced to-date through referrals of source properties to the Regional Water Board for abatement. These referrals account for 48% of the PCBs load reductions from the Santa Clara Valley. Source property identification and abatement remains

one of the most cost-effective control measures available for PCBs load reductions. The Program has identified a number of additional PCBs source properties through recently completed investigations, and continues to conduct additional investigations. Should the Program and Co-permittees refer these properties, or additional source properties identified through future investigations, to the Regional Water Board for abatement, additional PCBs load reductions will be reported in future annual reports, consistent with the MRP.

Figure 4.2 illustrates the load reductions achieved each fiscal year across all Co-permittees to date, clearly demonstrating the substantial progress that has been made in the Santa Clara Valley to reduce PCBs in stormwater. At the end of FY 18-19, the cumulative PCBs load reductions in the Santa Clara Valley reached 384 g/yr. As noted previously, PCBs load reductions are not reported here for all controls that have been implemented to-date, including increases in the frequency of inlet cleaning associated with inlet-based full trash capture devices, and PCBs removed via Valley Water's stream maintenance activities. Over the next fiscal year, efforts will be made to document the information required to account for these actions. In addition, Co-permittees continue to develop and implement appropriate methods to control other potential sources (e.g., manage PCBs in building materials, infrastructure, illegal dumping, etc.), and prevent or reduce the release of PCBs from these sources. Given the cumulative PCBs load reductions achieved to date, combined with the anticipated load reductions that will be achieved next fiscal year due to implementation of programs to manage PCBs in building materials, the Co-permittees are currently on track to achieve the 2020 load reduction target of 940 g/yr for the Santa Clara Valley. As progress is made on implementing these control measures, the Program will document load reductions achieved in future reports.

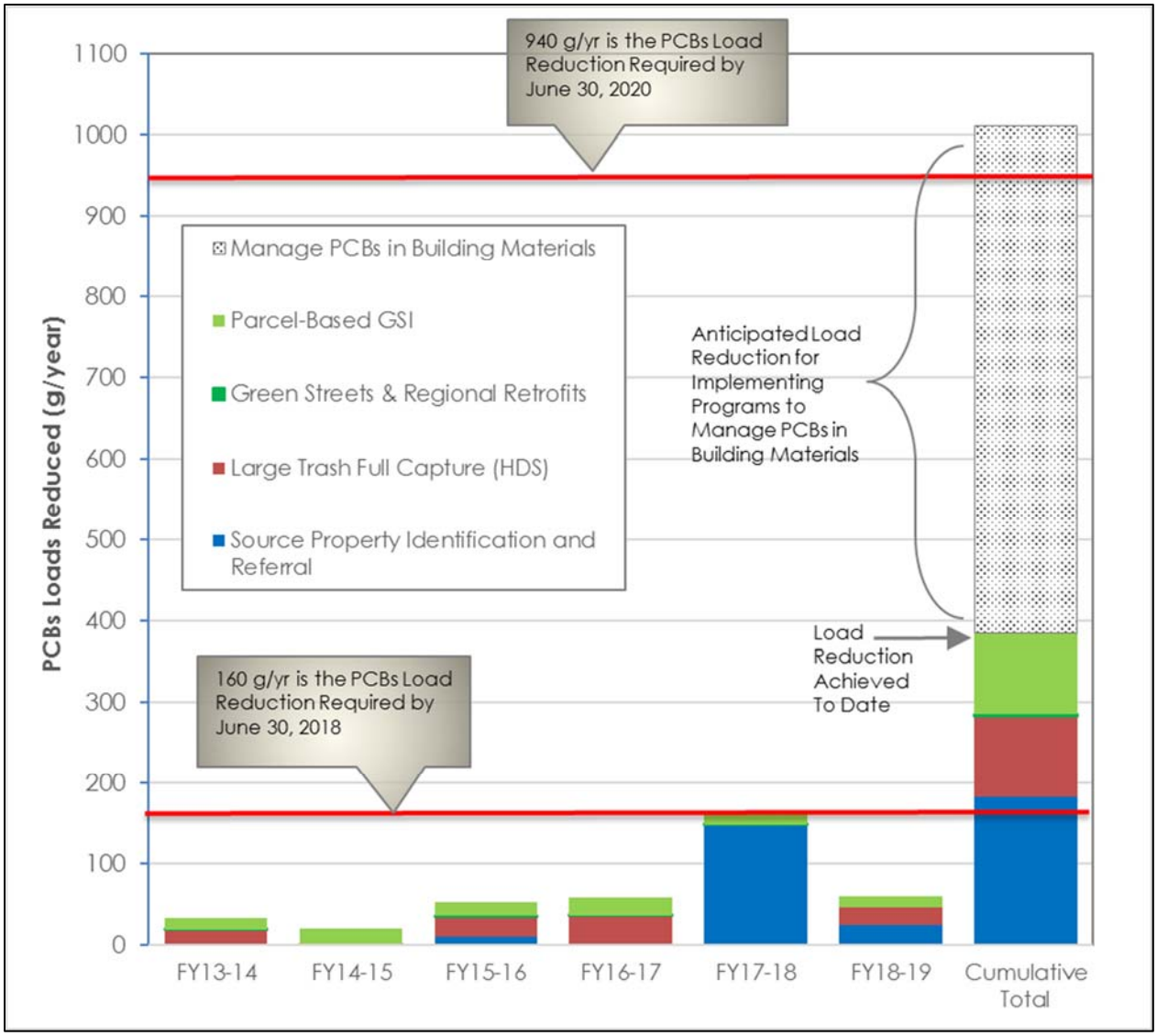

Figure 4.2. PCBs Loads Reduced within the Santa Clara Valley by Control Measure Category (FY 13-14 through FY 18-19).

Mercury Loads Reduced

Co-permittees in the Santa Clara Valley have reduced mercury by **2,132 g/year** during the MRP 2.0 compliance period (i.e., FY 13-14 to present). The mercury loads reduced by each Permittee are provided in Table 4.3.

Table 4.3. Mercury Loads Reduced by Co-permittees in the Santa Clara Valley (FY 13-14 through FY 18-19).[1]

Permittee	Mercury Loads Reduced (g/yr)						
	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	Cumulative Load Reduced
Cupertino	12.60	0.75	1.59	0.34	24.31	27.52	**67.11**
Los Altos	4.95	1.10	0.92	0.47	0.89	-	**8.32**
Los Altos Hills	-	-	-	-	-	-	**-**
Milpitas	0.98	0.98	22.17	32.25	28.38	18.31	**103.06**
Mountain View	46.46	52.27	4.72	18.96	4.24	71.30	**197.96**
Palo Alto	18.37	28.12	15.09	7.75	14.52	25.13	**108.98**
San José	169.67	117.08	203.42	449.12	83.36	161.80	**1,184.45**
Santa Clara	34.42	25.58	28.23	47.05	8.35	7.83	**151.46**
Santa Clara County Unincorporated	17.76	1.41	6.91	2.62	1.34	-	**30.04**
Sunnyvale	12.11	31.39	122.69	20.49	50.81	7.18	**244.66**
West Valley Communities	2.59	1.51	7.76	17.41	0.74	5.99	**36.01**
TOTAL All Co-permittees	***319.91***	***260.17***	***413.49***	***596.45***	***216.95***	***325.07***	***2,132.05***

1 The load reductions associated with implementation of programs to manage PCBs during building demolition will be accounted for in the FY19-20 Annual Report.

The mercury loads reduced by each control measure type are provided in Table 4.4. Figure 4.3 presents the distribution of PCBs load reductions achieved by control measure type for each Permittee, and across all Co-permittees.

Table 4.4. Mercury Loads Reduced within the Santa Clara Valley by Control Measure Category (FY 13-14 through FY 18-19).

Control Measure Category		Mercury Loads Reduced (g/yr)							MRP-Required Load Reductions by 2020 (g/yr)
		FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	Cumulative Load Reduced	
Source Property Identification and Referral[1]	Leo Avenue (San José)	-	-	2.71	-	-	-	**2.71**	
	Sunnyvale East Channel Watershed (Sunnyvale)	-	-	-	-	39.60	-	**39.60**	
	335 Brokaw Road Property (Santa Clara)	-	-	-	-	-	6.78	**6.78**	
Green Stormwater Infrastructure and Other Stormwater Treatment Controls	Parcel Based Green Stormwater Infrastructure (i.e., New & Redevelopment Projects)[2]	153.98	260.04	188.06	274.54	172.94	130.34	**1,179.91**	**16.00**
	Green Streets and Regional Retrofits[3]	3.25	0.13	14.90	3.62	4.40	-	**26.30**	
	Large Full trash capture Systems (Hydrodynamic Separators)[3]	162.68	-	207.82	318.30	-	187.94	**876.74**	
Enhanced O&M Measures[4]		-	-	-	-	-	-	-	
Manage PCBs in Building Materials[4]		-	-	-	-	-	-	-	
Manage PCBs in Infrastructure[4]		-	-	-	-	-	-	-	
Diversion to POTW[4]		-	-	-	-	-	-	-	
Source Controls/Other[4]		-	-	-	-	-	-	-	
Total - All Co-permittees & Controls		***319.91***	***260.17***	***413.49***	***596.45***	***216.95***	***325.07***	***2,132.07***	

1. Load Reduced = (Source Property Area (ac)) x (1.033 – 0.215 (g/ac/yr)). Acres associated with this control measure can be found in Section 3.
2. For parcel based GSI projects, Load Reduced = (Project Area (ac)) x (Existing Yield – 0.033 (g/ac/yr)). For green street or regional retrofit projects, Load Reduced = (Project Drainage Area (ac)) x (area weighted mercury yield (g/ac/yr)) x 0.70. Acres associated with this control measure can be found in Section 3.
3. Load Reduced = (Project Drainage Area (ac)) x (area weighted mercury yield (g/ac/yr)) x 0.20. Acres associated with this control measure can be found in Section 3.
4. Loads reduced for these control measures will be provided in future reports.

Figure 4.3. Mercury Loads Reduced by each Permittee within the Santa Clara Valley by Control Measure Category (FY13-14 through FY18-19).

The mercury loads reduced by each control measure are provided in Table 4.4. The largest single contributor to the mercury load reductions achieved to-date has been through parcel based new development and redevelopment projects where GSI has been installed (Table 4.4).

Figure 4.3 presents the distribution of mercury load reductions achieved by control measure type for each Permittee, and across all Co-permittees, further demonstrating the importance of green stormwater infrastructure and treatment controls including full trash capture systems for mercury load reductions. Combined, these measures contribute 98% to the Program wide total mercury load reduction achieved to-date.

New and redevelopment projects have been and continue to be implemented across all Santa Clara Valley Co-permittees. Over the permit term to-date, 5,348 acres have undergone new or redevelopment in the Santa Clara Valley and are currently treated by GSI facilities, including more than 1,762 acres of old industrial and 2,324 acres of old urban land uses. These projects currently account for 55% of the mercury load reduction (Table 4.4). By comparison, Green Street and regional retrofit projects account for 1% of the total mercury loads reduced to-date (Table 4.4).

Full trash capture systems are also an important component of mercury load reductions, accounting for 41% of the Program-wide total to-date. The bulk of these systems treat land areas in the cities of San José and Sunnyvale. Combined, these systems currently treat 15,600 acres of land, including 1,200 acres of old industrial land uses.

The remaining 2% load reduction results from the three source properties that were referred to the Regional Water Board, including the property on Leo Avenue in the City of San José, the Sunnyvale East Channel property in the City of Sunnyvale, and the Brokaw Road property in the City of Santa Clara.

Figure 4.4 illustrates the load reductions achieved each fiscal year across all Co-permittees, clearly demonstrating the substantial progress Co-permittees in the Santa Clara Valley have made to-date. The interim mercury load reduction target of 16 g/yr through green stormwater infrastructure has already been achieved. Continued progress is expected from ongoing redevelopment and retrofit of treatment controls (including full trash capture systems) into existing old industrial and old urban land uses throughout the remainder of the permit term.

As noted previously, mercury load reductions are not reported here for all controls that have been implemented to-date, including increases in the frequency of inlet cleaning associated with inlet-based full trash capture devices, and mercury removed via Valley Water's stream maintenance activities. Over the next fiscal year, efforts will be made to document the information required to account for these actions. As progress is made on continued implementation of mercury control measures, the Program will document load reductions achieved in future reports.

Figure 4.4. Mercury Loads Reduced within the Santa Clara Valley by Control Measure Category (FY 13-14 through FY 18-19).

SECTION 5 - IMPLEMENTATION SCHEDULE AND PLANNED NEAR TERM NEXT STEPS

Co-permittees in the Santa Clara Valley began implementing PCBs and mercury control measures with the adoption of the PCBs and Mercury TMDLs. Enhanced control measure implementation following the adoption of MRP 2.0 is underway and primarily focused on: 1) conducting source property identification projects that will likely lead to referrals to the Water Board for further investigation and abatement; 2) tracking the implementation of green stormwater infrastructure/treatment controls on private property, and planning for public green stormwater infrastructure projects; and 3) developing a protocol to manage PCBs in building materials during demolition. These control measures will continue to be developed/implemented over the course of the MRP 2.0, consistent with the permit.

In addition to these focused areas, Co-permittees are also continuing to implement the following during the term of MRP 2.0:

Source Property Referrals and Abatement

- Continue to collect and evaluate information to identify WMAs with potential source properties using the framework developed by BASMAA member agencies and expanded upon by SCVURPPP, including the collection of stormwater monitoring data from many of the 160+ WMAs.
- Continue to work with the Regional Water Board on the referral of the railroad property on Leo Avenue in the City of San José (WMA 083CTC990) and assist in next steps as appropriate.
- Continue to work with the USEPA and the Regional Water Board on the referral of the Northrup Grumman property in the City of Sunnyvale (WMA 049SVE900) and assist in next steps as appropriate.
- Continue to work with the Regional Water Board on the referral of the 335 Brokaw Road property in the City of Santa Clara (WMA 066GAC150) and assist in next steps as appropriate.
- Continue calculating PCBs and mercury load reduction benefits of source properties.

Green Stormwater Infrastructure

- With assistance and guidance from SCVURPPP, complete the development of GSI Plans that integrate with the Santa Clara Valley Stormwater Resource Plan, which was completed in 2019.
- Complete the Reasonable Assurance Analysis (RAA) for GSI, including the quantification of the extent of GSI needed to address PCBs and mercury TMDLs subsequent to MRP 2.0, consistent with the regional framework and guidance for conducting an RAA for mercury and PCBs.
- Continue to update SCVURPPP's online GSI database for GSI and stormwater treatment in the Santa Clara Valley to assist Co-permittees in calculating PCBs and mercury load reductions.
- Continue calculating the PCBs and mercury load reduction benefits of existing GSI facilities.

Large Full Trash Capture Systems (HDS)

- Continue to track the implementation of trash full capture systems and calculate the PCBs and mercury load reduction benefits associated with these devices.

MS4 Operation and Maintenance Practices

- Look for opportunities to enhance existing O&M practices to optimize PCBs and mercury load reduction benefits.
- Continue to track the implementation of enhanced MS4 operation and maintenance practices, including increased cleaning frequencies of inlets with trash full capture systems, and calculate the PCBs and mercury load reduction benefits.

PCBs in Building Materials, Storm Drains and Roadway Infrastructure

- Implement programs for managing materials and wastes containing PCBs during the demolition of buildings.
- Begin to track program implementation and quantify the mass of PCBs abated from subject buildings.

Mercury Reduction via True Source Controls and Recycling

- Continue to implement and track the benefits from mercury true source control and recycling programs, including HHW Programs.

Additional Activities

- Continue implementing a program to educate the public regarding potential human health risks from PCBs and mercury in Bay fish, including residents likely to consume locally caught fish. This includes working with the Alviso Education Center to utilize various education and outreach products.
- Complete the RAA for PCBs and mercury source controls as a BASMAA regional project.
- Prepare a plan and schedule for implementing technically and economically feasible PCBs and mercury control measures needed to achieve PCBs and mercury TMDL Wasteload Allocations (WLAs) and evaluate the costs associated with the implementation of these actions.

Table 5.1. Preliminary list of PCBs and mercury control measure tasks, responsible party(s) and anticipated milestones during the term of MRP 2.0.

Task	Responsible Party(s)	Anticipated Milestone Completion Date	Notes
Source Property Referrals and Abatement			
Identify WMAs with potential source properties	Program & Applicable Co-permittees	December 2020	Anticipated date for categorizing the vast majority of WMAs
Continue coordinating with the Regional Water Board on railroad property on Leo Avenue (San José WMA 083CTC990)	Program & City of San José	On-going	13267 letter issued by Regional Water Board to property owner. Initial sampling results indicate high concentrations on railroad ROW.
Continue coordinating with the USEPA and the Regional Water Board on the source property identified in the City of Sunnyvale (WMA 049SVE900).	Program and City of Sunnyvale	On-going	City shared with USEPA data collected adjacent to or downstream of property. USEPA required property owner to sample discharges from property. PCBs concentrations highly elevated. City submitted a referral to USEPA and Regional Water Board.
Continue coordinating with the Regional Water Board on 335 Brokaw Road Property (Santa Clara WMA 066GAC150)	Program & City of Santa Clara	On-going	City submitted a referral to the Regional Water Board in July 2019.
Continue ongoing source identification projects in 9 WMAs. Continue evaluating options for source properties, including submitting property referrals (as needed) to the Water Board based on completed source property investigations.	Program & Co-permittees	June 2020	Additional referrals may be included with 2020 Annual Report.
Continue calculating the PCBs and mercury load reduction benefits of other source property referral/abatement.	Program & Co-permittees	June 2020	Updated reporting of loads reduced in 2020 Annual Report
Green Stormwater Infrastructure			

Task	Responsible Party(s)	Anticipated Milestone Completion Date	Notes
With assistance and guidance from SCVURPPP, complete GSI Plans that integrate with the Santa Clara Valley Stormwater Resource Plan and the RAA for GSI, which is designed to address PCBs and mercury TMDLs subsequent to MRP 2.0.	Co-permittees (with Program Assistance)	GSI Plan – Sept 2019 RAA for GSI – Sept 2020	
Continue to use the web-based GIS database for tracking GSI and stormwater treatment in the Santa Clara Valley to assist Co-permittees in calculating PCBs and mercury load reductions.	Program & Co-permittees	June 2020	
Continue calculating the PCBs and mercury load reduction benefits of existing GSI facilities.	Program & Co-permittees	June 2020	Updated reporting of loads reduced to-date in 2020 Annual Report
Large Full trash capture Systems (HDS)			
Continue to track the implementation of full trash capture systems and calculate the PCBs and mercury load reduction benefits.	Program & Co-permittees	On-going	Updated reporting of loads reduced in 2020 Annual Report
MS4 Operation and Maintenance Practices			
Look for opportunities to enhance existing O&M practices to optimize PCBs and mercury load reduction benefits.	Co-permittees & Program	On going	
Continue to track the implementation of MS4 operation and maintenance practices and calculate the PCBs and mercury load reduction benefits, specifically those associated with inlet-based full trash capture devices.	Program & Co-permittees	On going	Reporting of loads reduced in 2020 Annual Report
PCBs in Building Materials, Storm Drains and Roadway Infrastructure			

Task	Responsible Party(s)	Anticipated Milestone Completion Date	Notes
Continue to implement protocols and programs for managing materials and wastes containing PCBs during the demolition of buildings.	Co-permittees	Ongoing	
Begin to track program implementation and quantify the mass of PCBs abated from subject buildings.	Program	June 2020	
Mercury Reduction via True Source Controls and Recycling			
Continue to implement and track the benefits from mercury true source control and recycling programs, including HHW Programs.	Program & Applicable Co-permittees	On going	Reporting of loads reduced in 2020 Annual Report
Additional Activities			
Implement the Program's work plan for outreach to residents likely to consume locally caught fish, including working with the Aviso Education Center to utilize various education and outreach products.	Program & Co-permittees	On going	
Complete the RAA for mercury and PCBs for the Santa Clara Valley, consistent with the regional framework and guidance for conducting an RAA for mercury and PCBs.	Program & Co-permittees	September 2020	
Prepare a plan and schedule for implementing technically and economically feasible PCBs and mercury control measures needed to achieve PCBs and mercury TMDL Wasteload Allocations (WLAs) and evaluate the costs associated with the implementation of these actions	Program & Co-permittees	September 2020	

SECTION 6 - REFERENCES

BASMAA (2014). Integrated Monitoring Report – Part B. Prepared by Geosyntec and EOA, Inc. Prepared for the Bay Area Stormwater Management Agencies Association. September.

BASMAA (2017). PCBs and Mercury Interim Accounting Methodology for TMDL Loads Reduced, Version 1.1. Prepared by Geosyntec and EOA, Inc. Prepared for the Bay Area Stormwater Management Agencies Association. March 23, 2017.

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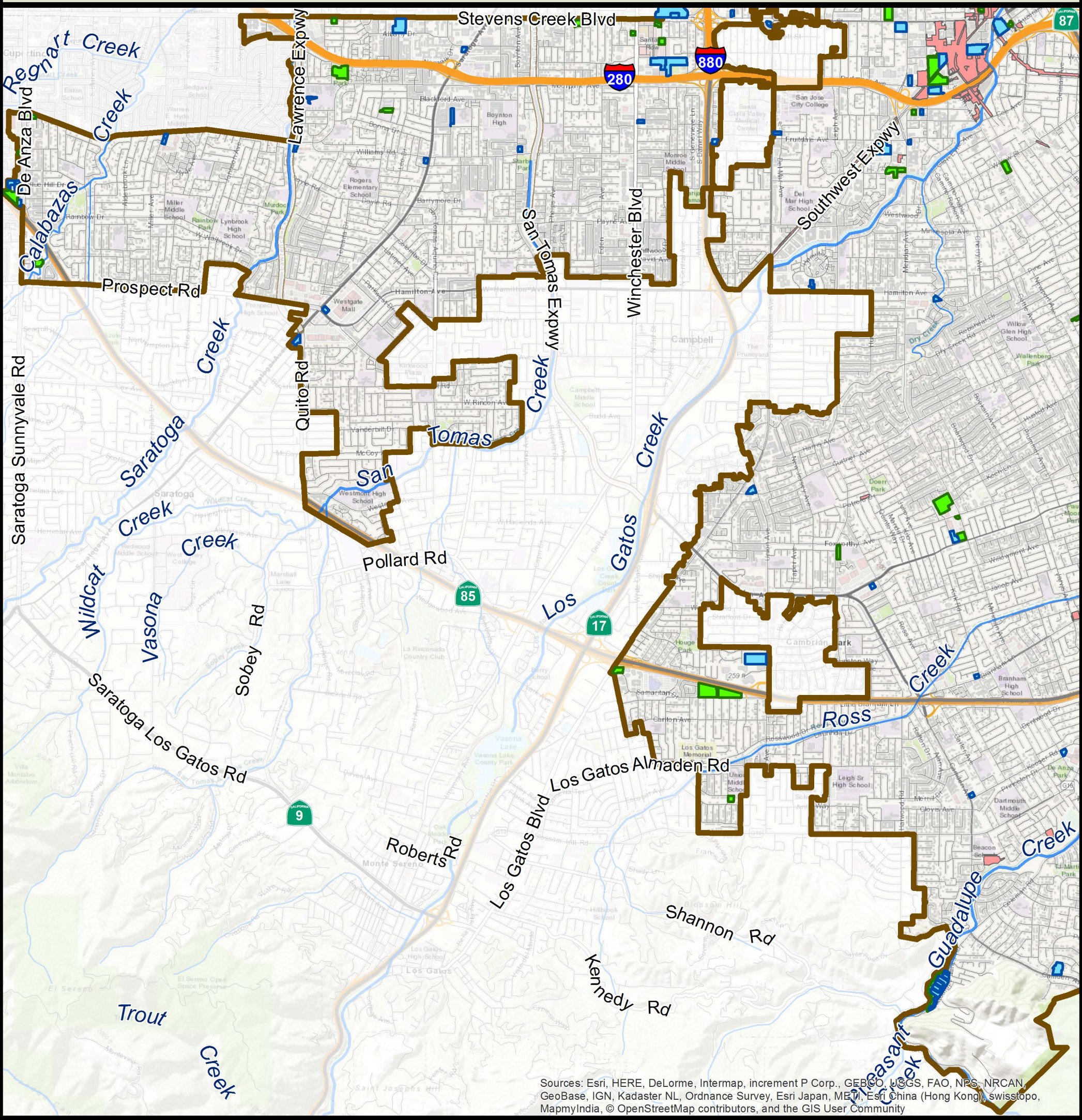
Attachment A

Locations of Existing Green Stormwater Infrastructure Facilities

City of San José

City of San Jose - Southwest - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

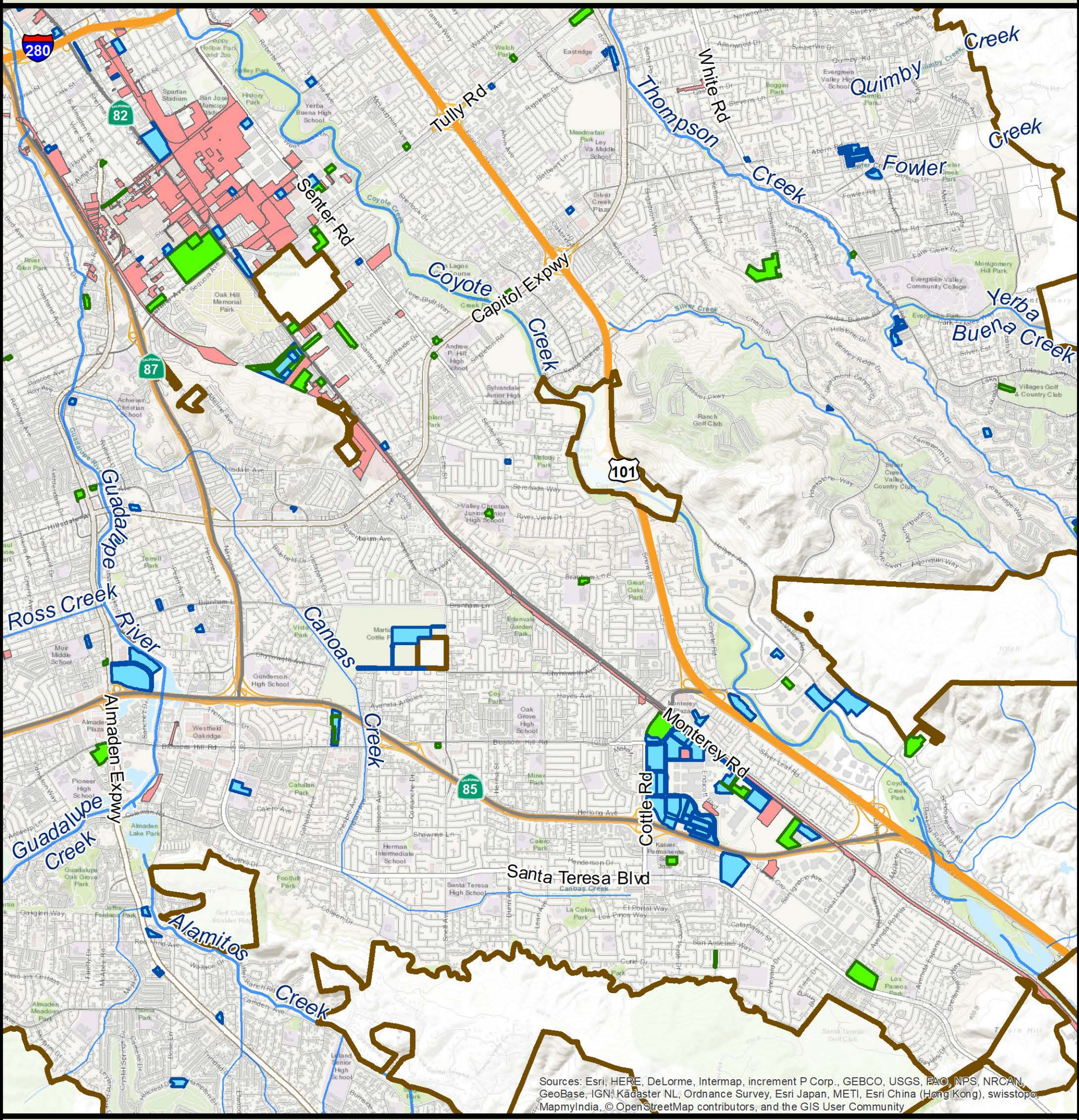
Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.4 0.8 1.6 Miles

City of San Jose - Southeast - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

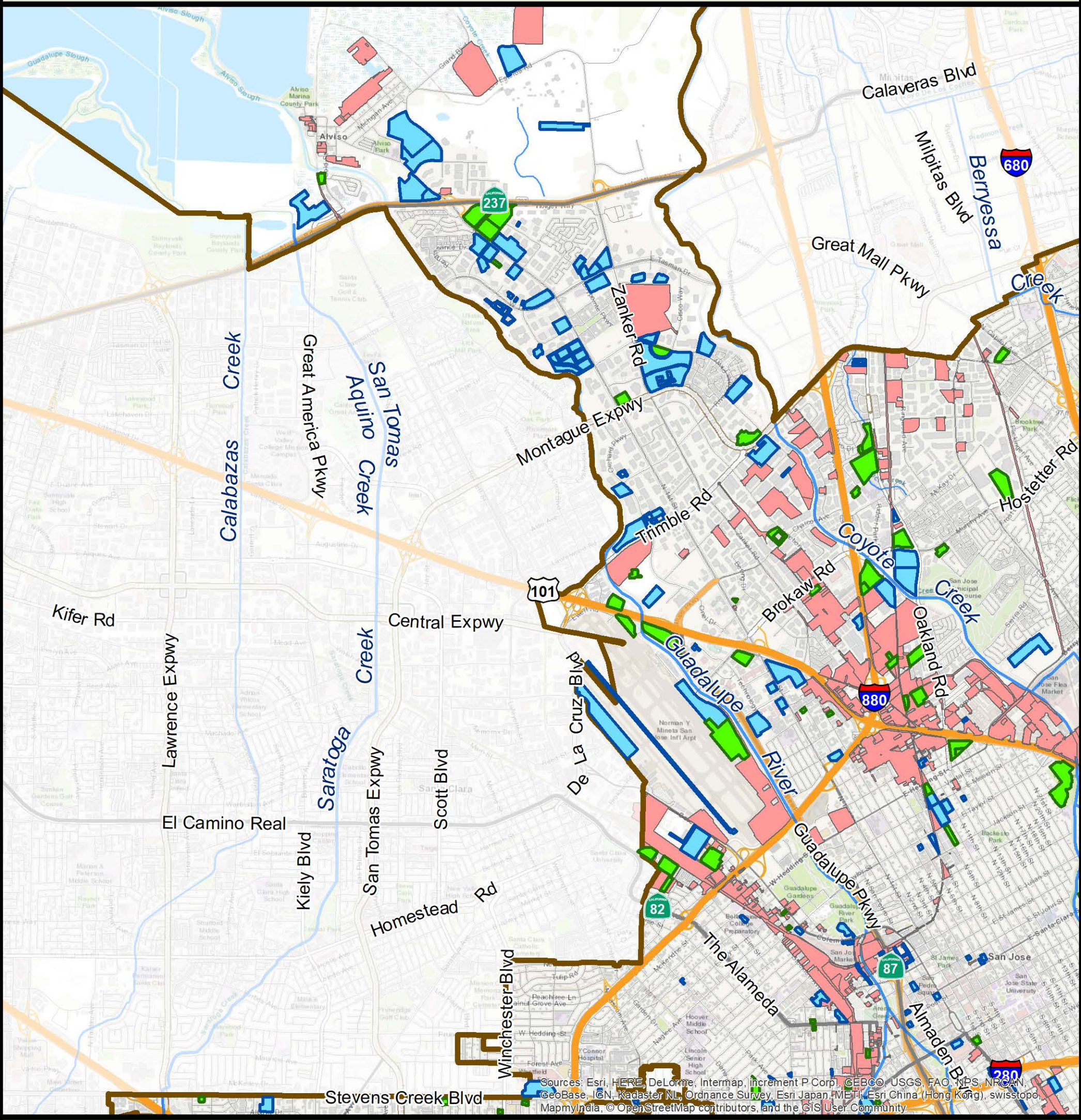
Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.4 0.8 1.6 Miles

City of San Jose - Northwest - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

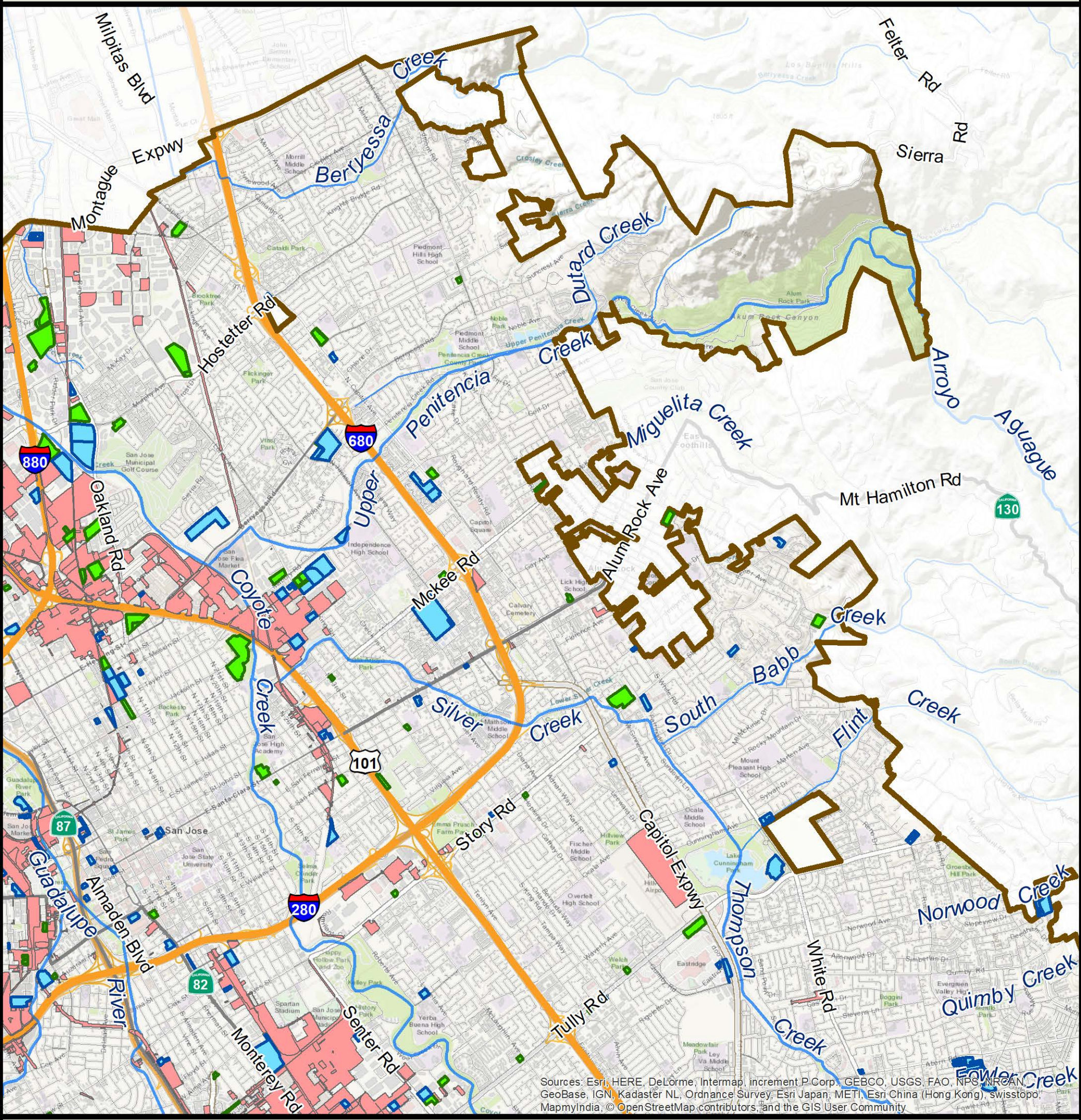
Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.4 0.8 1.6 Miles

City of San Jose - Northeast - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:

City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

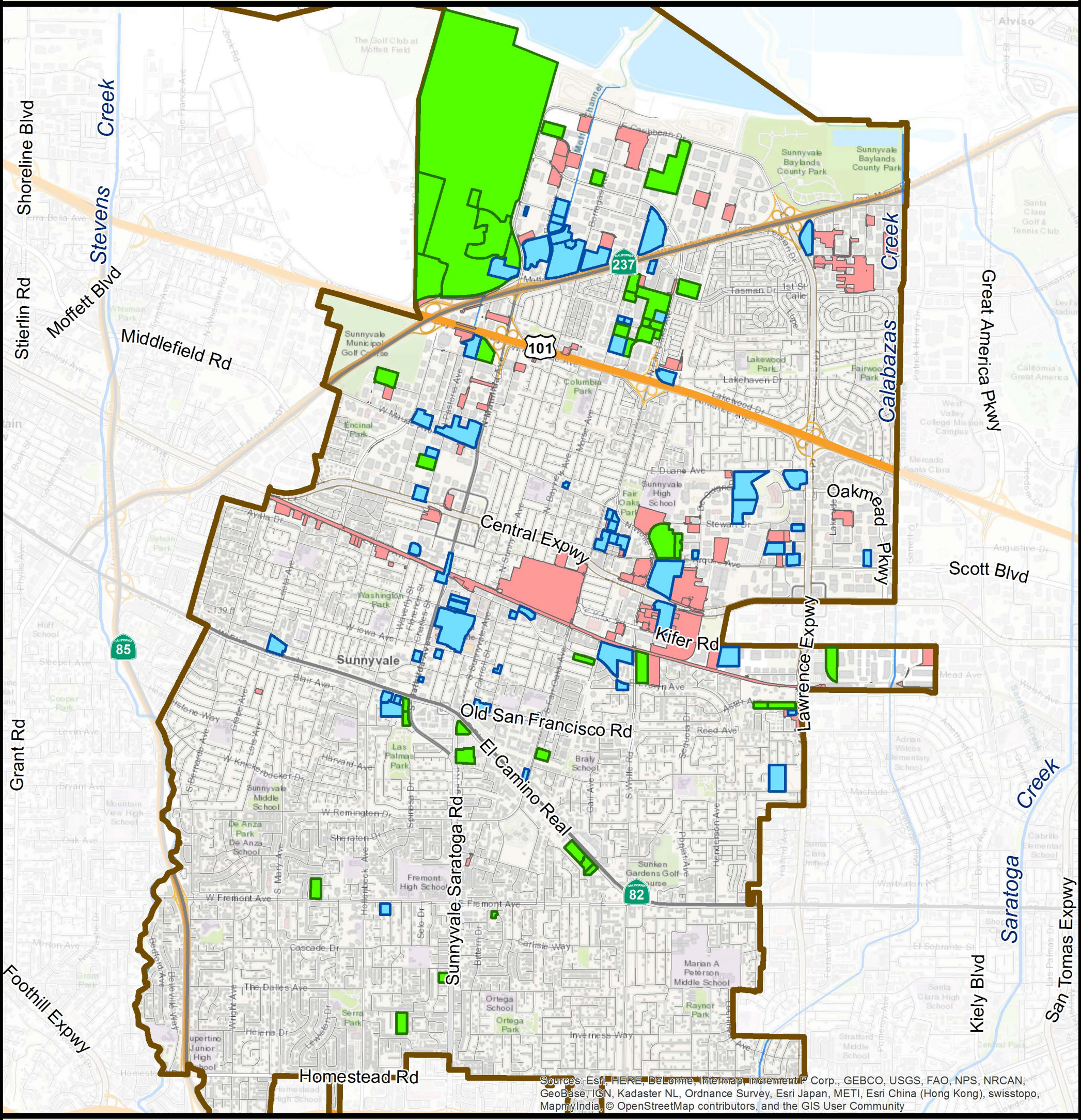
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.4 0.8 1.6 Miles

City of Sunnyvale

City of Sunnyvale - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:

City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

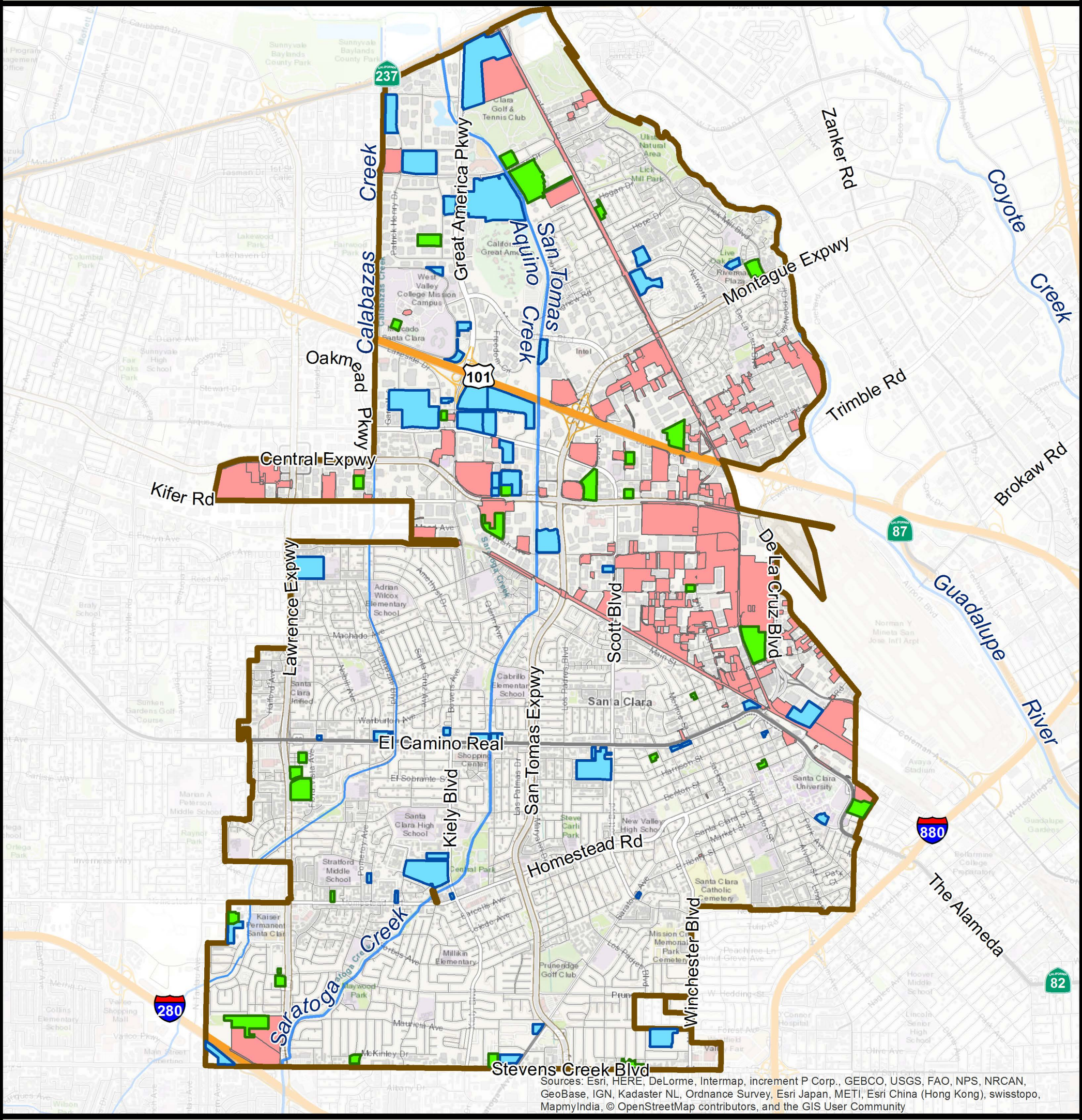
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.3 0.6 1.2 Miles

City of Santa Clara

City of Santa Clara - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:

City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

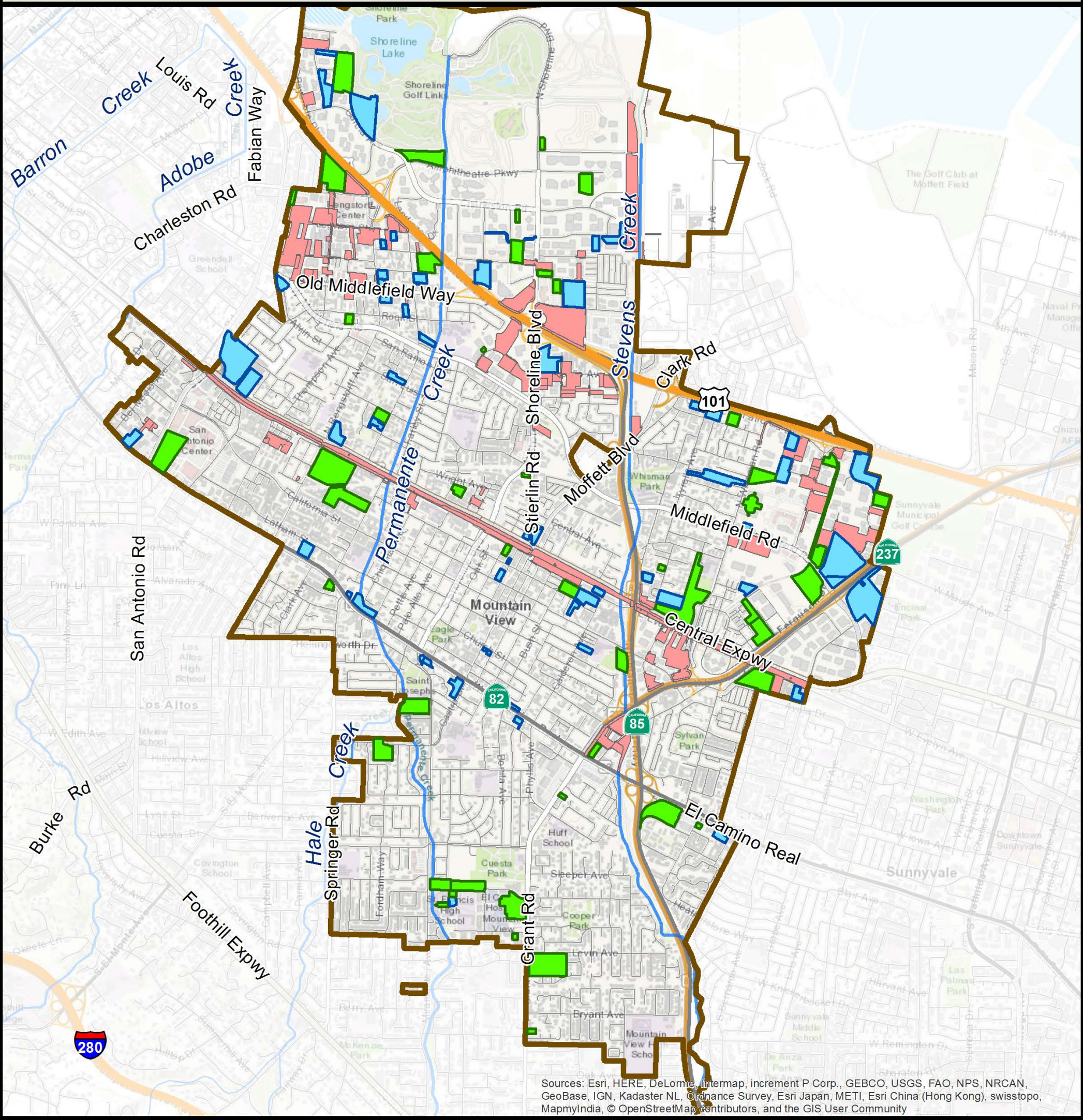
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.3 0.6 1.2 Miles

City of Mountain View

City of Mountain View - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

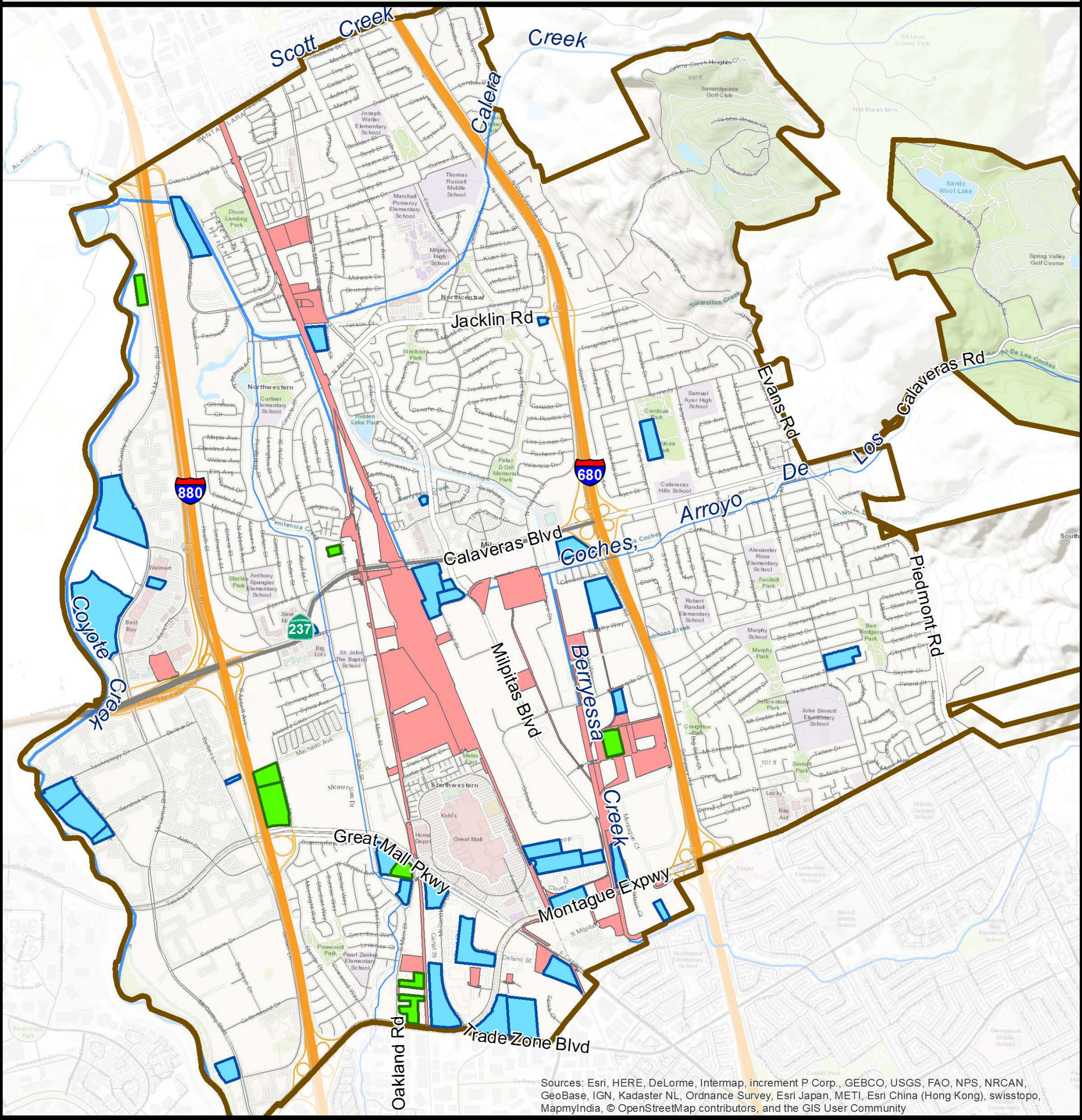
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.25 0.5 1 Miles

City of Milpitas

City of Milpitas - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:

City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

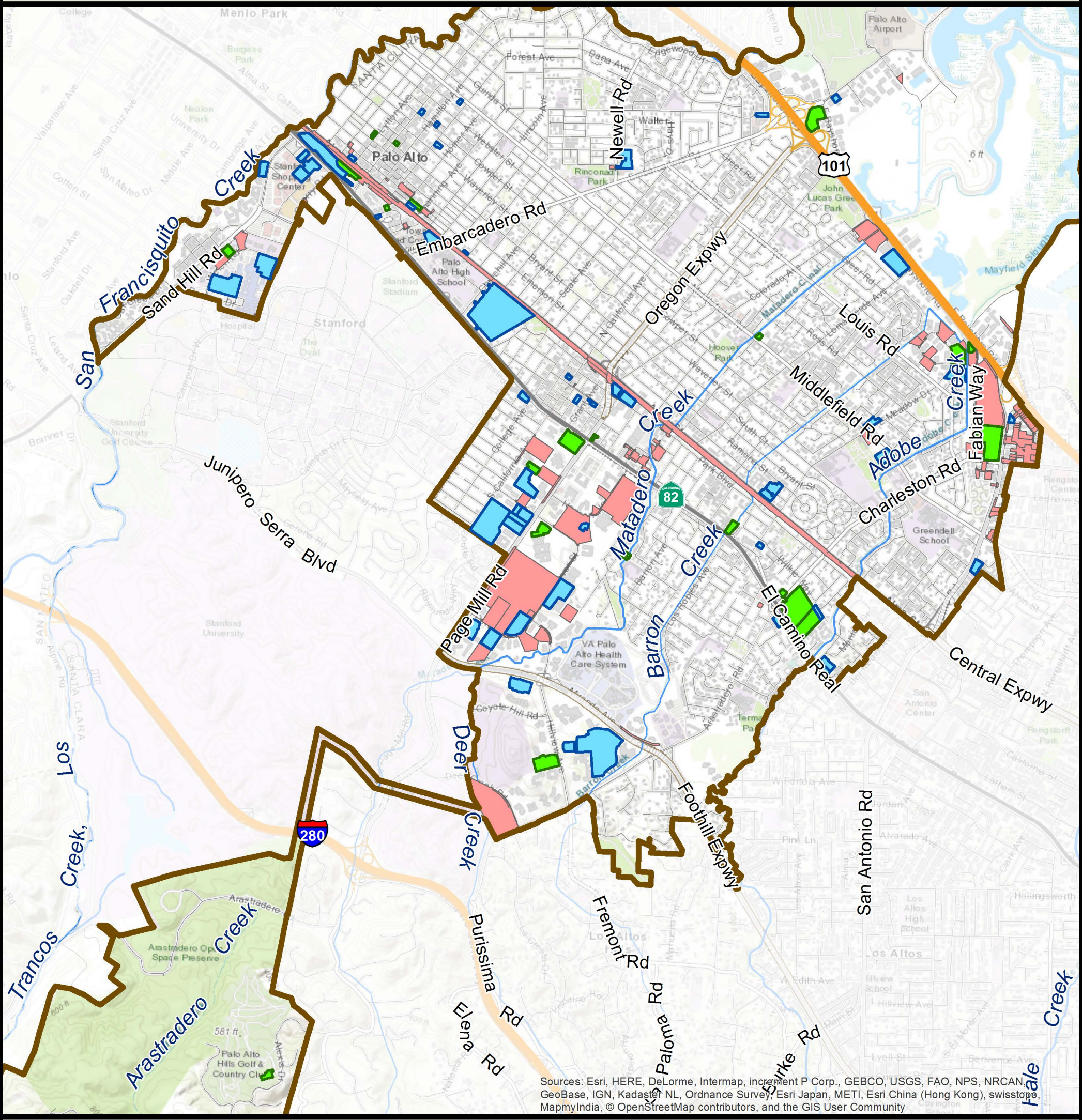
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.2 0.4 0.8 Miles

City of Palo Alto

City of Palo Alto - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

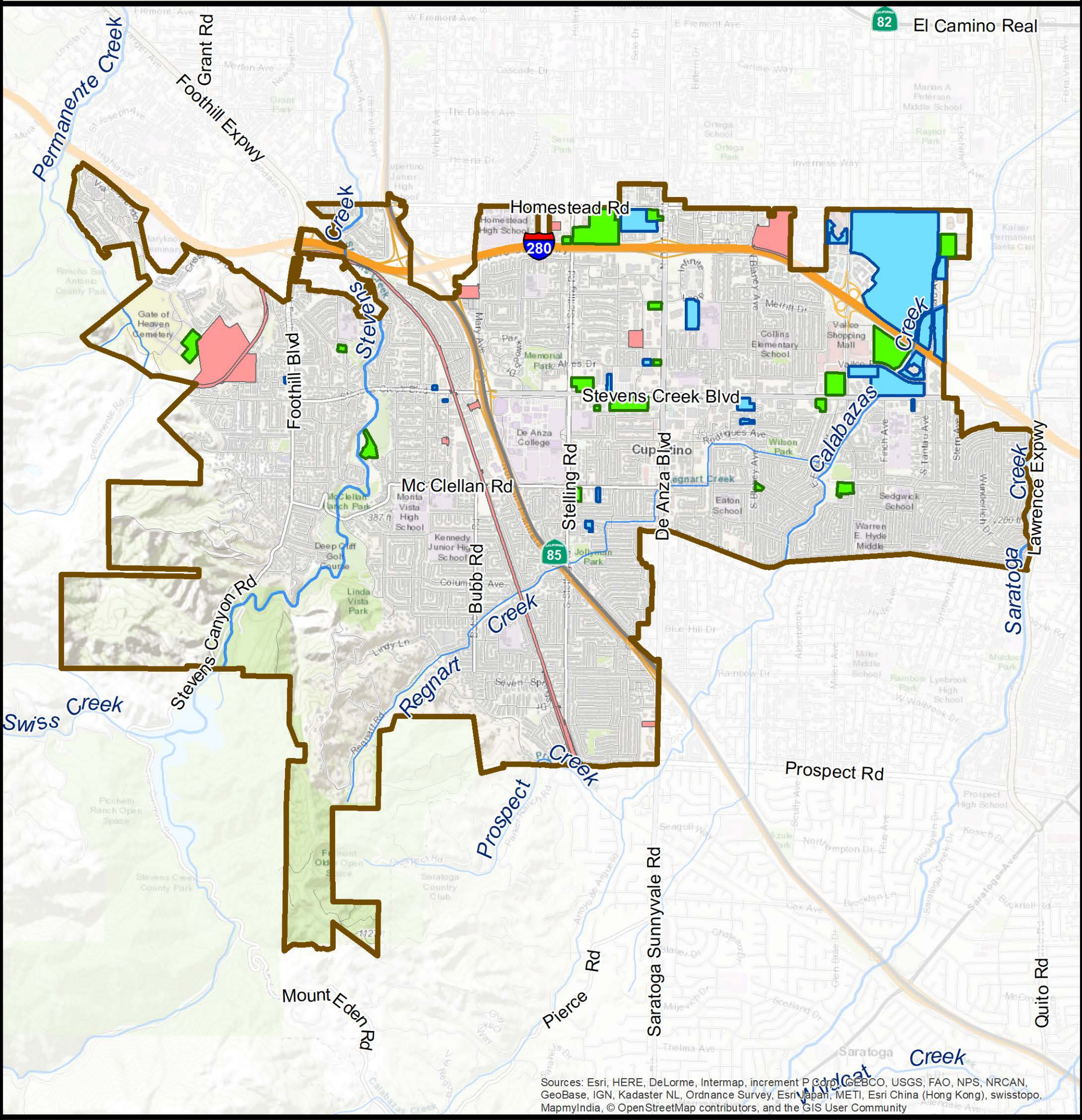
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.25 0.5 1 Miles

City of Cupertino

City of Cupertino - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:

City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

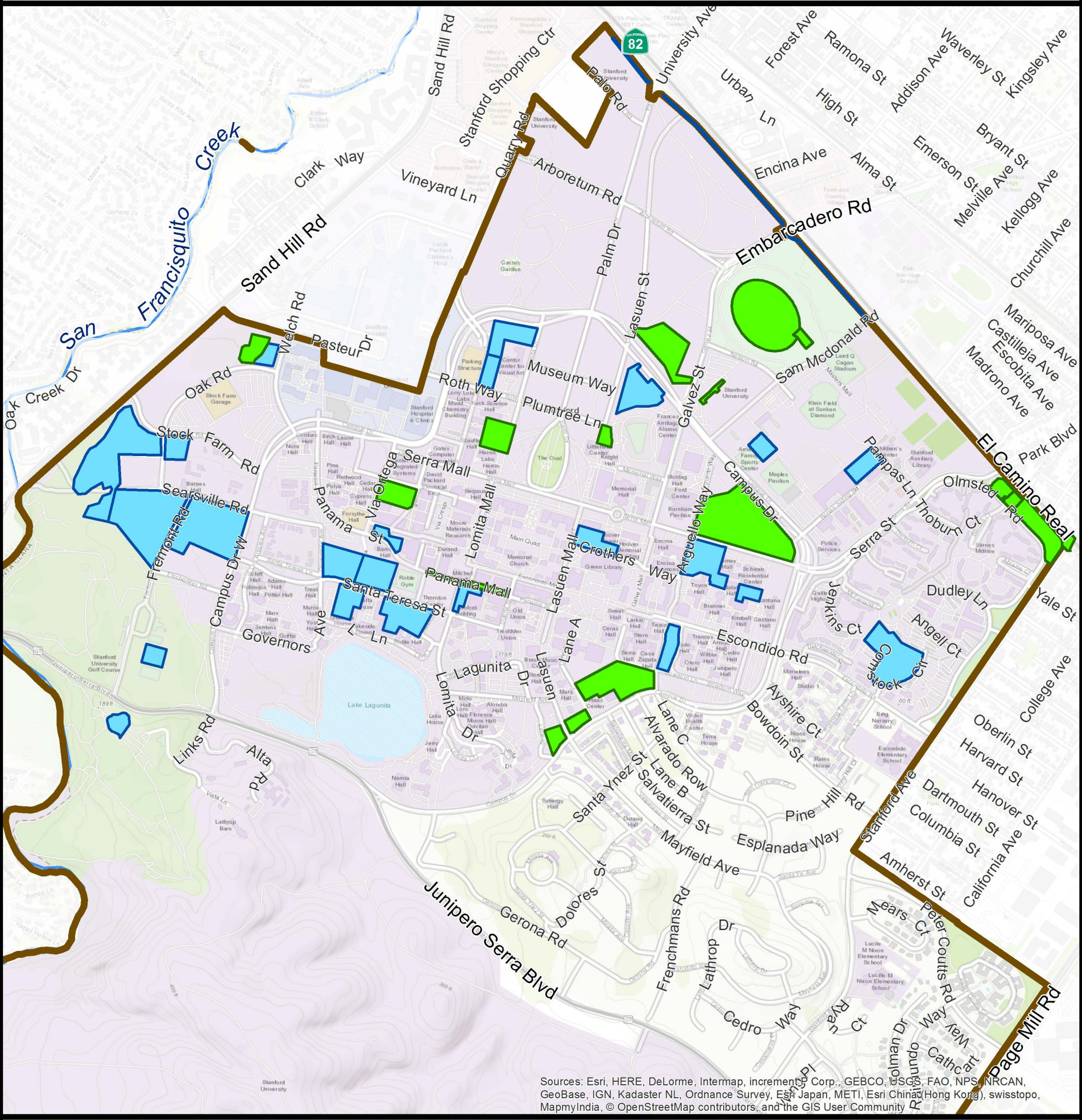
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.3 0.6 1.2 Miles

Unincorporated Santa Clara County

County of Santa Clara - Stanford - Green Stormwater Infrastructure Projects



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Green Stormwater Infrastructure Projects

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- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:

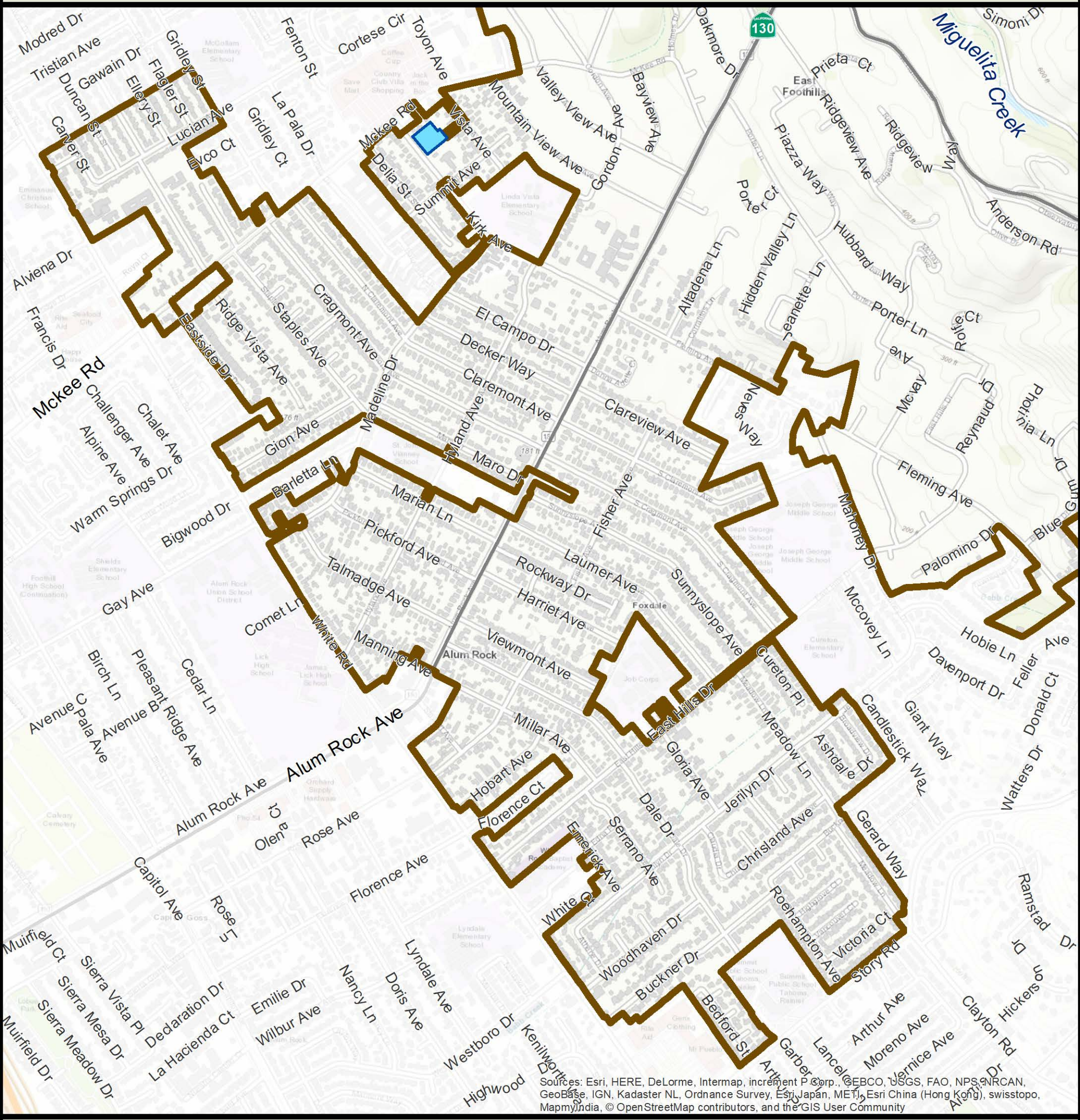
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.1 0.2 0.4 Miles

County of Santa Clara - Alum Rock - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

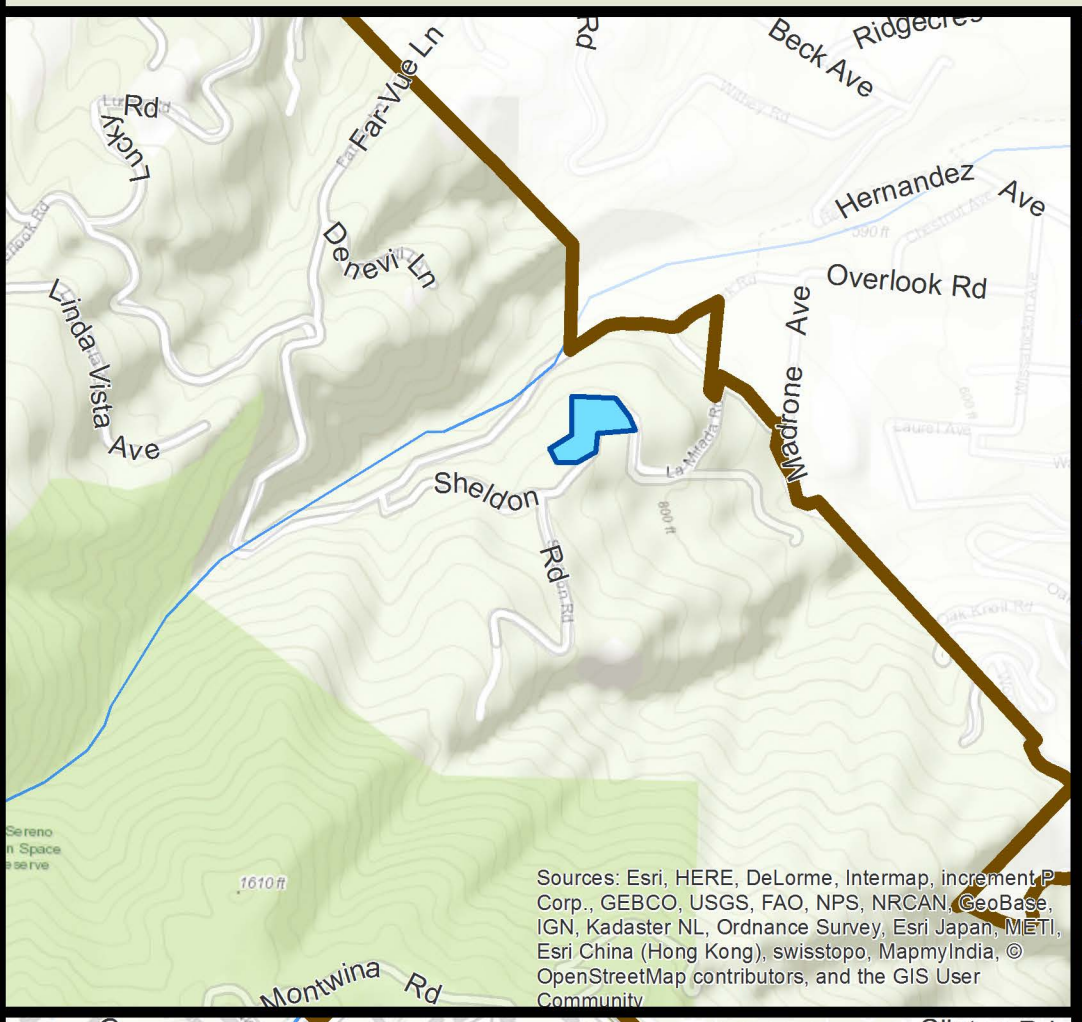
Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

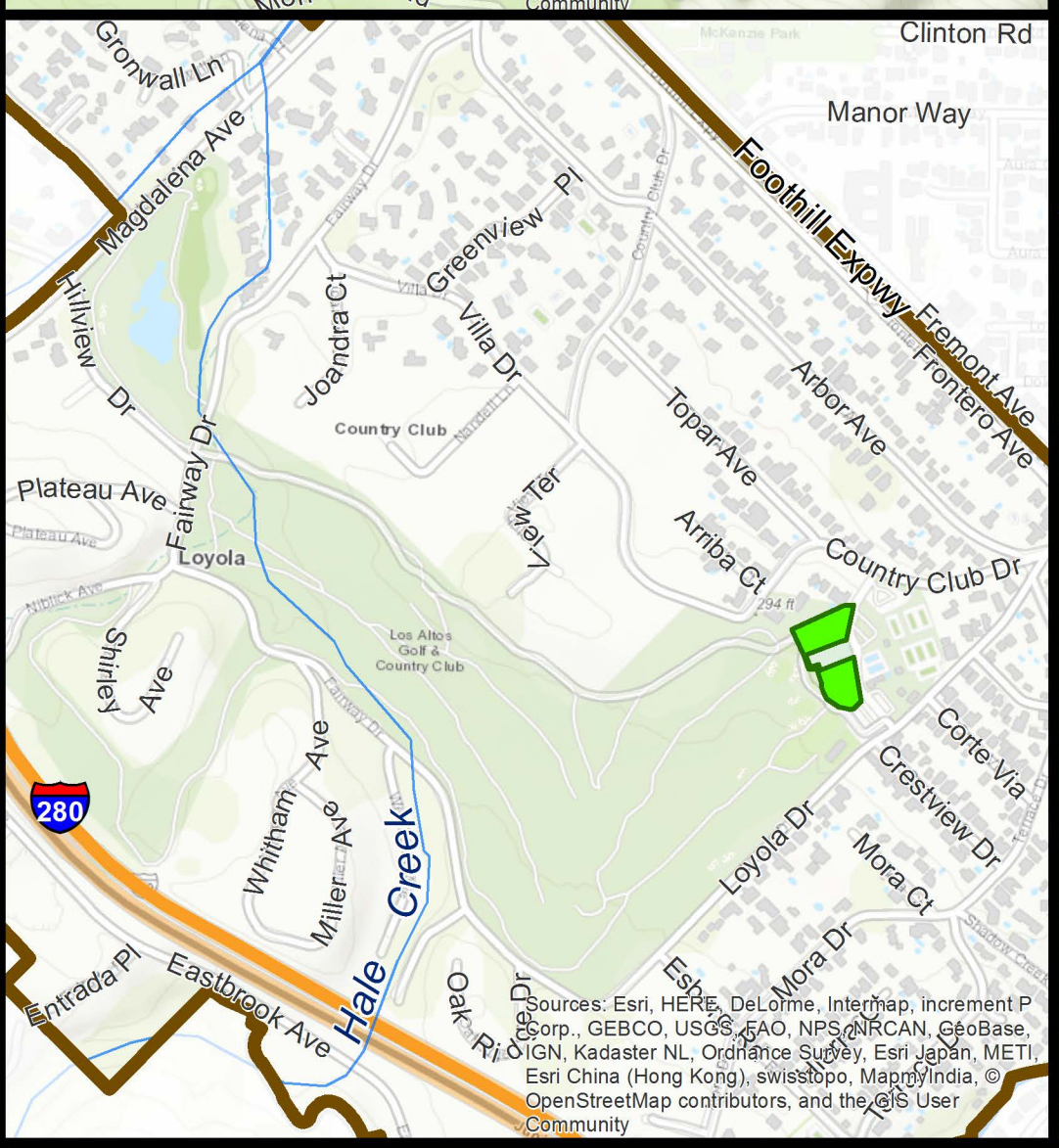
Map Created By: EOA, Inc.
Date: August 2, 2019

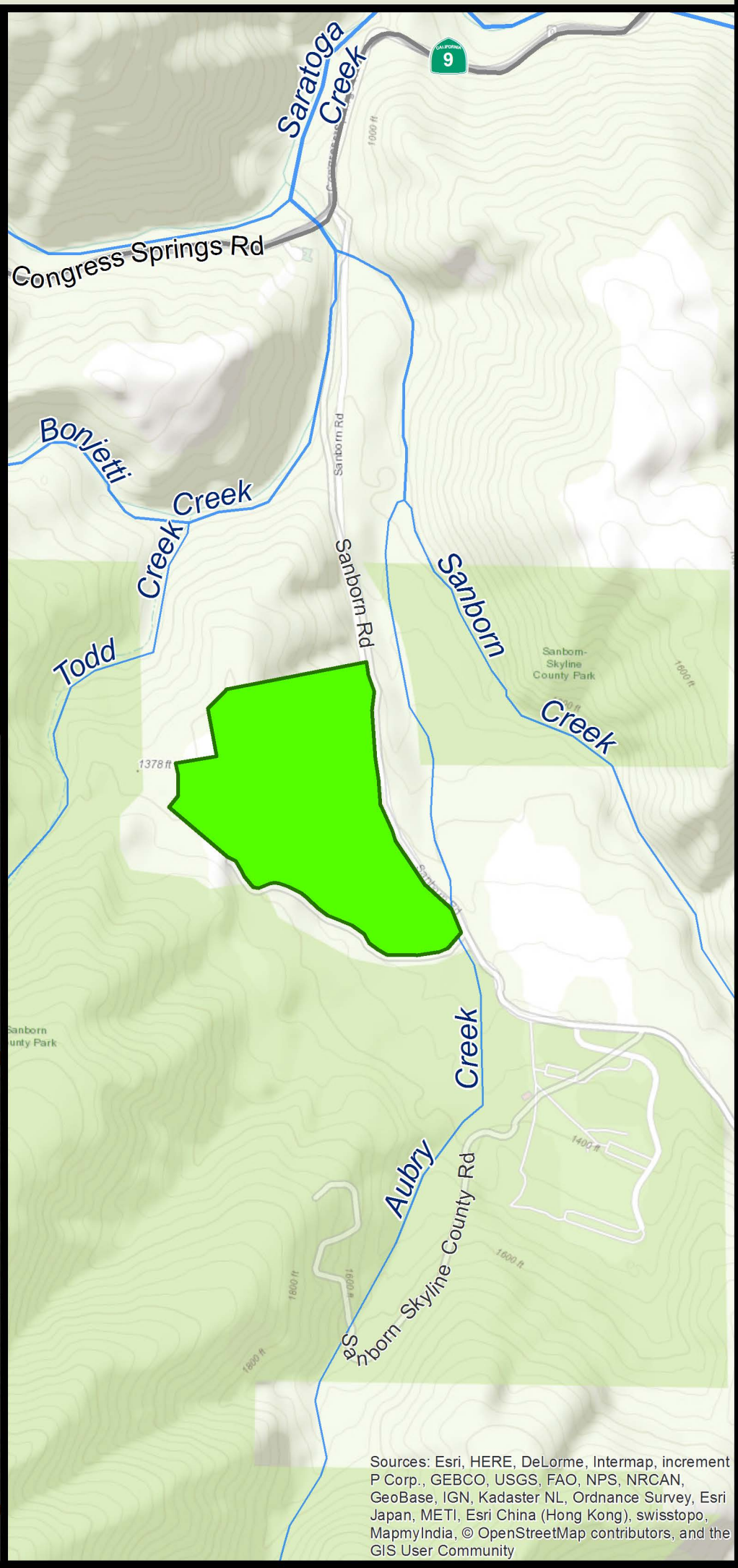
N

0 0.1 0.2 0.4 Miles

County of Santa Clara - Green Stormwater Infrastructure Projects







Green Stormwater Infrastructure Projects

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- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

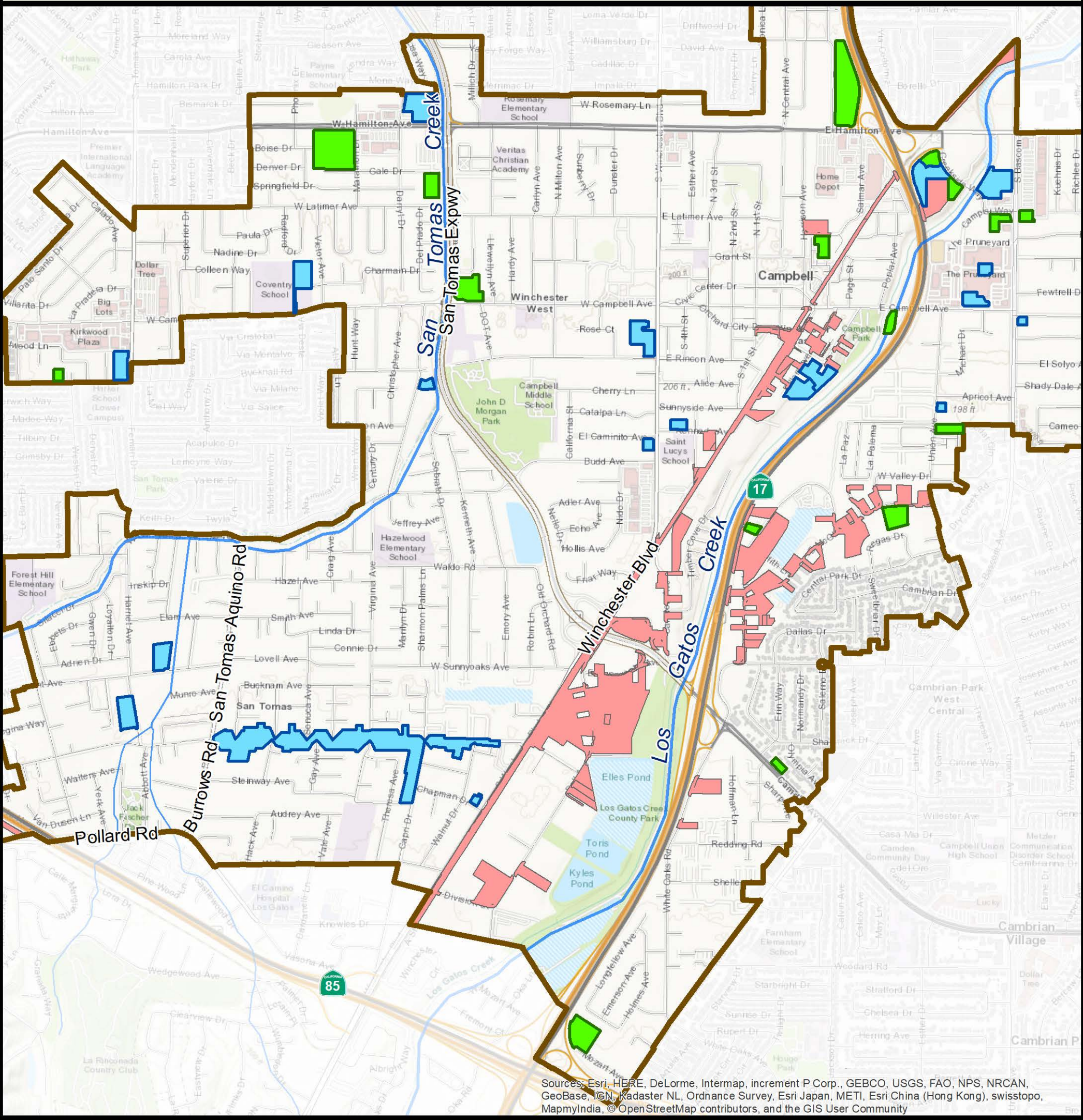
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.1 0.2 0.4 Miles

City of Campbell

City of Campbell - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

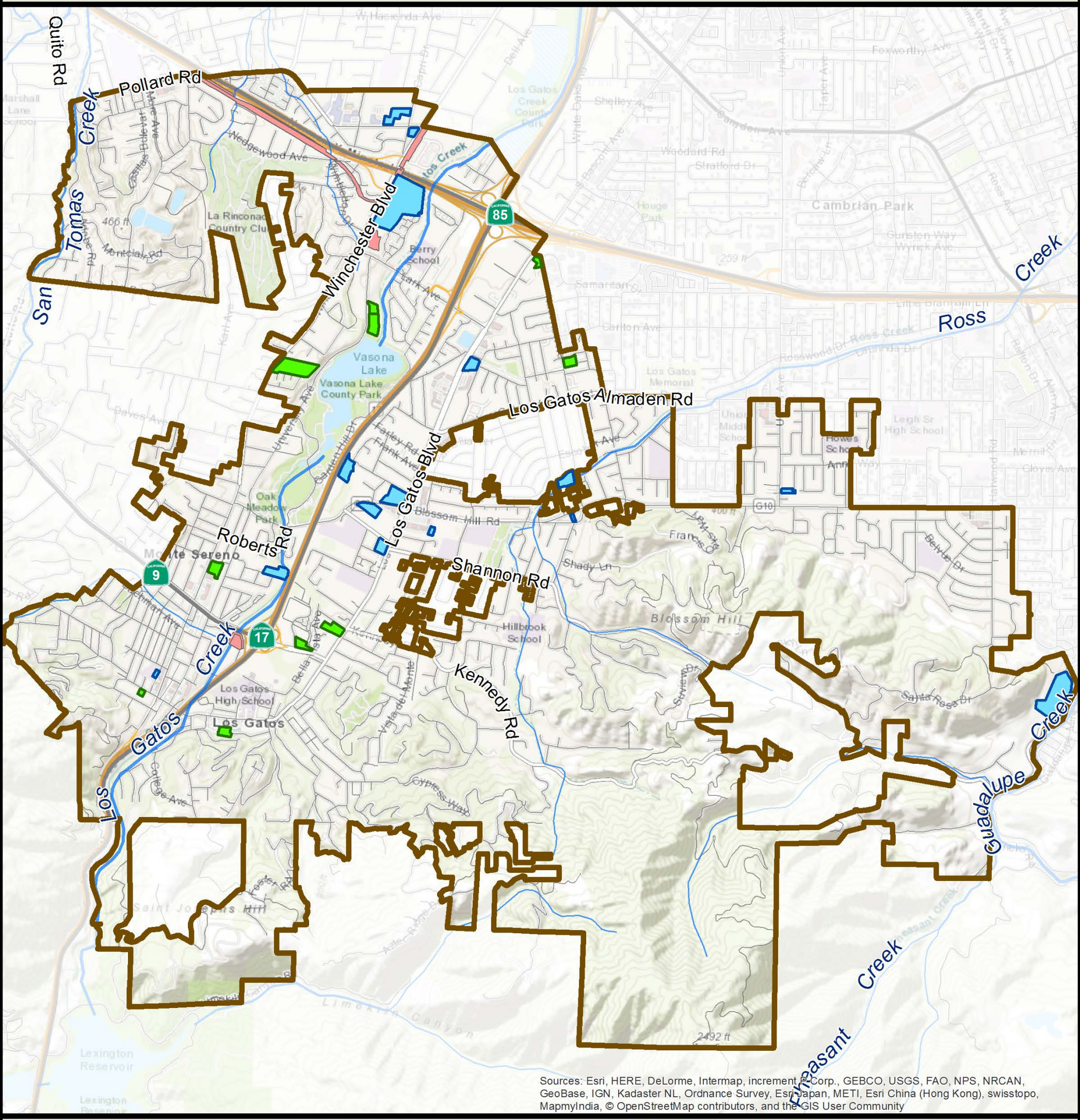
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.15 0.3 0.6 Miles

Town of Los Gatos

Town of Los Gatos - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

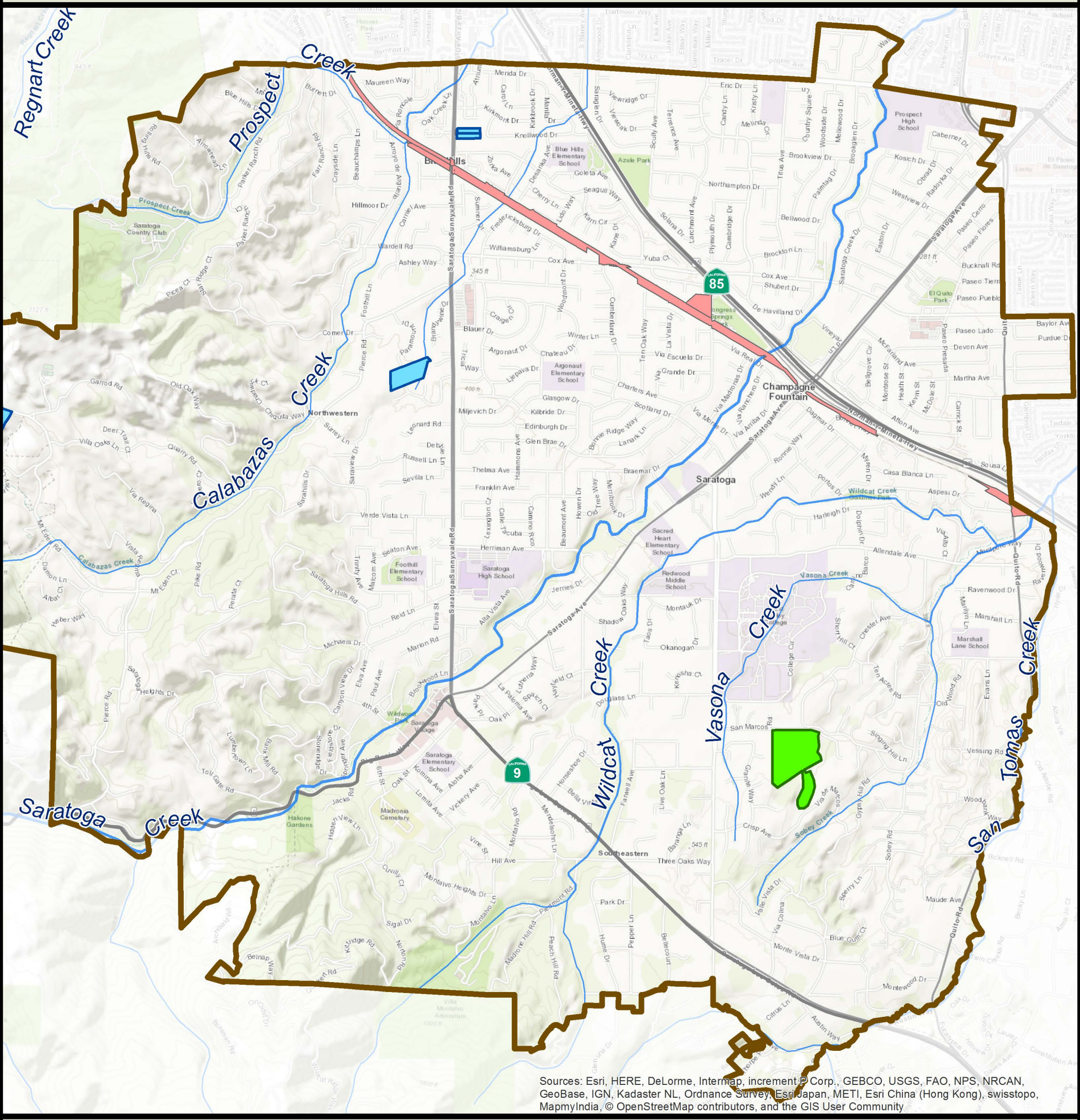
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.25 0.5 1 Miles

City of Saratoga

City of Saratoga - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

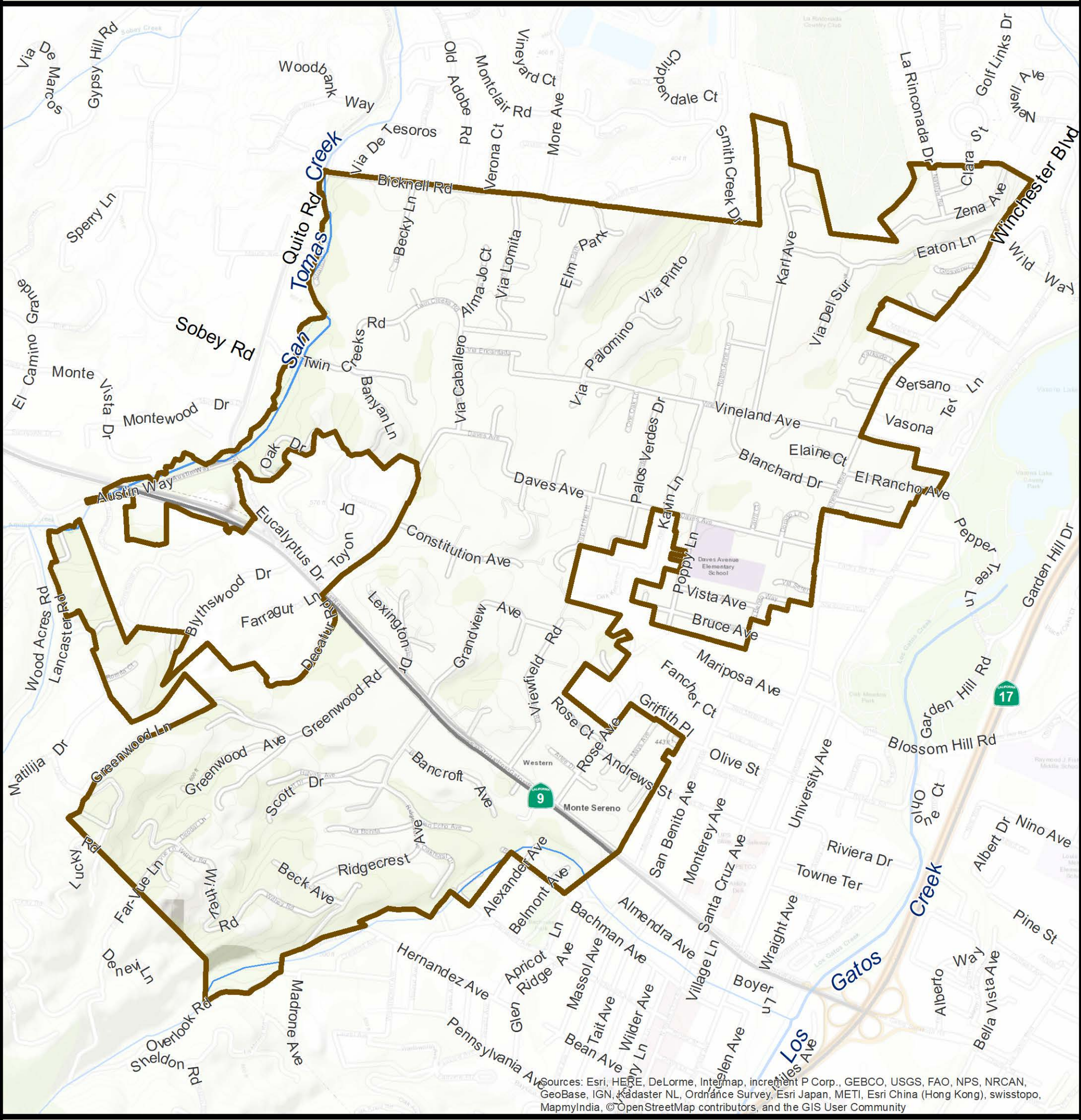
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.2 0.4 0.8 Miles

City of Monte Sereno

City of Monte Sereno - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

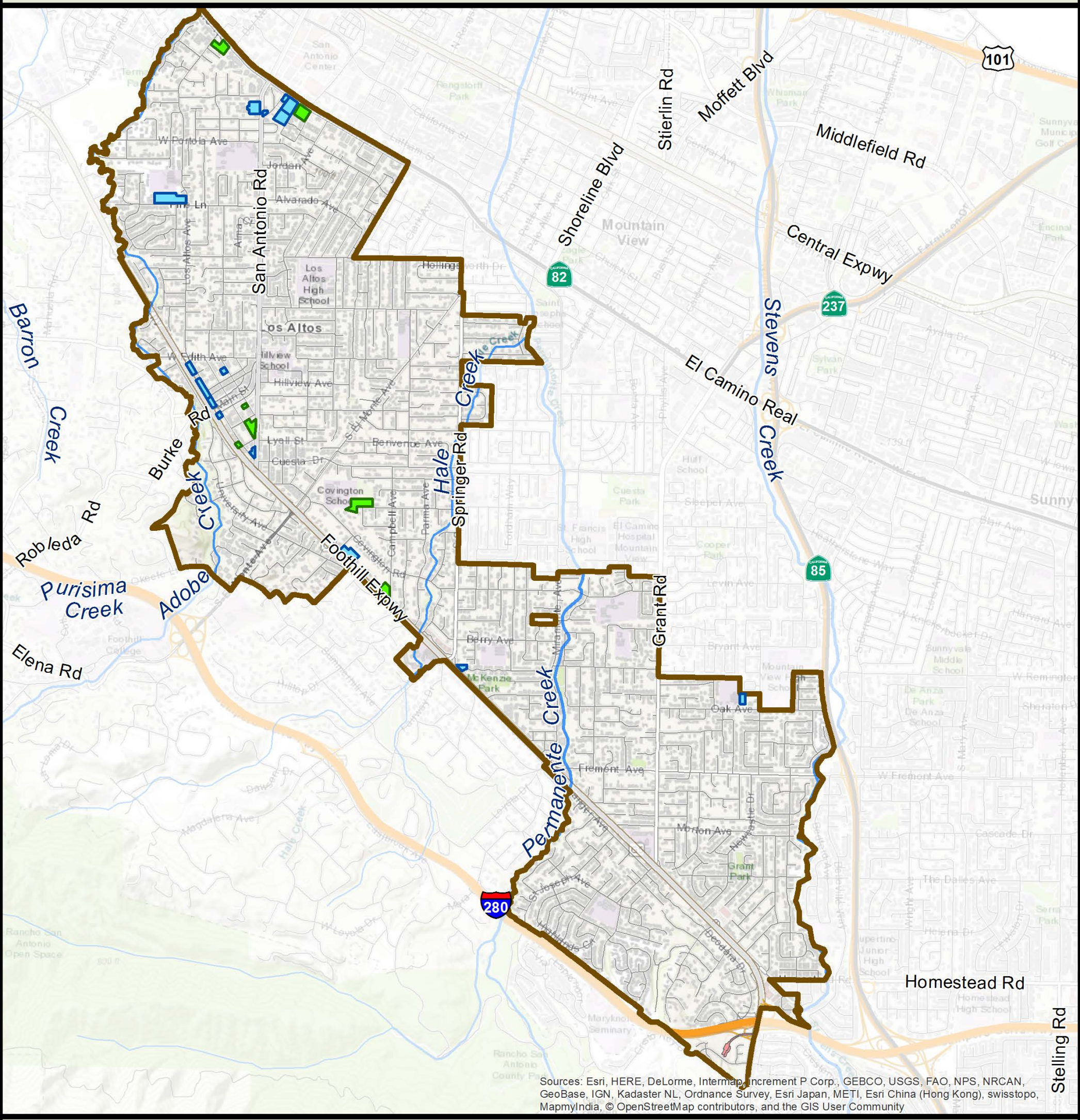
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.1 0.2 0.4 Miles

City of Los Altos

City of Los Altos - Green Stormwater Infrastructure Projects



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Green Stormwater Infrastructure Projects

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- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

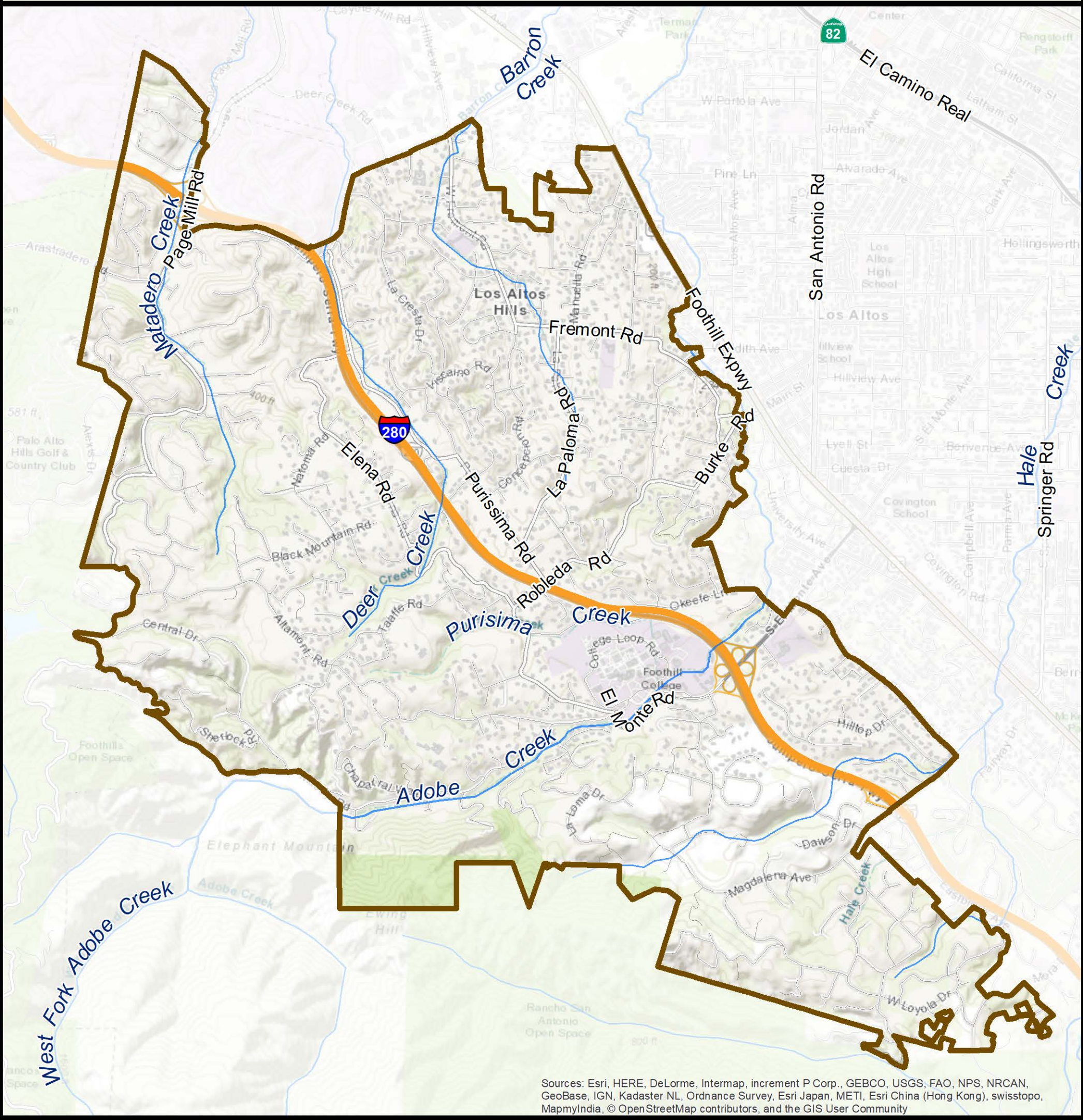
Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.275 0.55 1.1 Miles

Town of Los Altos Hills

Town of Los Altos Hills - Green Stormwater Infrastructure Projects



Green Stormwater Infrastructure Projects

- Completed FY 13-14 to FY 18-19
- Completed Prior to FY 13-14
- Old Industrial
- Permittee Boundary

Data Sources:
City Boundaries: Santa Clara County
Catchment Boundaries: Mattern/WLA
Background: ESRI World Topographic Map

Map Created By: EOA, Inc.
Date: August 2, 2019

N

0 0.25 0.5 1 Miles