

# ATTACHMENT 1

## Summary of Existing and Planned Stormwater Runoff Management Efforts in San Mateo County

### NEW/REDEVELOPMENT AND GREEN INFRASTRUCTURE

In response to the State's legislative mandate for Stormwater Resource Plans in order to compete for voter-approved bond funds, C/CAG worked with its member agencies to develop the [San Mateo County Stormwater Resource Plan](#) in 2017. That plan utilized various metrics to prioritize opportunities for stormwater capture at varying scales. Since that time, San Mateo County permittees have been working to advance implementation of stormwater management measures at three primary scales:

- 1) the parcel scale, where only the rain falling on a site is managed (primarily new and redevelopment projects);
- 2) the street scale, where stormwater from public roadways and sidewalks and adjacent parcel run-on to the streets is managed via green street features; and
- 3) the regional scale, where runoff from watershed or drainage areas is managed in large, centralized facilities.

### Reasonable Assurance Analysis (RAA) for Green Infrastructure

As required under Provisions C.11 and C.12, C/CAG developed a countywide pollutant transport/hydrology model coupled with GI scenario modeling to provide permittees with quantitative details on how much green infrastructure (GI) would be needed spatially to meet the MRP goal for pollutant load reduction via GI by 2040. The RAA helped permittees recognize:

- 1) The rate of GI implementation via new and redevelopment is generally outside the control of municipalities, but the extent of projects subject to stormwater requirements is governed by both MRP and local requirements;
- 2) Meeting GI and stormwater treatment targets on a countywide basis instead of proportionally within each jurisdiction can result in overall cost savings by implementing projects where it makes most sense;
- 3) Regional-scale projects, while costly, can be very cost effective in terms of the overall volume managed vs. equivalent levels of small-scale distributed systems, especially in regard to operations and maintenance. These larger scale projects can also provide other significant benefits such as flood risk reduction and water supply augmentation, and are often competitive multi-benefit/multi-jurisdictional projects for state and federal grant programs; and
- 4) Green street implementation is likely to be the most impactful on local Permittee resources, both for capital expenses and long-term operations and maintenance given that it is most likely to be funded by the limited local allocations of transportation dollars and result in many distributed bioretention facilities requiring ongoing maintenance. This contrasts with parcel-scale projects funded primarily by private developers or regional-scale projects likely to be funded by significant state or federal grants due to the integrated, multi-benefit nature.

As a result, C/CAG and its member agencies began looking at options to meet water quality and treatment requirements while reducing the financial burden of green streets on local agencies when evaluating approaches for meeting long-term water quality goals. As detailed in Figure 1 (moving from left to right, focus is on reducing the green streets piece of the pie), key strategies include:

- 1) Working collaboratively at a countywide and/or watershed scale instead of jurisdiction by jurisdiction;
- 2) Working with the new Flood and Sea Level Rise Resiliency District to advance regional-scale stormwater capture projects to the greatest extent possible to help with flooding, climate resiliency, and water quality;
- 3) Increasing the number of new and redevelopment projects subject to stormwater treatment requirements to get more parcel-scale GI by targeting key development sectors not addressed by MRP triggers;
- 4) Increasing implementation of green street projects in conjunction with new and redevelopment to get more street-scale projects built and maintained via private funding; and
- 5) For public green street investments, integrating GI with planned transportation improvements when and where it makes sense to create multi-benefit projects. The following sections detail efforts to make progress on all these strategies.

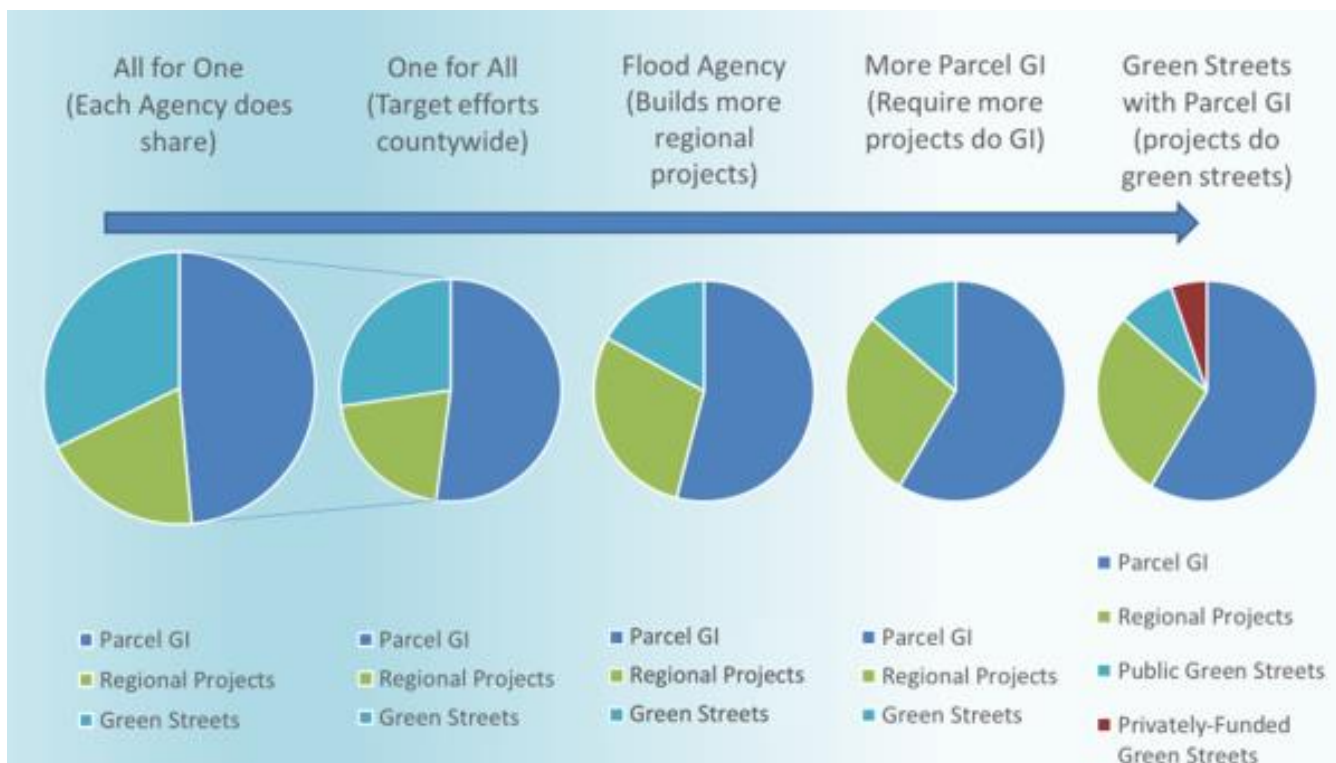


Figure 1. Strategies for Cost-Effective Stormwater Management

## Regional-Scale Stormwater Management and Countywide Collaboration

### Regional Stormwater Runoff Capture Projects

**South San Francisco (Orange Memorial Park):** This project, currently under construction, will provide water quality improvements to help meet the MRP requirements related to mercury, PCBs, and trash. The project includes an instream diversion and pre-treatment structure (trash screen and sediment removal chamber) in the upper end of the Colma Creek flood control channel within Orange Memorial Park. Pretreated water gravity drains to an underground stormwater reservoir where it is stored until either infiltrating or being further treated for non-potable reuse. When storage capacity is exceeded, treated overflow is discharged back into the channel. Originally conceptualized in the Stormwater Resource Plan, the Project will capture and treat approximately sixteen (16) percent of the annual drainage from approximately 6,500 acres of land in the City of South San Francisco, Town of Colma, the City of Daly City, and a portion of unincorporated San Mateo County. The project is funded through a \$15.5M cooperation implementation agreement with Caltrans to help satisfy its pollutant load reduction requirements. It is important to note that the way the Administrative Draft is currently worded, this project would not be credited toward C.3.j numeric green acres requirements because it is going into construction in the timeframe between MRP 2.0 and MRP 3.0. This is a key requested change in permit language to provide credit for this and other voluntary projects implemented during MRP 2.0.

**Atherton Project (Menlo College):** The Atherton project, as conceptualized in the Stormwater Resource Plan, was initially sited at a public elementary school, and was moved to be sited at Holbrook-Palmer Park (the Town's only park) when an agreement could not be reached with the School District. However, as the Town faced strong public opposition to siting the project at the one public park in Atherton, the Town looked for other opportunities to implement the regional project in the Atherton Channel Watershed. The Town was able to partner with Menlo School and Menlo College to site the project upstream under the joint athletic fields at Menlo College. Unfortunately, after completing the preliminary design and environmental review documents, Menlo School and Menlo College were forced to focus their operational priorities to respond to the COVID-19 pandemic and could therefore no longer commit to the project. The project had received \$13.5 million in cooperative implementation grant funding from Caltrans for design and construction.

**Belmont Project (Twin Pines Park):** The Belmont project was originally conceptualized in the Stormwater Resource Plan as a small-scale regional facility capturing runoff from a small neighborhood. Since then, the Cities of Belmont and San Carlos and the County of San Mateo, through its Flood Resilience Program, jointly developed a Watershed Management Plan for Belmont Creek. In this plan, the Twin Pines Park project was increased in scale to be comparable to the other regional projects (~20 acre-feet of storage capacity), with an underground storage/infiltration gallery conceptualized beneath the Twin Pines Park parking lot. C/CAG, in conjunction with the California Natural Resources Agency, allocated \$913K of a \$2.94M State budget allocation to advance regional stormwater projects in San Mateo County to the Belmont project for preliminary design and environmental review. Currently, the project is being combined with a separate \$1M grant from the Department of Water Resources to restore Belmont Creek within Twin Pines Park. The project partners, which now include as lead the Flood and Sea Level Rise Resiliency District, are currently finalizing a Request for Proposals for design services to advance both the stormwater capture project and creek restoration.

**San Bruno Project (I-280/380 Interchange):** Subsequent to the project concepts developed for the Stormwater Resource Plan, C/CAG worked with its member agencies to develop additional regional project concepts to help reduce the potential green streets burden on cities indicated as needed by the RAA modeling to meet water quality goals. San Bruno had identified the need for retention within the Crestmoor Canyon watershed to address storm drain system capacity deficiencies. Ultimately, C/CAG and the City collaborated to conceptualize an

approximately 20-acre-foot regional underground stormwater capture facility on Caltrans property within the large vacant land area within the I-280/380 interchange. Preliminary discussions with Caltrans indicated that the site was a possible location in terms of lack of any conflicting future uses for the property. Similar to the Belmont project, C/CAG worked with the Natural Resources Agency to provide \$913k to San Bruno for preliminary design and environmental review for the project. San Bruno participated in a joint Request for Proposals process with C/CAG, Redwood City, and the County of San Mateo and at the time of drafting this report, are finalizing their selection of a design consultant and working with Caltrans to establish the proper project review and oversight process. In addition, the County of San Mateo received a US EPA Water Quality Improvement Fund grant under which \$200k is provided to the San Bruno project for preliminary design, for a total of \$1.13M between the two funding sources.

**Redwood City Project (Red Morton Park):** Like the San Bruno project, C/CAG worked with Redwood City staff to identify a regional project opportunity to help the City reduce its potential green streets burden identified through the RAA modeling. A two-phase project was conceptualized for Red Morton Park, with underground storage systems proposed beneath two playing fields, with a combined storage capacity of ~43 acre-feet. As with the San Bruno and Belmont projects, C/CAG worked with the Natural Resources Agency to provide \$913k to do preliminary design and environmental review. Redwood City also participated in the joint Request for Proposals process and is selecting a consultant and negotiating a scope of work at the time this report was drafted. Like San Bruno, the County of San Mateo is providing an additional \$200k from its US EPA grant for preliminary design, for a total of \$1.13M between the two funding sources.

## Regional Project Planning and Collaborative Framework

As mentioned above, C/CAG worked with its state legislative delegation to secure a \$3 million (\$2.94 after deducting the State's administrative costs) to advance regional stormwater capture opportunities. The bulk of those funds were allocated to initial design and environmental review of the Belmont, San Bruno, and Redwood City regional projects, described above. C/CAG directed the remaining funds (\$200K) from the state budget allocation to a collaborative effort to further advance regional-scale stormwater management opportunities. C/CAG is working with its member agencies and stakeholders to develop drivers and objectives for regional-scale stormwater management and develop a business case and collaborative framework for San Mateo County Permittees to work together and share in costs and benefits of these large-scale regional projects, in conjunction with the Flood and Sea Level Rise Resiliency District and other partners. While the drivers and objectives are intended to address "why" regional-scale stormwater management is needed, the business case and collaborative framework will address "what" can be achieved if San Mateo agencies work collaboratively and "how" that collaboration can be achieved. The collaborative framework will build on the alternative compliance framework San Pablo is developing with Contra Costa County partners under another EPA WQIF grant.

In conjunction with this effort, C/CAG and the County of San Mateo (\$100K from EPA WQIF) are partnering to prioritize the next iteration (beyond the Stormwater Resource Plan) of regional stormwater capture opportunity sites that help address the identified drivers and objectives and develop five new project concepts. This process will help quantify what can be achieved through regional-scale projects and set the stage for the next phase of developing regional-scale projects.

Collectively, these efforts address the strategies in Figure 1 of working collaboratively at a countywide scale rather than jurisdiction by jurisdiction and maximizing regional-scale multi-benefit stormwater capture opportunities.

## Parcel-Scale Stormwater Management

### Expanded New/Redevelopment Requirements

An increasing number of San Mateo County Permittees are subjecting currently non-regulated new and redevelopment projects to stormwater management requirements. This effort to go beyond what is currently required in MRP 2.0. is intended to help meet the long-term goals of stormwater quality improvements and greening of infrastructure while lessening the financial burden to the municipalities. For example, Redwood City requires substantial commercial remodels and any new commercial or residential building to incorporate stormwater treatment measures sized in accordance with Provision C.3. Atherton, with the adoption of its Green Infrastructure Plan, requires full-site single family residential development project that create or replace 10,000 square feet of impervious area to incorporate C.3-sized stormwater treatment measures.

### Rainwater Harvesting Rebates/Incentives

C/CAG has been partnering with the Bay Area Water Supply and Conservation Agency (BAWSCA) to implement a joint rebate/incentive program for rainwater harvesting since late 2014. Under this program, C/CAG provides a countywide rebate of \$50/barrel that is matched by many of the water purveyors in the county. Starting this fiscal year, C/CAG expanded its incentives to provide rebates for larger storage systems, offering \$100 for systems between 100-199 gallons and \$150 for over 200 gallons, all of which continue to be combined with \$50/system rebates from participating water purveyors. In addition, C/CAG added a new stacked \$300 rain garden incentive on top of rebates from participating water purveyors for BAWSCA's "Lawn Be Gone!" turf replacement program. While data on the increased and new incentives are still pending, the rain barrel rebate program has resulted in over 1,000 rain barrels being installed in San Mateo County prior to FY 2020-21.

### Credit Trading Marketplace Analysis

C/CAG is receiving pro-bono support from American Rivers and Corona Environmental to explore the feasibility of implementing a stormwater credit trading marketplace in San Mateo County that would potentially allow public or private entities to buy and sell credits for stormwater management. This analysis will support discussions on potential countywide systems to better enable alternative compliance for Provision C.3-mandated stormwater treatment or future volume-based climate resilience needs and will support local agency efforts to expand the scope of parcel-based stormwater requirements and provide options for development projects that may face challenges in meeting obligations on-site. The results of this work will be integrated with work described below to develop a business case and collaborative framework for regional-scale stormwater management.

### California Resilience Challenge Grant – Resilient San Carlos Schoolyards

C/CAG received one of 12 California Resilience Challenge grants in the state to develop resilient schoolyard concept plans for multiple sites in the San Carlos School District to show how GI can be integrated to build climate resilience while also improving water quality, increasing shading and greening on campuses, enhancing outdoor learning environments, and making curriculum connections with teachers and students. This builds on existing school-related efforts C/CAG has been implementing, including partnership with the County Office of Education on its environmental literacy program and providing funding for integrated Safe Routes to School / Green Infrastructure projects further described below in the Street-Scale Stormwater Management section.

## Green Infrastructure Design Guide

Starting from its award-winning San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook, C/CAG created a new comprehensive [Green Infrastructure Design Guide](#) detailing how GI can be effectively incorporated into both parcel- and street-scale projects, including a library of typical design details.

## Street-Scale Stormwater Management

### Green Streets via New/Redevelopment

Multiple permittees in San Mateo County are now requiring implementation of street-scale GI as part of new/redevelopment projects, effectively increasing the acreage of impervious area treated through private funds, in many cases also including long-term operations and maintenance. Increasingly, San Mateo County Permittees are requiring frontage improvements that include GI to treat runoff from public rights-of-way, including Redwood City, Atherton, South San Francisco, San Mateo, and Menlo Park. It is important to note that these policies should help address PCBs in adjacent public right-of-way areas during redevelopment in priority old industrial areas.

## Countywide Sustainable Streets Master Plan

C/CAG was awarded a nearly \$1 million Caltrans Climate Adaptation Planning grant to develop the San Mateo Countywide Sustainable Streets Master Plan that prioritizes opportunities to integrate GI with planned transportation projects to help adapt the roadway network to a changing climate while simultaneously improving water quality. The Master Plan prioritizes identified transportation needs (pulled from active transportation and Complete Streets plans, Safe Routes to School walk audits, Specific Plans, etc.) for GI integration using numerous technical suitability and co-benefit criteria. As part of the Master Plan, C/CAG modeled future climate impacts on precipitation patterns, advancing the county's understanding of how storm intensity and frequency may change under future climate conditions. The Master Plan includes 11 project concepts illustrative of different Sustainable Street typologies and geographically distributed throughout the county. Included in the appendices is a new Intersection Assessment Tool that allows municipalities to rapidly determine the feasibility of incorporating stormwater curb extensions at an intersection, as well as a complete library of typical design details for Sustainable Street projects. High-resolution drainage delineations were developed for the entire county, further advancing San Mateo permittees' digital mapping of storm drain catchments down to the catch basin scale. The Master Plan also includes model Sustainable Street policy language for permittees to consider adopting, including model Sustainable Streets language for policy documents, a model Sustainable Streets resolution and policy to go beyond typical Complete Streets policies, a model resolution for GI development standards for new buildings, and model conditions of approval for development projects to require Sustainable Streets implementation as part of private development.

From the MRP perspective, the Master Plan prioritizes integration of GI with planned transportation investments to achieve multiple benefits and make the most of limited agency resources, consistent with the strategies outlined above with Figure 1. For the 11 project concepts included in the plan, the total drainage management area treated by the projects is just over 18 acres at a total cost of over \$27 million (please note that these are integrated complete/green street projects, so costs include features not specific to stormwater treatment).

While it is uncertain whether the 11 concepts will proceed to implementation, they are examples of projects that have existing local momentum and are now better situated for pursuing grant funding as a result of the concepts; however, most of them would likely trigger the proposed MRP 3.0 regulated projects threshold for roadway reconstruction and the resultant greened acres would not count toward the mandatory non-regulated acreage requirement in Provision C.3.j. None of them are in old industrial land use areas and would therefore also not support treatment acreage under Provision C.12.c. This is another example of why the proposed changes in MRP

3.0 related to roadway projects should be removed to allow jurisdictions the flexibility to integrated GI in roadway projects when and where it makes sense and is economically feasible.

## Safe Routes to School / Green Infrastructure Pilot Projects

C/CAG awarded just over \$2 million to 10 pilot projects throughout the County integrating Safe Routes to School and GI. These projects were funded with equal shares of Safe Routes to School and stormwater program funds, with funds from C/CAG covering up to 85% of construction costs. Eight of the ten projects have been constructed, to-date, and C/CAG staff has been compiling information from each of the projects detailing total costs, relative shares of Safe Routes to School and stormwater costs, and impervious area treated. These results are summarized in Table 1.

Table 1 shows that the average cost per acre treated is approximately \$300K when using just the estimated GI project costs (which are often difficult to clearly separate given the integrated nature of things like paving, concrete gutter work, etc.) or \$590K when using total project costs. The costs also vary, with the projects treating the largest areas being most cost effective, which highlights the importance of incorporating GI into projects where it will have the most benefit in terms of area treated. While these costs are still preliminary as C/CAG and member agency staffs are finalizing results of the pilot program, they are illustrative of likely costs to treat an acre of impervious area within the public right of way. If, for example, San Mateo County Permittees were held to the Administrative Draft requirement to provide 102 treated acres during MRP 3.0 and this was achieved via public right of way projects, it would likely require 80-100 projects similar in scale to the above pilot projects with a GI cost component of around \$30 million (with total project costs likely around \$60 million).

**Table 1. San Mateo County Projects Integrating Safe Routes to School and Green Infrastructure**

Project Location	Description/Project Elements	Drainage Area Treated (acres)	Green Infrastructure Project Costs	Safe Routes to School Project Costs	Non-participating/ other costs	Total Project Cost	Cost/Acre Treated (GI Costs Only)	Total Project Cost/Acre Treated
Menlo Park	Two linear planters (both sides of street) w/underdrain, new crossing w/flashing beacons, new sidewalks/paths	1.46	\$291,541	\$240,800	\$44,213	\$576,554	\$199,685.62	\$394,900.00
Pacifica	Two curb extensions (both sides of the street) w/o underdrain, new crossing with island passage and flashing beacon	1.25	\$147,392	\$150,246		\$297,638	\$117,913.60	\$238,110.40
County	One "L" shaped planter behind curb w/o underdrain, one mid-block crossing (no stormwater), one crossing with new valley gutter and sidewalk	0.23	\$146,064	\$153,817	\$8,617	\$308,498	\$629,586.21	\$1,329,732.76
Millbrae	Five curb extension/bulbouts w/underdrain, three crossing improvements	1.95	\$349,663	\$157,190	\$396	\$507,249	\$179,314.36	\$260,127.69
Brisbane	Six curb extension/bulbouts w/underdrain, and an island crossing, eight crossing improvements	0.78	\$343,843	\$510,830		\$854,673	\$439,135.38	\$1,091,536.40
Colma	Two mid-block crossings with three curb extensions/bulbouts, w/underdrains and flashing beacons	1.47	\$185,770	\$121,922		\$307,692	\$126,374.15	\$209,314.29
Half Moon Bay	Three bulbouts with five bioretention areas w/o underdrains, new crossings, and additional midblock crossing w/o bioretention	0.48	\$303,554	\$202,369		\$505,923	\$632,403.75	\$1,054,005.83
Daly City	Two bulbouts with three bioretention areas w/underdrains, new crossings and ramps	1.40	\$118,523	\$61,057		\$179,580	\$84,659.29	\$128,271.43
						<b>Average:</b>	<b>\$301,134.04</b>	<b>\$588,249.85</b>

## Non-Regulated Green Infrastructure Projects

C/CAG and its member agencies have been proactively building non-regulated GI projects since C/CAG provided its first pilot project funding to four projects in 2007. During the current permit term, municipalities have continued implementing voluntary GI projects consistent with the MRP requirement for “no missed opportunities,” primarily street-scale projects integrated with transportation improvements. C/CAG maintains a [GIS Story Map](#) detailing public GI projects (note: not all are non-regulated). C/CAG also supports its member agencies in tracking GI implementation for purposes of quantifying mercury and PCBs load reductions. The preliminary tally of treated area for non-regulated GI projects (including the Safe Routes to School / GI pilot projects from above) implemented over the current permit term is approximately 30 acres. Again, in comparison, the Administrative Draft’s mandate of 102 acres of voluntary green acres during MRP 3.0 seems nearly impossible, especially when coupled with the proposed reductions in C.3 project thresholds and regulating roadway reconstruction projects. It would require much more detailed analysis to determine how many of the voluntary projects constructed to date would have been regulated under the proposed MRP 3.0 standards, but many likely would have triggered the roadway requirements, therefore removing them from the non-regulated category.

## TRASH

In addition to the progressive and substantial efforts made on GI planning and implementation over the current permit term, San Mateo permittees have also made substantial progress on reducing the impacts of trash in stormwater. In response to the trash load reduction mandates established by the Regional Water Board in 2009 (via MRP 1.0) and updated in 2015 (via MRP 2.0), San Mateo County Permittees have made significant investments in trash capture infrastructure, source control ordinance adoption, implementation, and enforcement, and other types of trash control measures. These investments have significantly improved the levels of trash in stormwater and in local surface waters within San Mateo County. All San Mateo permittees are in compliance with the 80% trash load reduction goal, the most recent interim trash load reduction milestone. Additional information on recent actions and steady progress made by San Mateo permittees to address trash is provided below. The adverse impacts that the proposed requirements in provision C.10 of the Administrative Draft MRP would have on this progress to-date and over the next permit term are also summarized.

## Infrastructure Investments (Trash Full Capture)

Over the past decade, San Mateo County permittees have invested significant resources towards siting, installing/constructing, and maintaining trash full capture systems. As illustrated in Figure 2, Permittees have successfully installed and continue to maintain nearly 3,000 full capture systems that address over 12,700 acres of land in San Mateo County.

Full capture system capital costs expended to-date to site and install/construct these devices exceeds \$30M. These capital costs are in addition to the investments described earlier associated with Green Infrastructure. A small portion of the capital costs for trash full capture systems have been offset through Cooperative Implementation Agreements (CIAs) between San Mateo Permittees and Caltrans. These include CIAs partially funded large high-flow capacity or regional systems in the Cities of East Palo Alto, South San Francisco, and San Mateo. Other Permittees in San Mateo County have also engaged Caltrans more recently to further explore potential locations for trash capture systems that may have benefits to both parties. It is important to note that CIAs do not fund ongoing operation and maintenance of these devices, even though Caltrans continues to receive the trash reduction benefits associated with these systems. Municipalities spend an estimated \$3.5M annually maintaining full capture systems in San Mateo County. This is in addition to the costs of conducting their baseline



operation and maintenance programs to ensure that the stormwater systems throughout the County are functioning adequately.

San Mateo County Permittee efforts to date to site, install/construct, and maintain trash full capture systems throughout the County has resulted in addressing approximately 52% of the trash that is required to be addressed by provision C.10 of the MRP. The remaining trash is being addressed through combination of source control actions described below.

## Source Control Efforts

### Ordinances Banning Litter-prone Items

San Mateo Permittees are leaders in the development and implementation of source control ordinances that ban the sale or distribution of certain types of litter-prone items that end up in stormwater and our waterways. Of the 20 Permittees in San Mateo County, 18 have adopted bans on the distribution of single-use plastic grocery bags and 17 have adopted bans on Expanded Polystyrene (EPS) foam food service ware, two of the most frequently observed items in stormwater and local waterways. These Permittees have spent significant resources adopting and implementing these ordinances and have demonstrated the success of these actions through a combination of inspections/enforcement actions and environmental monitoring. Since the bans went into place, the number and extent of these items observed in environment has decreased substantially. Single-use plastic grocery bags and EPS foam food service ware are rarely observed during On-land Visual Trash Assessments (OVTAs) or during creek cleanup events, which demonstrates the benefits of “true” source controls, which reduce the generation of these problematic items before they have a chance to enter the environment.



Building upon the ordinances adopted to-date, the County of San Mateo and other Permittees have recently expanded their ordinances to address other types of disposable plastic food service ware. To-date, six Permittees in San Mateo County have adopted expanded disposable plastic food service ware ordinances that address additional types of litter-prone items (e.g., straws, cups, takeout food ware, etc.). Additional Permittees are considering adoption in the near future. Collectively, these actions will substantially reduce trash levels observed in stormwater over time.

The proposed changes to the trash reduction calculation methods for source controls described in the Administrative Draft would significantly diminish Permittee leadership, the extensive environmental benefits of ordinances developed to date, and provide little impetus for Permittees to move forward with expanded source control actions. Suggested modifications to address this issue are provided in Attachment 2.

## Other Source Control Actions and OVTAs

Over the past decade San Mateo Permittees have also significantly reduced trash in their stormwater conveyances through many other types of source controls, including (but not limited to) the following:

- Street Sweeping – many Permittees have evaluated their street sweeping programs and modified accordingly based on their understanding of trash generation.
- Enhanced On-Land Cleanups – Cleanup frequencies in commercial areas have been expanded in many jurisdictions, in collaboration with business districts.
- Illegal Dumping Prevention – The use of cameras, barriers, and other deterrents has expanded significantly in areas with dumping is prevalent.
- Coordination with Waste Haulers – San Mateo Permittees and their waste haulers began the “Litter Work Group” for San Mateo County and conducted a number of roundtables to share experiences and brainstorm solutions to address many different types of trash challenges and identify opportunities to work together on source control implementation.
- Development of Litter Reduction Guidelines for Multi-family Dwellings – The San Mateo Countywide Program developed the *Litter Reduction Toolkit for Multi-Family Dwellings* to provide guidance and identify litter management practices (LMPs) and other tools to prevent and reduce litter at existing and newly constructed multifamily dwelling (MFD) properties within San Mateo County. In collaboration with the waste haulers, Permittees have used the toolkit when evaluating new/redevelopment designs, which can be accessed [here](#).

To demonstrate the levels of trash reduction that has occurred as a result of the actions listed above, Permittees conduct OVTAs consistent with the MRP. Assessments are conducted sites representing a minimum of 10% of street miles in trash generating areas that are not addressed by full capture systems. Each site is roughly 1,000 feet in length and assessments are conducted at each site roughly three times per year. In total 4,000 OVTAs have been conducted to date in San Mateo County, which equates to assessing roughly 750 miles of streets and sidewalks over the past 5+ years. Permittees have spent over \$1M in assessments to-date to demonstrate trash reductions to the Water Board.

## Addressing the Remaining Trash Generating Areas

In total, San Mateo County Permittees have made substantial investments in addressing trash in stormwater and have demonstrated attainment of trash reduction goals required by the MRP. Areas with high levels of trash

generation have been the focus of actions to date, with moderate areas also being addressed to the extent possible. Largely, areas with moderate trash generation remain to be addressed in San Mateo County. Of the trash generating areas not addressed by full capture systems, roughly 70% generate moderate levels of trash. Source control actions described above or other types of partial treatment controls (e.g., curb inlet screens) will likely be the control measures selected by Permittees to address trash in these areas. MRP 3.0 should not constrain the flexibility and timelines that Permittees need to achieve the MRP low trash generation goal in these areas. The low hanging fruit (i.e., high trash generating areas) has largely been addressed. Innovative approaches are needed to address the areas with moderate trash generation.

One challenge that Permittees will face during MRP 3.0 is addressing trash on private properties that are not directly connected to the Permittee's storm drainage system (i.e., trash from these properties flows to inlets owned and operated by the property owners, not the Permittees). These "private drainage areas" represent roughly 40% of the trash that is not currently addressed by full capture systems in the County. Although San Mateo County Permittees understand that trash generated in substantial levels on these properties also needs to be addressed, solutions are not as straightforward for these properties as addressing trash in the public right-of-way. As described in our attached comments on the MRP Administrative Draft, flexibility is needed in MRP 3.0 to allow trash from these properties to be addressed over time through programmatic approaches that don't unduly require property owners to install and maintain full capture devices during these times of economic hardship due to the COVID-19 pandemic.

## MERCURY/PCBs

### Catchment Characterization and Source Property Identification

SMCWPPP's PCBs and mercury control program has focused on monitoring catchments in San Mateo County (referred to as Watershed Management Areas or WMAs) containing high interest parcels with land uses potentially associated with PCBs (e.g., old industrial, electrical, and recycling) and/or other characteristics potentially associated with pollutant discharge (e.g., poor housekeeping, unpaved areas, and storage tanks).

Monitoring objectives have included characterizing pollutant concentrations across the urban landscape and identifying source areas and properties. To-date, composite samples of stormwater runoff have been collected from the bottom of 49 San Mateo County WMAs and over 400 individual and composite grab samples of sediment have been collected within priority WMAs to help characterize the catchments and identify source areas and properties. Most samples were collected in the public ROW. The grab sediment samples were collected from a variety of types of locations, including manholes, storm drain inlets, driveways, streets, and sidewalks, often adjacent to or nearby high interest parcels with land uses associated with PCBs and/or other characteristics potentially associated with pollutant discharge. SMCWPPP's PCBs and mercury monitoring program has also included collecting sediment samples in the public ROW (e.g., from streets and the MS4) by every known PCBs remediation site in San Mateo County, to the extent applicable and feasible.

When a previously unknown potential source property was revealed via the PCBs and mercury monitoring program, SMCWPPP conducted a follow-up review of current and historical records regarding site occupants and uses, hazardous material/waste use, storage, and/or release, violation notices, and any remediation activities. In addition to databases such as EPA's Toxic Release Inventory (TRI) and Envirofacts, and the State of California's Geotracker and Envirostor, some of the most useful records have been found at the San Mateo County Department of Environmental Health.

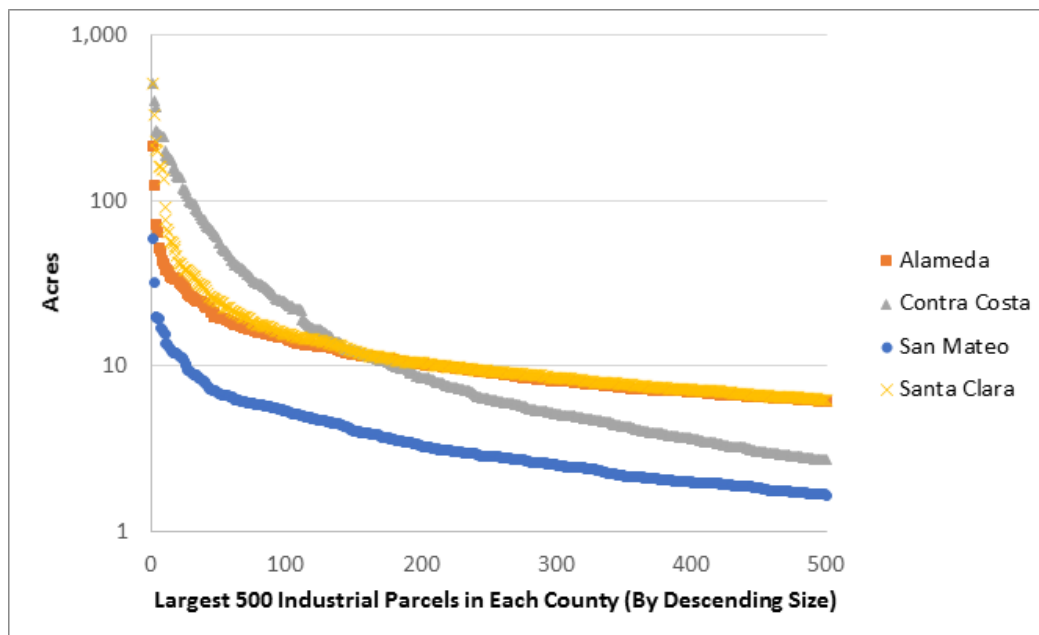
Four previously unknown potential source properties have been identified in San Mateo County, all in WMA 210 (Pulgas Creek Pump Station South) in the City of San Carlos. SMCWPPP is working with the City of San Carlos to determine next steps for these properties, including additional monitoring and/or potential referral to the Regional Water Board. In addition, SMCWPPP's PCBs and mercury monitoring program has led to SMCWPPP referring four other properties (two sets of two adjacent properties, all in San Carlos) to the Regional Water Board for potential further PCBs investigation and abatement.

## Extent of Industrial Land Use in San Mateo County

The PCBs load reduction credited when a source property is referred to the Water Board is directly proportional to the area of the referred property (acres is the unit used in the load reduction calculation). In September 2018, SMCWPPP conducted an analysis of total industrial area and average industrial parcel size among the four most populous counties in the MRP area, based on county assessor parcel data. Table 3 and Figure 3 show the results (it is important to note that the y-axis of Figure 3 is on a log scale). The total industrial acreage and average industrial parcel size are much lower in San Mateo County relative to the other counties, illustrating the challenge for San Mateo County Permittees to achieve PCBs load reductions via source property referrals relative to the other counties. In particular, even though the total population of Contra Costa County is roughly only 50% greater than San Mateo County, the total industrial acreage and average industrial parcel size in Contra Costa County exceed San Mateo County by roughly a factor of four and six, respectively.

**Table 3. Total Industrial Acreage and Average Industrial Parcel Size in Most Populous MRP Counties**

	San Mateo County	Alameda County	Contra Costa County	Santa Clara County
Total Industrial Area (acres)	3,043	14,034	12,833	16,039
Average Industrial Parcel Size (acres)	1.25	2.03	7.55	3.00



**Figure 3. Area of 500 Largest Industrial Parcels in Most Populous MRP Counties**

## Proposed Enhanced Source Property Identification Efforts

There has been some evidence that attempts to identify source areas in old industrial areas in San Mateo County have reached diminishing returns. However, during the next permit term, San Mateo County Permittees are proposing to enhance these efforts, including applying new techniques, in part via the following special studies that would be conducted under MRP 3.0 Provision C.8 (Water Quality Monitoring):

- Pilot testing PCBs detection dogs to help screen suspect locations and potentially enhance the success of source property identification efforts, as part of integrated PCBs source studies that include working with city inspectors to attempt to gain access to private properties as needed and other techniques in the PCBs toolbox.
- Characterizing PCBs concentrations in additional composite stormwater runoff samples collected from the bottom of selected urban catchments of interest, based on the potential to contain sources of PCBs. Objectives include to help prioritize catchments and inform efforts to identify additional source areas and properties. Interpretation of these data would be informed by Advanced Data Analysis (ADA) techniques under development by SMCWPPP/SCVURPPP and SFEI.