City of San Pablo

Green Infrastructure Plan

CITY OF SAN PABLO
City of New Directions

San Pablo
All-America City
NATIONAL CIVIC LEAGUE
2014

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Acronyms and Abbreviations

ADA	Americans with Disabilities Act
AGOL	ArcGIS Online
BASMAA	Bay Area Stormwater Management Agencies Association
Caltrans	California Department of Transportation
CASQA	California Stormwater Quality Association
CCCWP	Contra Costa Clean Water Program
CIP	Capital Improvement Program
CCW SWRP	*Contra Costa Watersheds Stormwater Resource Plan*
CNRA	California Natural Resources Agency
CTC	California Transportation Commission
C&ED	Community & Economic Development Department
EDC	Economic Development Corporation
GI	Green Infrastructure
GIS	Geographic Information System
LIDI	Low Impact Development Institute
MRP	Municipal Regional Stormwater Permit
MS4	Municipal Separate Storm Sewer System
MTC/ABAG	Metropolitan Transportation Commission/Association of Bay Area Governments
MUTCD	Manual on Uniform Traffic Control Devices
NPDES	National Pollutant Discharge Elimination System
PCBs	Polychlorinated Biphenyls
PW	Public Works Department
RAA	Reasonable Assurance Analysis
(Re)development	Redevelopment and new development
ROW	Right-of-way
RWQCB	Regional Water Quality Control Board
SPMC	*San Pablo Municipal Code*
SWRCB	State Water Resources Control Board
SWGP	Storm Water Grant Program
TMDL	Total Maximum Daily Load
TOD	Transit Oriented Development
WIC	Women Infants and Children
WLA	Waste Load Allocation

1 Introduction and Overview

1.1 Regulatory Mandate

The City of San Pablo (City) is one of 76 local governmental entities subject to the requirements of the California Regional Water Quality Control Board (RWQCB) for the San Francisco Bay Region's Municipal Regional Stormwater Permit (MRP). The MRP was originally issued in 2009[1] and was last reissued in November 2015[2]. The MRP mandates implementation of a comprehensive program of stormwater control measures and actions designed to limit contributions of urban runoff pollutants to the San Francisco Bay watershed.

MRP Provision C.3.j.i. requires the City to prepare a Green Infrastructure Plan, to be submitted with its Annual Report to the RWQCB, due September 30, 2019.

Green Infrastructure (GI) refers to the construction and retrofit of storm drainage systems to reduce runoff volumes, disperse runoff to vegetated areas, harvest and use runoff where feasible, promote infiltration and evapotranspiration, and use bioretention and other natural systems to detain and treat runoff before it reaches nearby bodies of water. GI facilities include, but are not limited to: bioretention facilities, raingardens, pervious pavers, infiltration basins, green roofs, and rainwater harvesting systems. GI can be incorporated into construction on new and previously developed parcels, as well as new and rebuilt streets, and other infrastructure within the public right-of-way (ROW).

Water quality in the San Francisco Bay (the Bay) has been identified as impaired by mercury and polychlorinated biphenyls (PCBs), sources of which include urban stormwater. By reducing and treating stormwater flows, GI reduces the quantity of these pollutants entering the Bay and promotes the overall health of Bay ecosystems.

MRP Provisions[3] C.11 and C.12 require Contra Costa Permittees (Contra Costa County and its 19 cities and towns) to reduce estimated PCBs loading by 23 grams/year (g/yr) and estimated mercury loading by nine

[1] California RWQCB San Francisco Bay Region MRP Order No. R2-2009-0074, National Pollutant Discharge Elimination System (NPDES) Permit No. CAS612008.

[2] California RWQCB San Francisco Bay Region MRP Order No. R2-2015-0049, NPDES Permit No. CAS612008.

[3] All MRP Provisions that are specifically referenced within this document, e.g. Chapter 3 (C.3), are assumed to be referencing the MRP, as approved in 2015.

(9) g/yr using GI by June 30, 2020. Regionally, Permittees must also project the load reductions achieved via GI by 2020, 2030, and 2040, showing that collectively, by 2040 PCBs will be reduced by three (3) kilograms/year (kg/yr) and mercury by ten (10) kg/year. See Appendix 2 for further background on mercury and PCBs in the Bay. PCBs and mercury load reductions will be informed by this *GI Plan*; however, the actual estimates for load reductions will be provided in 2020 as part of the reporting requirement in MRP Provisions C.11.c/C.12.c and C.11.d/C.12.d, see Appendix 5 for more details.

1.2 San Pablo Context

1.2.1 Planning Context

It is important to note that there are several neighborhoods that have "San Pablo, California" mailing addresses, but are not part of the incorporated City and are not addressed in the City's *GI Plan*. These include the census areas of Bayview, El Sobrante, Montalvin, North Richmond, Rollingwood, and Tara Hills. See Appendix 3 for a map of the City boundary.

Municipal Geography

The City of San Pablo encompasses a total of 2.6 square miles[4] in the northern part of the East San Francisco Bay Area in Contra Costa County. The City is traversed by three (3) creeks: Rheem Creek, San Pablo Creek, and Wildcat Creek. All three (3) creeks originate in the Berkeley Hills, to the southeast of the City, and flow to the San Pablo Bay, to the west of the City. San Pablo is predominantly flat, as the majority of the City falls within a sedimentary plain, with some steeply sloped areas in the northern and southeastern regions of the City.

San Pablo's municipal geography dictates what GI facilities can be implemented and where such implementation is appropriate. Due to the Class D (clayey) soils found in the flat areas of the City, water infiltration is limited, thus certain types of GI facilities are not well suited (e.g. dry wells) and underdrains are required in most GI facilities. Moreover, GI facilities are generally not well suited to be developed in the steep hillsides found in the northern and southeastern regions of the City, since water infiltration may exacerbate erosion concerns and hillside stability. For GI construction purposes, two key zones have been identified: a "Geotechnically Sensitive" zone and a "City Review" zone. See the maps

[4] United States Census Bureau.

in Appendix 3 for zone boundaries and applicable restrictions. These zones were identified through a combination of slope profile analysis and past slides (i.e., 1958, 1983, and 2011).

Demographics

San Pablo is an ethnically and culturally diverse community. As of 2017, the City had a population of 30,720 people[5]. Over 60% of the overall population are Hispanic and over 50% speak English "less than 'very well,'" with Spanish being the preferred language. As a low-income, state-identified disadvantaged community, the City relies on grants to fund the majority of its sustainability and capital improvements.

Economic & Social Trends

The median household income in San Pablo is approximately $47,000, in comparison to a median household income of about $93,000 across the San Francisco-Oakland-Hayward metropolitan area. Over 60% of San Pablo housing units are renter-occupied, leading to a high resident turnover rate. Additionally, most residents have a mean travel time to work of 35 minutes and over 20% of the population commute over 60 minutes to arrive at their place of work.

Low homeownership rates, high resident turnover, and a significant commute burden pose barriers to community involvement. The City hosts several seasonal and annual events for its residents in order to share important resources and foster community unity. Additional methods of City outreach to community members include the City's website, Facebook page, weekly e-Newsletters, quarterly *El Portal* magazine, and project-specific public meetings.

The San Pablo Economic Development Corporation (EDC) plays a strong role in supporting the workforce readiness of residents and the success of local businesses. The mission of the San Pablo EDC is to develop, diversify, and stabilize the local economy, as San Pablo's population and land value increase. Local investment in the "greening" of San Pablo will support the larger effort of increasing the positive public image of the City to encourage community economic success.

Development Trends

As of the early 2000s, the City of San Pablo has been considered "built-out" by the City's Planning Division. The City mainly encourages

[5] Data in "Demographics" and "Economic & Social Trends" from the U.S. Census Bureau's American Community Survey estimates for 2017.

development along its major corridors and roadways; for example, along San Pablo Dam Road, San Pablo Avenue, 23rd Street, and Rumrill Boulevard. The City has two Specific Plans—for 23rd Street and San Pablo Avenue—to guide development in these corridors. The City has created a new mixed-use development site, "Plaza San Pablo," which will include the new City Hall, along with the already constructed Contra Costa County Women Infants and Children (WIC) clinic, County Library, West County Health facilities, and more. The City is looking for long-term opportunities to advance transit oriented development (TOD), particularly along the San Pablo Avenue corridor near the Contra Costa College campus and commercial centers.

Commitment to Sustainability

The City of San Pablo has an Environmental Services Division (Environmental Division) within the Public Works Department (PW) with an ongoing staff of 1.5 FTE, although staff capacity has been augmented in recent years through the CivicSpark AmeriCorps Fellowship program. The Environmental Division's workplan focuses on stormwater projects, including the implementation of provisions related to development in the MRP. However, the Environmental Division also strives to connect San Pablo residents to local, regional, and statewide resources related to energy and water efficiency, as well as solid waste reduction.

The City has leveraged multiple grant opportunities and regional partnerships to create and implement sustainability plans, including the *Climate Action Plan* and the *Bicycle and Pedestrian Master Plan*.

The 2019-2021 Priority Workplan for the City of San Pablo identifies developing long-term environmental stewardship goals (Priority 202) and assessing environmental impacts over the long-term (Priority 203) under the broader policy goal of "Enhanc[ing] Community Resilience."

1.2.2 Watersheds and Storm Drainage

The City of San Pablo falls within the San Pablo Basin, as identified by the San Francisco Bay RWQCB, and includes portions of the Rheem Creek, San Pablo Creek, and Wildcat Creek watersheds (listed from North to South), which all drain into the San Pablo and San Francisco Bays.

Watersheds

Out of the three (3) creeks that traverse the City, Rheem Creek spans the shortest distance. Rheem Creek flows from the western edge of the East Bay Hills and empties to the San Pablo Bay. Rheem Creek is culverted

between Contra Costa College and Wanlass Park, under residential development and San Pablo Avenue, but is daylighted for the reminder of its span within City boundaries. However, nearly the entire stretch of Rheem Creek within the City flows through a concrete channel that is controlled and maintained by the Contra Costa County Flood Control District. Much of Rheem Creek dries up during the dry season, although urban runoff may contribute to some year-round standing water.

The broader San Pablo Creek watershed includes the San Pablo and Briones Reservoirs, both of which are potable water storage reservoirs located to the southeast of the City. San Pablo Creek maintains flowing water year-round, and large storms during the rainy season can lead to peak creek heights of near bank levels. San Pablo Creek is culverted beneath Interstate-80 (I-80) and major intersections within San Pablo, but otherwise flows in a natural earthen channel through the City.

The majority of Wildcat Creek within City boundaries has been daylighted, with exception of the stretch that is culverted beneath San Pablo Avenue, the South San Pablo Avenue shopping area, and I-80. Much of Wildcat Creek dries up during the dry season, although urban runoff may contribute to some year-round standing water. Large storms during the rainy season can lead to peak creek heights of near bank levels.

These three (3) creeks divide the City into five (5) hydrologic zones, characterized by the *City of San Pablo Storm Drain Master Plan* as: north of Rheem Creek (North Rheem), south of Rheem Creek (South Rheem), north of San Pablo Creek (San Pablo), between San Pablo Creek and Wildcat Creek (Wildcat to San Pablo), and south of Wildcat Creek (Southwest).

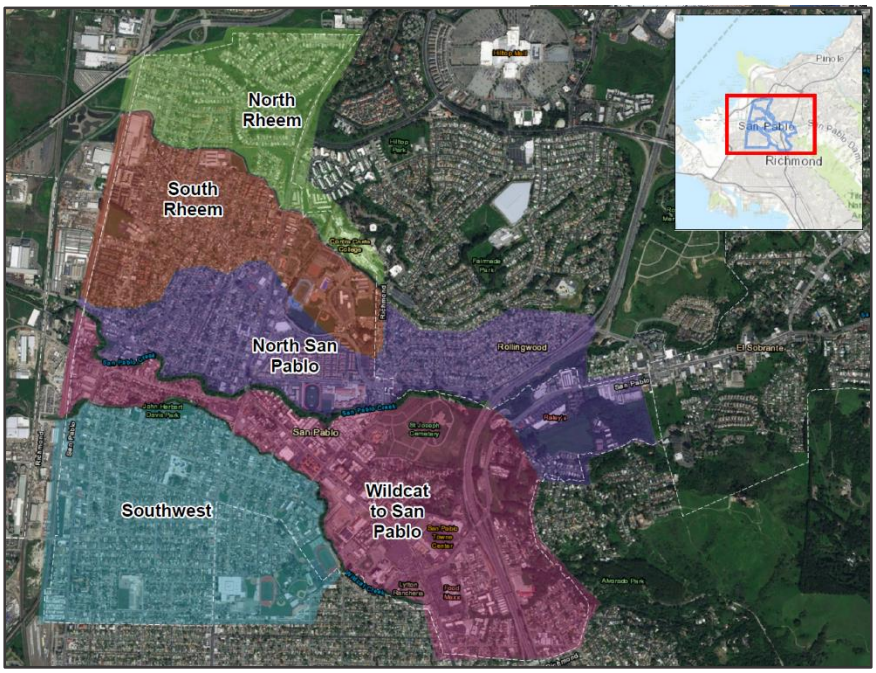


Figure 1: *City of San Pablo Storm Drain Master Plan* Hydrologic Zones

Flood Zones

Portions of San Pablo are located in flood-prone areas, as a result of the City's generally low topography and the creeks that run through City boundaries. According to the Federal Emergency Management Agency National Flood Insurance Program from 2015, approximately 10% of the City is located in a 100-year floodzone and approximately 17% in a 500-year floodzone, primarily around San Pablo and Wildcat Creeks. GI facilities may help address localized flooding in the San Pablo community.

Storm Drains

Drainage facilities in San Pablo include the City's creeks (Rheem, San Pablo, Wildcat), inlets, outfalls, manholes, culverts, and drainage channels. The creeks collect both surface runoff and flows from storm drain pipes. Water levels in the creeks have a large influence on the City's storm drain system, since each storm drain outfall feeds into a creek and City storm drain lines are generally very short. Due to the primarily flat topography of the City, beyond the hillside areas mentioned in Section 1.2.1, there is little natural elevation change to enable rapid enough water drainage to avoid storm drain backflow and localized flooding. GI can be well-suited to help address such issues by encouraging stormwater infiltration and slowing the flow of water entering the storm drain system.

1.2.3 Green Infrastructure

As required by the MRP, the City currently implements sustainable stormwater management practices on land development projects regulated by Provision C.3. Specific methods and design criteria are outlined in the Contra Costa Clean Water Program's (CCCWP's) *Stormwater C.3 Guidebook,* which the City has referenced in *San Pablo Municipal Code* (*SPMC*) Section 8.40. Table 1 details GI projects in San Pablo, as required by the prevailing version of the MRP.

Table 1: Completed GI Projects in the City of San Pablo[6]

Project Name	Project Type	Year	Acres Treated	Site Location
Casino San Pablo Parking Lot	Private	2009	0.7	San Pablo Ave. & Vale Rd.
St. Joseph Funeral Home	Private	2009	1.8	Church Ln.
Abella Paseo	Private	2009	2.0	El Portal Dr.
Abella Commercial	Private	2009	8.3	San Pablo Ave. & El Portal Dr.
AutoZone	Private	2011	0.9	San Pablo Ave.
Walgreens	Private	2011	1.4	San Pablo Ave. & Laurie Ln.
West County Health Center	Public (County)	2012	3.6	San Pablo Ave.
Helms Community Center	Public (City)	2014	0.6	Rd. 20
Rumrill Sports Park	Public (City)	2015	4.4	Rumrill Blvd.
Abella Vista	Private	2016	4.9	Rd. 20
Walgreens	Private	2016	1.4	San Pablo Ave. & Gateway Ave.
Plaza San Pablo Roads Phase 1 & 2	Public (City)	2016	1.7	Chattleton Ln. & Gateway Ave.
Lao Family Community	Private	2016	0.4	Rumrill Blvd.
Shell Gas Station	Private	2017	0.9	El Portal Dr.

The legal authority for City implementation of the *GI Plan* stems from the requirements of the California Environmental Quality Act; California Building Code adopted pursuant to Title 15 of the *SPMC*; zoning and land use requirements pursuant to the *City of San Pablo General Plan* and Title 17 of the *SPMC*; property maintenance requirements pursuant to Title 8 of the SPMC; and Chapter 8.40, "Stormwater Management and Discharge Control" of the *SPMC*, which implements federal and state clean water laws. The City Council of the City of San Pablo approved the *GI Plan* by resolution.

[6] As of the Fiscal Year 2017-18 Annual Report.

1.2.4 Related San Pablo Planning Documents

Recommended updates were identified for key City planning documents to ensure that GI is considered and supported in the range of planning and design processes for public and private projects within the City.

Table 2: Planning Documents to Update to Align with *GI Plan*

Planning Document	Summary of Updates	Completion Date
San Pablo General Plan 2030	Appendix 4, Section 1	Potential *General Plan* amendment in late 2019. Full *General Plan* update 2019-2023.
City of San Pablo, California Zoning Ordinance	Appendix 4, Section 2	Potential update late 2019.
San Pablo Municipal Code	Appendix 4, Section 3	Potential update 2019-2020.
San Pablo Avenue Specific Plan	Appendix 4, Section 4	Potential update 2021-2023.
23rd Street Specific Plan	Appendix 4, Section 5	Potential update 2021-2023.
City of San Pablo Bicycle & Pedestrian Master Plan	Appendix 4, Section 6	No planned update, but relevant policies will be incorporated in the short-run into the *General Plan*.
City of San Pablo Climate Action Plan	Appendix 4, Section 7	Potential update 2021-2022.
Davis Park Master Plan	Appendix 4, Section 8	No planned update, but relevant policies will be incorporated in the short-run into the *General Plan*.
City of San Pablo Storm Drain Master Plan	Appendix 4, Section 9	No planned update, but relevant policies will be incorporated in the short-run into the *General Plan*.
City of San Pablo Master Landscape Plan	Appendix 4, Section 10	No planned update, but appropriate policies will be incorporated into City GI specifications.

1.3 Outreach and Education

The development process for the *City of San Pablo GI Plan* engaged a variety of stakeholders, including government staff, elected officials, and community members who will live, work, and play near future GI projects. The City will continue to engage relevant government staff, elected officials, and community members as projects move forward toward design and implementation.

Outreach activities broadly fall into: 1) public engagement informing project priorities, 2) staff engagement in regional GI collaboration, 3) interdepartmental coordination informing *GI Plan* content and adoption, 4) elected engagement and education on *GI Plan* content and adoption, and 5) interdepartmental staff training on GI implementation.

1. *Public Engagement: GI Project Priorities*
   Multiple projects included in the City's priority lists were drawn from the *Contra Costa Watersheds Stormwater Resource Plan* (*CCW SWRP*) conducted at a countywide level over the course of 2017-2018 (see Section 2.1.1 for more details). Due to the sequential timing of *CCW SWRP* and *GI Plan* development, the City aimed to build upon, rather than duplicate, the work conducted for the *CCW SWRP*.

   CCW SWRP outreach included public meetings and other outreach strategies to connect with community stakeholders—including local watershed groups and non-governmental organizations—and solicit comments regarding local stormwater projects and community priorities. A selection of *CCW SWRP* outreach events—identified by "*CCW SWRP*" in the description—are detailed in Table 3. These outreach events were not hosted by the City.

2. *Staff Engagement: Regional GI Collaboration*
   Staff from the Environmental Division have actively participated in CCCWP and BASMAA meetings since establishment of the *GI Plan* requirement in 2015. Staff involvement has prioritized incorporating regional GI best practices into the City's *GI Plan* and advocating for cost-effective and regionally practicable GI implementation.

3. *Interdepartmental Coordination:* GI Plan *Content and Adoption*
   Staff from the Environmental Division facilitated coordination between the other PW Divisions (Engineering and Maintenance) and the Community & Economic Development Department (C&ED) to identify upcoming capital improvement program (CIP) projects, future ROW priorities, and expected future private development (Section 2.1.2); frame ROW design guidelines (Section 6.1); and create typical details and specifications (Section 6.2). Intradepartmental and interdepartmental meetings are detailed in Chapter 6.

4. *San Pablo Leadership Engagement:* GI Plan *Content and Adoption*
   San Pablo elected and appointed leaders were engaged through a series of Council meetings, detailed in Table 3. These meetings were intended to inform officials about regional water quality standards, stormwater management requirements, and *GI Plan* content. Council meeting presentations also served as an opportunity for elected and appointed leaders, as well as the public, to comment on the *GI Plan*.

5. *Interdepartmental Training: GI Project Implementation*
   Staff from PW (Engineering, Environmental, Maintenance Divisions) and C&ED collaborated on the development of a formalized internal procedure to ensure proper implementation of the *GI Plan*. These internal meetings are included in Table 3.

   The Environmental Division provides an annual training for the Maintenance Division regarding a variety of environmental topics, including stormwater regulations and maintenance of GI facilities in the City.

Table 3: Outreach for *CCW SWRP* & *GI Plan* Development

Date	Outreach Event	Description
Apr. 13, 2017	Presentation to Contra Costa Public Managers Association (including Contra Costa City Managers)	Announced the *CCW SWRP* to municipal leaders and described connection between *CCW SWRP* and *GI Plan*
May 17, 2017	Presentation at Contra Costa Watershed Forum Meeting	Discussed *CCW SWRP* and solicited feedback from stakeholders
June 5, 2017	Presentation to San Pablo City Council	Summarized *GI Plan* Framework and sought motion to approve
July 12, 2017	Presentation at Contra Costa Watershed Forum Meeting	Provided update on *CCW SWRP*
Sept. 13, 2017	Presentation at Contra Costa Watershed Forum Meeting	Provided update on *CCW SWRP*
Sept. 21, 2017	Presentation at Wildcat and San Pablo Creek Watershed Council Meeting	Engaged West County stakeholders in *CCW SWRP* development and solicited feedback on draft evaluation criteria and project lists
Nov. 14, 2017	Presentation at Contra Costa Watershed Forum Meeting	Provided update on *CCW SWRP*
Apr. 11, 2018	Annual Maintenance Training	Trained Maintenance Division to conduct proper bioswale maintenance in the City
May 9, 2018	Presentation at Contra Costa Watershed Forum Meeting	Provided update on *CCW SWRP*
July 11, 2018	Presentation at Contra Costa Watershed Forum Meeting	Provided update on *CCW SWRP*
Aug. 31, 2018	Email to stakeholder outreach list and website update	Began soliciting public comments on *CCW SWRP* Draft
Sept. 12, 2018	Presentation at Contra Costa Watershed Forum Meeting	Presented *CCW SWRP* Draft and solicited feedback
Mar. 21, 2019	Wildcat and San Pablo Creek Watershed Council Meeting	Summarized *GI Plan* and solicited feedback
Mar. 21, 2019	CCCWP "Maintaining Green Infrastructure Including Bioretention Facilities Workshop"	Two (2) City Maintenance staff learned about GI maintenance through presentations and a walking tour of GI facilities

Table 3: Outreach for *CCW SWRP* & *GI Plan* Development

Date	Outreach Event	Description
Mar. 25, 2019	Presentation to San Pablo Economic Development Council Standing Committee	Summarized MRP and *GI Plan*, and solicited feedback
Apr. 8, 2019	City of San Pablo Public Meeting	Summarized MRP and *GI Plan*, and solicited feedback
May 20, 2019	Presentation to San Pablo City Council	Summarized MRP and *GI Plan*, and sought motion to approve

Ongoing Public Engagement: GI Project Implementation

Private GI project implementation will incorporate City feedback through the Planning review/entitlement, building permit, and design review process, including approval from Planning Commission, as needed.

Public GI project implementation will incorporate public engagement, as appropriate to the project, during the planning and design phases.

2 Project Identification and Prioritization

2.1 Project Identification and Prioritization

Prioritized projects for GI implementation were identified through a three (3) phase process:

1. *Contra Costa Watershed Stormwater Resources Plan* (*CCW SWRP*)
2. Urban Sim (Re)development Projections
3. Annual CIP Project Review ("no missed opportunities")

Additional City review sessions were held between the Environmental Division of PW and the Planning Division of C&ED to finalize projected public and private development lists prior to *GI Plan* approval.

2.1.1 Contra Costa Watersheds Stormwater Resources Plan

The *CCW SWRP* was funded by the State Water Resources Control Board (SWRCB) through the Proposition (Prop) 1 Storm Water Grant Program (SWGP), with matching contributions provided by Contra Costa Permittees through the CCCWP. The *CCW SWRP* identified and prioritized potential multi-benefit stormwater management projects and programs.

The *CCW SWRP* facilitates future project development since the projects and programs identified in the Plan are eligible for grant funds, such as Prop 1 SWGP Implementation funds. *CCW SWRP* development included extensive public outreach, technical analysis, and feedback from city staff to produce a curated list of GI project opportunities. Section 1.3 includes a selection of public outreach events that informed the *CCW SWRP*.

CCW SWRP project opportunities were scored preliminarily using a multi-benefit evaluation consistent with the requirements of the State's Stormwater Resources Plan Guidance (SWRCB, 2015). The complete methodology is described in the *CCW SWRP Hydrologic/Hydraulic Modeling Tools and Quantitative Methodologies Evaluation and Screening and Prioritization using Multi-Benefit Metrics* memorandum.

The *CCW SWRP* project opportunity scoring process used the following categories, with additional details in Table 4:

- ***Parcel area*** (Regional and Parcel-Based GI Projects Only) – Larger parcels received more points, based on the assumption that larger parcels have more opportunities for GI implementation.

- ***Opportunity location slope*** – Flatter locations received more points, as such locations typically require less grading and hydraulic connection considerations.
- ***Infiltration feasibility*** – Greater infiltration feasibility received more points, since retention of runoff through percolation or infiltration is known to provide enhanced pollutant reduction, reestablishment of natural drainage, recharge potential, and reduction of runoff rates, among other beneficial outcomes.
- ***PCBs/Mercury Yield Classification in Project Drainage Area*** – Areas with higher pollutant loading for PCBs and mercury received more points, as such areas have higher potential pollutant load reductions.
- ***Removes Pollutant Loads from Stormwater*** – Areas well-suited for GI or treatment control facilities received more points, as these support the GI goals outlined by the SWRCB. Regional projects received more points, as such projects may remove a larger pollutant load than a parcel-based or ROW project.
- ***Augments Water Supply*** – Projects with potential to augment local water supply received more points, scaled to the anticipated water supply increase.
- ***Provides Flood Control Benefits*** – Projects with flood control facilities received more points, scaled to the anticipated flood control benefit.
- ***Re-establishes natural water drainage systems*** *or* ***Develops, restores, or enhances habitat and open space*** – Projects with potential to incorporate hydromodification control, stream restoration, and habitat restoration received more points, scaled to the anticipated hydrologic benefit.
- ***Provides community enhancement*** – Projects that provide public use areas or public education components received more points.

Table 4: *CCW SWRP* Project Metrics-Based Multi-Benefit Scoring

Project Component	Benefit Addressed	Points		
		0	**1**	**2**
Parcel area	All	< 1 acre	1 - < 4 acres	> 4 acres
Location slope	All	7-10%	3-7%	0-3%
Infiltration feasibility	All	No	Partial	Yes
PCBs/Mercury yield class in project drainage area	Water Quality	New Urban, Agriculture, Open Space, or Other	Old urban	Old industrial or source property (+1)

Table 4: *CCW SWRP* Project Metrics-Based Multi-Benefit Scoring

Project Component	Benefit Addressed	Points		
		0	1	2
Removes pollutants from stormwater	Water Quality	Trash Capture Devices	Non-GI and non-infiltrating GI treatment control	Partially and fully infiltrating GI project or regional project (+1)
Augments water supply	Water Supply	--	Infiltrating GI or infiltrating flood control project over potential water supply aquifer	Harvest/Use or other water augmentation project
Provides flood control	Flood	--	Fully and partially infiltrating GI project	Flood control project
Re-establishes natural drainage systems	Environmental	--	Fully and partially infiltrating GI project	Stream restoration or hydro-modification control
Develops or restores habitat and open space	Environmental	--	GI Project	Habitat restoration project
Provides new or enhanced public and recreational areas with opportunities for community involvement and education	Community	--	GI Project	Public use area or public education project component

Adapted from *CCW SWRP* Project Opportunity Prioritization Instructions for Permittees Memorandum, Attachment A: Project Metrics-Based Multi-Benefit Evaluation, Geosyntec Project Number: WW2371

In total, 397 project opportunities were considered through the *CCW SWRP* preliminary ranking process. The lowest scoring projects earned four (4) points; the three (3) highest scoring projects earned 14.5 points out of a possible 20 points. The average project score was 10.1 points.

Next, the City conducted an independent project opportunity ranking process, using the *CCW SWRP* scores as a foundation. City staff—representing the Engineering, Environmental, Maintenance, and Planning Divisions—used local knowledge and City goals to guide the ranking process. Certain project opportunities were removed from consideration due to implementation concerns (e.g. underground utility conflicts, limited ROW space). All City rankings included a justification to ensure consistency and allow for future documentation.

The City scoring process used the following categories:

- ***Opportunity*** – Projects that align with existing City priorities (e.g. planned or funded CIP projects, projects identified in the Priority Workplan, identified City Plans), projects that are located in areas

planned for new development or redevelopment, and/or projects that address significant environmental concerns received more points.

- ***Additional Benefits*** – Projects with aesthetic, community, environmental, or other benefits not previously scored—especially flood control and traffic calming—received more points.
- ***Implementation*** – Projects with fewer implementation challenges due to site constraints (e.g. grading, utility conflicts) and public opinion (e.g. concerns about reduced parking) received more points.
- ***Cost*** – Projects with secured funding, or an identifiable funding source, and lower capital and maintenance costs, in addition to being compatible with labor and staff capacity, received more points.
- ***Safety and Security*** – Projects that did *not* create a potential safety hazard and had a lower risk of being vandalized received more points.

In total, 140 potential project areas were considered through the City's ranking process. Out of a possible ten (10) points, two (2) projects earned nine (9) and ten (10) points, while 21 projects scored between six (6) and eight (8) points. The average project score was 2.3, as 89 projects scored two (2) points or fewer.

2.1.2 UrbanSim Private Development Projections

To forecast private development, the City of San Pablo participated in a regional process coordinated through the CCCWP and shared with BASMAA member agencies. This process utilized the outputs of UrbanSim, a planning software developed by the Urban Analytics Lab at the University of California, Berkeley, under contract to the Metropolitan Transportation Commission/Association of Bay Area Governments (MTC/ABAG). UrbanSim is a modeling system developed to analyze the potential effects of land use policies and infrastructure investments on the development and character of cities and regions. The Bay Area's application of UrbanSim was developed to support the development of Plan Bay Area, the Regional Transportation Plan/Sustainable Communities Strategy planning effort required by Senate Bill 375.

MTC/ABAG forecasts growth in households and jobs and uses the UrbanSim model to identify new development and redevelopment (hereon referred to collectively as (re)development) sites to satisfy future demand. Model inputs include parcel-specific zoning and real estate data; model outputs include projected household and job increases attributable to specific parcels. The methods and results of the UrbanSim

model have been approved by MTC/ABAG Committees for use in transportation projections and the regional Plan Bay Area development process.

The CCCWP process used outputs from the Bay Area UrbanSim model to map parcels predicted to undergo (re)development in each Contra Costa jurisdiction by 2020, 2030, and 2040. The resulting maps for the City were reviewed by staff from the Engineering, Environmental, and Planning Divisions to ensure consistency with local planning and development initiatives. Maps were revised as follows:

1. Parcels that staff believe are not likely to be (re)developed prior to 2040 were removed from UrbanSim output;
2. Parcels that staff believe were in the incorrect development period were reclassified (e.g. expected (re)development date of a parcel might be changed from "2030" to "2040"); and
3. Parcels that staff believe will be (re)developed, but were not identified by UrbanSim, were added to the output and assigned a development period (i.e. "2020", "2030," or "2040").

Additionally, staff adjusted potential project boundaries, if such were expected to differ significantly from parcel boundaries. The UrbanSim software originally identified 70 sites for private or public parcel-based (re)development for the City of San Pablo and a final list of 102 parcel-based projects were identified. The final list is considered ambitious, given that the City was considered built-out starting in the early 2000s by the Planning Division and the City no longer has a Redevelopment Agency to finance public redevelopment.

2.1.3 Annual CIP Project Review ("No Missed Opportunities")

Staff from the Environmental Division meet annually with the Director of PW to discuss upcoming CIP projects—including new and substantial upgrades to City facilities, transportation projects, and storm drainage projects—and opportunities to incorporate GI into these projects. Projects are identified through City plans (e.g. the *Storm Drain Master Plan*, the *Bicycle and Pedestrian Master Plan*) and the broader CIP planning process. Projects previously identified through this CIP Review are evaluated to determine if GI implementation is still feasible and GI project lists are updated accordingly. GI features are incorporated into projects whenever doing so is consistent with project objectives and technical and financial constraints.

The CIP Review follows BASMAA's *Guidance for Identifying Green Infrastructure Potential in Municipal Capital Improvement Projects*. The *Green Complete Street Checklist* (Section 6.1) further informs discussion of how GI may support accessibility and resiliency in ROW projects.

2.2 Reasonable Assurance Analysis (RAA)

Provisions C.11/12.c.ii.(2) of the MRP require Permittees to prepare a Reasonable Assurance Analysis (RAA) to demonstrate that pollutant load reductions for the San Francisco Bay PCBs and mercury total maximum daily loads (TMDLs) will be met through *GI Plan* implementation and other stormwater management measures.

Using the GI project opportunities identified through the *CCW SWRP* and UrbanSim analysis, the CCCWP and consultants created a Permittee PCBs Load Reduction Attainment Tool (Tool) intended to assist Permittees in the preparation of GI plans. The Tool contains a database of the PCBs load reductions attributable to completed GI projects (as entered into the CCCWP ArcGIS platform, see Section 5.1), *CCW SWRP* project opportunity sites, and UrbanSim private (re)development projects, calculated using the RAA methodology and assuming standard bioretention treatment.

The Tool identifies the countywide PCBs public retrofit load reduction goal by subtracting the load reduced by existing and future private (re)development, identified by UrbanSim, from the countywide goal. The Tool then facilitates prioritization of public projects, by listing the project opportunities from the *CCW SWRP* with their PCBs yield. See Appendix 5 for additional details regarding the RAA scenario modeling for Contra Costa County and the RAA Countywide Attainment Strategy.

The City incorporated five (5) of the six (6) areas with the highest baseline PCBs load, as identified by the Tool, into the City's priority project list[7]. See Chapter 3 for a list of public priority projects.

2.3 Potential Countywide Pollutant Load Reduction Strategy

As of May 2019, Contra Costa County Permittees are investigating the possibility of addressing pollutant loads on a countywide scale. To allow for the most efficient implementation of GI to achieve the MRP-

[7] The area that was part of the top six (6) areas with the highest baseline PCBs load but was not included in the City's priority project list is an affordable housing project that was constructed prior to the GI facility requirement of the current MRP. Staff consider it unlikely that this site will be redeveloped prior to 2040.

stipulated load reduction goal, some Permittees are investigating ways that communities without cost-effective opportunities to reduce PCBs via GI may fund GI projects in communities with such opportunities. However, the legal and administrative requirements of this strategy are complex; thus, this strategy may ultimately not be feasible.

If this strategy is successfully developed and implemented, the City of San Pablo will coordinate with other jurisdictions regarding potential projects to be implemented as part of a countywide effort. For more information about this scenario please see Section 7.3.

3 Public Project Lists

MRP Provision C.3.j.ii. requires that the City maintain a list of public and private GI projects planned for implementation during the 2015-2020 permit term, in addition to other public projects with potential for GI features. The City submitted an initial list with the Fiscal Year (FY) 2015-16 Annual Report to the RWQCB and an updated the list with the FY2016-17 and FY2017-18 Annual Reports.

3.1 Public Project Priorities for 2020

Table 5 summarizes the City's 2020 priority list, developed between 2015 and 2019. See Appendix 3.5 for a map of projected public and private projects for 2020.

Table 5: City Priority Projects with GI Facilities – 2020 Timeframe

Project Name	Description	Approximate Project Site Area (acres)	Project Type	Project Status[8]
Women Infants and Children (WIC) Center	New WIC building funded by Contra Costa County	0.9	Parcel-based MRP-regulated	Completed Spring 2019.
Plaza San Pablo Phase 3 & 4 Roads	New road construction as part of the Plaza San Pablo redevelopment area	0.7	ROW MRP-regulated	Completed Spring 2019.
New City Hall	New City of San Pablo City Hall	2.9	Parcel-based MRP-regulated	Under construction. Expected completion 2020.
LifeLong Urgent Care Center	Parking lot upgrade in conjunction with Wildcat Creek Restoration and Greenway Trail Project	1.6	Parcel-based MRP-regulated	100% design. Expected completion 2020.
Wildcat Creek Restoration and Greenway Trail	Small segment of a creek restoration and bikeway project with grant funding	0.1	Parcel-based Non-regulated	100% design. Expected completion 2020.
Rumrill Boulevard Complete Streets	Complete Streets project improving 1.7 miles of Rumrill Blvd. with grant funding	7.5	ROW Non-regulated	95% design. Expected completion 2020, subject to delays due to utility relocation.
El Portal Drive Greening	Stormwater and bikeway project with grant funding	0.4	ROW Non-regulated	100% design. Expected completion end of 2019.

[8] As of May 2019.

Additionally, a new West County health facility (approximately 0.9 acres) located in Plaza San Pablo is a public project slated for 2020 completion. The project is regulated under the MRP and is not included in the City priority list since it will be built and maintained by Contra Costa County.

3.2 Public Project Priorities for 2030

Table 6 summarizes the City's 2030 priority list, developed in 2019. See Appendix 3.6 for a map of projected public and private projects for 2030.

Table 6: City Priority Projects with Proposed GI Facilities – 2030 Timeframe

Project Name	Description	Approximate Project Site Area (acres)	Project Type	Project Status[9]
Moraga Road Parcel	Potential location of future development and/or park renovation at existing San Pablo Youth Soccer Fields.	8.9	Parcel-based MRP-regulated	Undergoing public engagement efforts for Prop 68 application to fund park project. Currently unfunded.
Contra Costa County Fire Protection District Station	New fire station funded by the City and County Fire Protection District (which provides City fire services).	0.5	Parcel-based MRP-regulated	Under construction. Expected completion in 2021.
Plaza San Pablo Former Lot 5	Plaza San Pablo lot across from the new City Hall site.	2.0	Parcel-based MRP-regulated	Potential location for new Police Station/Regional Training Center. Concept only. Currently unfunded.

Additionally, the US Army Reserve Center (approximately 6.9 acres) is expected to be surplused and redeveloped, likely regulated under the MRP, by 2030. As the future developer is currently unknown, the project is identified as "public" since it is currently under public ownership.

3.3 Public Project Priorities for 2040

Table 7 summarizes the City's 2040 priority list, developed in 2019. See Appendix 3.7 for a map of projected public and private projects for 2040.

[9] As of May 2019.

Table 7: City Priority Projects with Proposed GI Facilities – 2040 Timeframe

Project Name	Description	Approximate Project Site Area (acres)	Project Type	Project Status
1411 Rumrill Boulevard	City lot located off of Rumrill Blvd.	1.9	Parcel-based MRP-regulated	Potential location for new Corporation Yard. Concept only. Currently unfunded.
Road 20 and San Pablo Avenue	Corner parcels at the intersection of Rd. 20 and San Pablo Ave.	0.3	ROW Unknown if will be MRP-regulated	Likely to be incorporated into proposed creek restoration, bridge restoration, and road reconfiguration. Concept only. Partial funding secured.
Market Avenue	Potential ROW improvement from Church Ln. to City boundary. Identified in *Storm Drain Master Plan* as experiencing flooding during large storm events.	Unknown	ROW Non-regulated	Potential project only. May incorporate drainage improvements, bicycle and pedestrian facility upgrades, and traffic calming features. Currently unfunded.
Sutter Avenue	Potential ROW improvement from Rumrill Blvd. to 23rd St. Identified in *Storm Drain Master Plan* as experiencing flooding during large storm events.	Unknown	ROW Non-regulated	Concept design created through *CCW SWRP* process (Appendix 6). May incorporate drainage improvements, bicycle and pedestrian facility upgrades, and traffic calming features. Currently unfunded.
Giant Road	Potential ROW improvement from Brookside Dr. to Miner Ave. Identified in *Storm Drain Master Plan* as experiencing flooding during large storm events.	Unknown	ROW Non-regulated	Potential project only. May incorporate drainage improvements, bicycle and pedestrian facility upgrades (per City's *Bicycle and Pedestrian Master Plan*), and traffic calming features. Currently unfunded.
Southwest Flooding Area of Concern	Region bounded by California Ave., Market Ave., Rumrill Blvd. and 17th St. Identified in *Storm Drain Master Plan* as experiencing flooding during large storm events.	Unknown	ROW Non-regulated	Undefined project. City encouraged to integrate GI facilities with CIP projects in this region to address flooding concerns. Currently unfunded.
San Pablo Creek Flooding Area of Concern	Region bounded by Rd. 20, Rumrill Blvd., 18th St. and 20th St. Identified in *Storm Drain Master Plan* as experiencing flooding during large storm events.	Unknown	ROW Non-regulated	Undefined project. City encouraged to integrate GI facilities with CIP projects in this region to address flooding concerns. Currently unfunded.

Additionally, the City envisions a long-term possibility of creating a TOD between San Pablo Avenue and Contra Costa College (identified as a private project under the impervious surface targets in Chapter 4). Although this is an undefined project, the City aspires to facilitate the TOD goals established by Plan Bay Area. This potential TOD integrates key resources, including the major corridor of San Pablo Avenue, multiple bus lines provided by the Alameda-Contra Costa Transit District (AC Transit), Contra Costa College, nearby commercial and residential districts, as well as other community resources (e.g. Wanlass Park, the San Pablo Creek).

4 Green Infrastructure Targets and Maps

Provision C.3.j.i.2.c of the MRP requires the City's *GI Plan* to identify impervious surface targets to be retrofitted by 2020, 2030, and 2040. When defining impervious surface targets to be retrofitted by 2020, 2030, and 2040, it is important to consider the distinctions between pervious, impervious, and disconnected impervious surfaces.

Water can pass through pervious surfaces (e.g. landscaped areas) but cannot pass through impervious surfaces (e.g. asphalt roadways, concrete sidewalks). Water that lands on an impervious surface will run-off and flow until it reaches the Municipal Separate Storm Sewer System (MS4), a pervious surface, or an impervious basin.

Disconnected impervious surfaces are areas where water cannot pass through, but generated runoff is directed into a pervious area where the runoff is filtered through a GI facility, such as a bioretention facility, and subsequently infiltrates into the ground or overflows into the MS4. Thus, disconnected impervious areas are primarily impervious, but they are disconnected from directly flowing to the MS4. Therefore, disconnected impervious surfaces are in line with the National Pollutant Discharge Elimination System (NPDES) permit goal of reducing the water and pollutant load on the MS4. While pervious and disconnected impervious surfaces are different, these categories may be grouped together for the purposes of this Plan.

The total area of the City is 1,667 acres. As of 2006 (the baseline year), the City was 56.9% impervious and 43.1% pervious. Based on estimated projected public and private (re)development and ROW improvements between 2019 and 2040, Table 8 outlines the City's goals for increasing total pervious plus disconnected impervious surfaces.

The projected increases in disconnected impervious area, as a result of GI development in the City, are estimates only and are in significant part dependent on development decisions made by private entities. While the City will ensure that all MRP-regulated development abides by C.3 guidelines, the City has no control over the location and timeline of private (re)development in the City. Therefore, the Table 8 does not imply a binding City commitment toward achieving these goals.

Table 8: Potential New Pervious + Disconnected Impervious Area – All (Re)Development[10]

Year	Cumulative Percent Increase from Baseline Pervious Area	Total Citywide Pervious + Disconnected Impervious Area
2006 (Baseline)	0%	43.1%
Existing	4.6%	45.0%
2020	6%	45.7%
2030	8%	46.5%
2040	12%	48.2%

4.1 Private Development Projections

The City identified potential future private (re)development through the process outlined in Section 2.1.2. It is assumed that all multifamily residential, commercial, and industrial developments will incorporate stormwater treatment facilities in accordance with MRP Provisions C.3.b., C.3.c., and C.3.d. Because of high land values, it is expected that more than 50% of the existing impervious area in each parcel will be replaced if a parcel is developed; therefore, the entire parcel will be subject to Provision C.3 requirements and will need to incorporate GI[11]. Cumulative estimates of potential new pervious plus disconnected impervious area created by projected private (re)development are detailed in Table 9 and mapped in Figure 2 (see Appendix 3 for full size map).

Table 9: Potential New Pervious + Disconnected Impervious Area – Private (Re)Development

Year	Cumulative Area (acres)	Comments
Existing	22.5	Sum of all project areas listed in Section 1.2.3, Table 1
2020	24.7	Includes San Pablo Casino Parking Lot at former Old Moose Lodge site and underutilized properties along San Pablo Ave.
2030	30.6	Includes San Pablo Casino Parking Lot at former Doctor's Medical Center site and underutilized properties along San Pablo Ave. and Rumrill Blvd.
2040	45.9	Includes Giant Trade Center, South San Pablo Ave. shopping areas, an envisioned TOD project between Contra Costa College and San Pablo Ave., and underutilized properties along 23rd St.

[10] Assumption: Retrofitted acres start out as entirely impervious since the City of San Pablo has been considered built-out since the early 2000s and there are few parcels that have not been capped by an impervious surface.
[11] Consistent with the "50% rule" requirement of MRP Provision C.3.b.

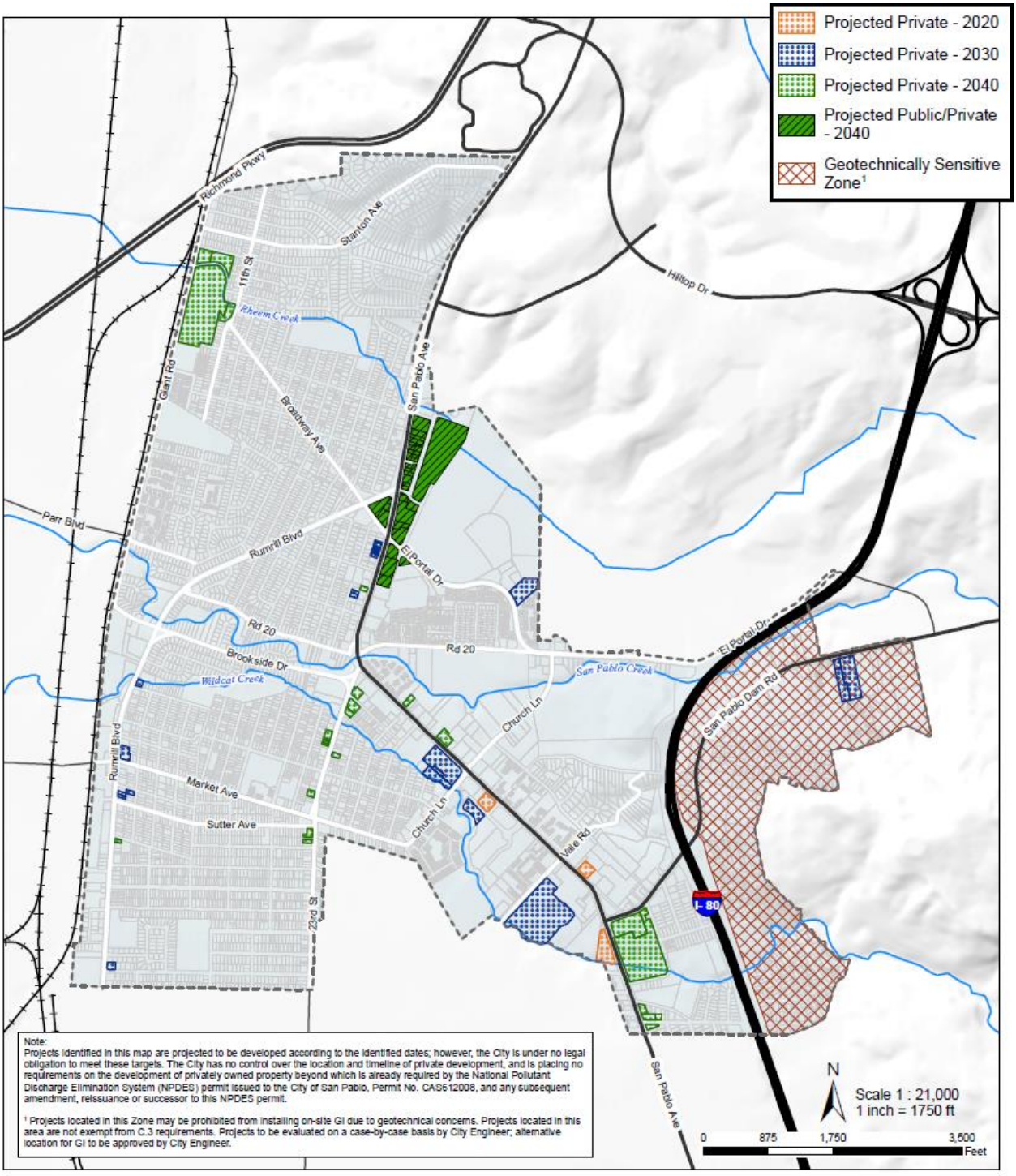


Figure 2: Potential Green Infrastructure Development – Private

Projects submitted to the City are subject to an internal review process to ensure that proposed (re)development incorporates GI facilities in accordance with the Provision C.3 requirements and the most recent version of the CCCWP *Stormwater C.3 Guidebook*. At this time, the City

does not anticipate expanding GI requirements beyond what is required by the most recent version of the MRP.

The City requires that the location and footprints of planned GI facilities be incorporated into site plans, landscaping plans, stormwater control plans, and operation and maintenance documents submitted for the City's discretionary review. The City inspects construction of GI facilities to ensure the facilities are built in accordance with the criteria in the *Stormwater C.3 Guidebook*. The City requires owners of properties with GI facilities to agree to maintain the facilities in perpetuity through a land covenant recorded on the property, and the City conducts periodic operation and maintenance verification inspections of built facilities.

4.2 Public Development Projections

The City identified potential future public (re)development and ROW projects through the process outlined in Section 2.1. The City is committed to incorporating GI into public projects when feasible in order to shift from conventional "collect and convey" storm drain infrastructure to more resilient, sustainable stormwater management systems that reduce runoff volumes, disperse runoff to vegetated areas, harvest and use runoff where feasible, promote infiltration and evapotranspiration, and use natural processes to capture and treat runoff. The public (re)development estimates detailed in Table 10 and mapped in Figure 3 (see Appendix 3 for full size map) are contingent on future budget prioritization by City Council and grant funding secured by the City. Future public ROW priorities, as mapped in Figure 3, are not included in Table 10 as they do not reflect specific funded projects, but rather are intended to guide future project development.

Table 10: Potential New Pervious + Disconnected Impervious Area – ROW & Public (Re)Development

Year	Cumulative Area (acres)	Comments
Existing	10.3	Sum of all project areas listed in Section 1.2.3, Table 1
2020	19.1	Includes portions of Plaza San Pablo redevelopment (WIC, new City Hall, West County Medical Facility, Phase 3&4 Roads), Rumrill Blvd. Complete Streets, El Portal Dr. Greening
2030	26.6	Includes portions of Moraga Rd. Parcel, US Army Reserve Center, Plaza San Pablo redevelopment, County Fire Station
2040	40.0	Includes portions of potential new Corp Yard, San Pablo Ave./Rd. 20 creek restoration and bridge replacement

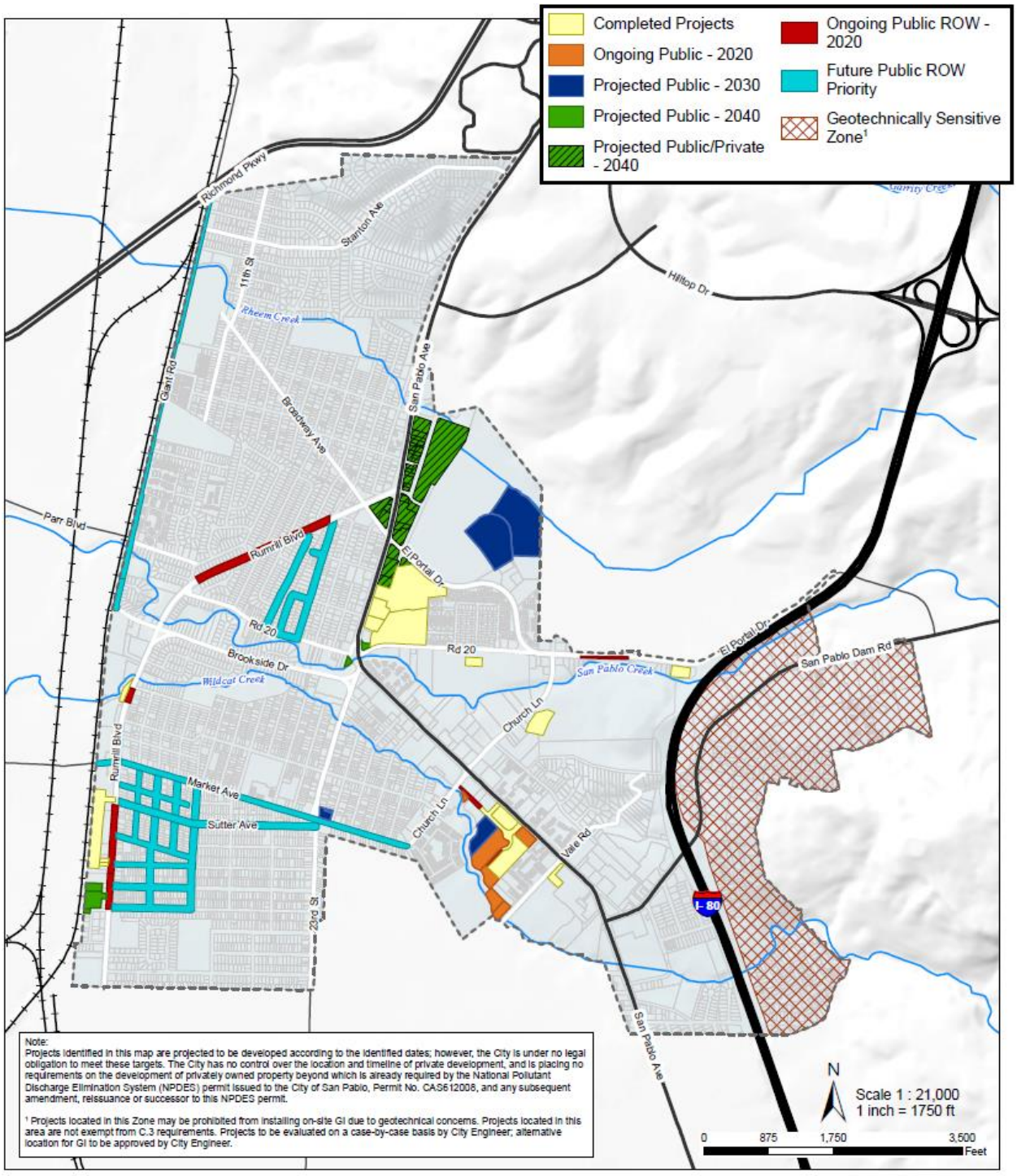


Figure 3: Potential Green Infrastructure Development – Public

5 Tracking and Mapping Projects

5.1 Tools and Process

The CCCWP has developed a countywide geographic information system (GIS) platform for maintaining, analyzing, displaying, and reporting municipal stormwater program data and information related to MRP Provisions C.10 (trash load reduction activities) and C.11/C.12 (mercury and PCBs source property identification and abatement screening activities). This tool is also used to track and report on GI project implementation as part of Provision C.3.

The CCCWP's stormwater GIS platform features web maps and applications created using ESRI's ArcGIS Online (AGOL) for Organizations environment, which accesses GIS data, custom web services, and reports that are hosted within an Amazon cloud service running ESRI's ArcGIS Server technology.

The "C.3 Project Tracking and Load Reduction Accounting Tool" within the CCCWP AGOL system is used to track and report on GI project implementation. It is currently used to track and map existing private and public projects incorporating GI. In the future, it may also be used to map planned projects and will allow for ongoing review of opportunities for incorporating GI into existing and planned CIP projects. The AGOL system can be used to develop maps to be displayed on public-facing websites or otherwise distributed to the public. These maps may contain information regarding the GI project data entered into the AGOL system.

The "C.3 Project Tracking and Load Reduction Accounting Tool" is intended to be used to allow for estimates of potential project load reductions for PCBs and mercury, and presently supports the BASMAA Interim Accounting Methodology for certain load reduction activities. In the future, the Tool is planned to be updated with the RAA methodology developed for the County.

The City of San Pablo actively engages with the AGOL tool and maintains up-to-date project data. The City currently updates the AGOL tool as projects are completed, as specified by an internal PW standard operating procedure, and performs a completeness check each spring with a final check when preparing each Annual Report for the RWQCB.

5.2 Public Access

The general public will be able to access materials and content related to the *GI Plan* through the City's website (sanpabloca.gov/2637/Green-Infrastructure-Plan) and through Environmental Division staff. The *GI Plan* webpage will be updated as needed and will be translated to Spanish when possible given staff capacity.

Residents interested in updated maps of completed GI projects can contact the Senior Environmental Analyst at (510) 215-3066 for a PDF map, e.g. Figure 4.

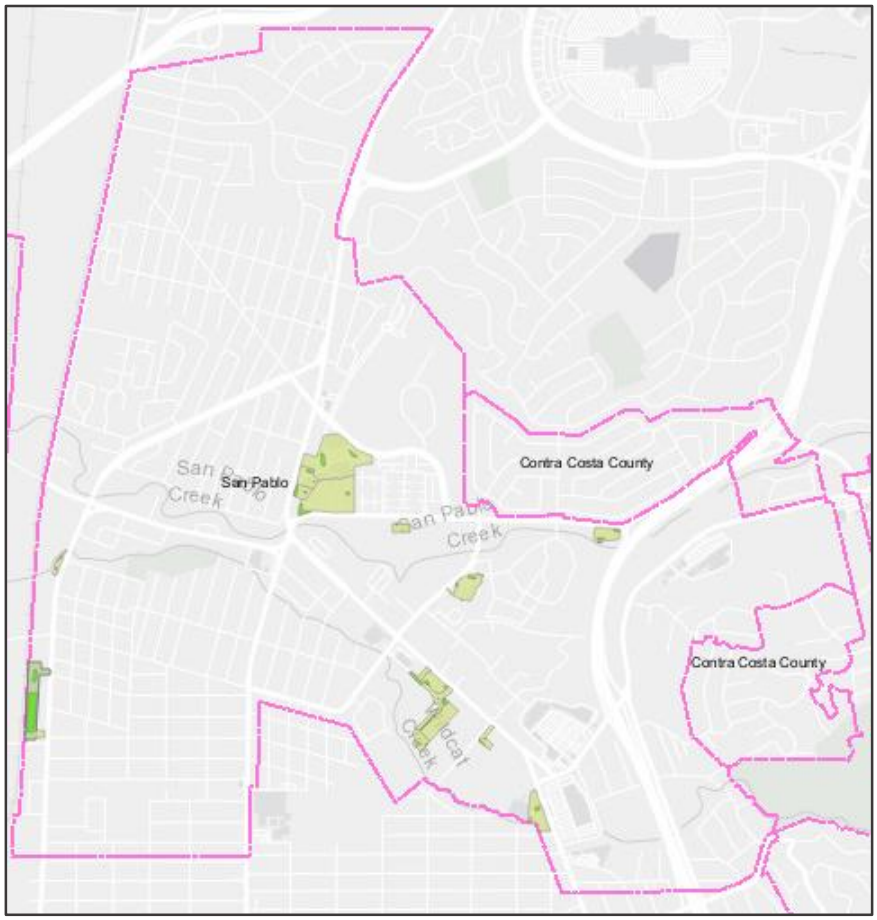


Figure 4: Sample AGOL Map Output

6 Design Guidelines and Specifications

6.1 Guidelines for Streetscape and Project Design

The City of San Pablo created general design resources to assist with the integration of GI facilities into the public ROW. Staff, designers, and developers are encouraged to reference the National Association of City Transportation Officials *Urban Street Stormwater Guide*, the San Mateo County *Sustainable Green Streets and Parking Lots Design Guidebook*, and other resources from the CCCWP website in designing ROW improvements with integrated stormwater management features.

For parcel-based development, both public and private, project designers and developers should refer to the most recent edition of the CCCWP *Stormwater C.3 Guidebook* for stormwater management requirements and general design guidelines.

The following "Complete Green Streets Checklist" is adapted from a Central Coast Low Impact Development Institute (LIDI) checklist and is intended to facilitate the "no-missed opportunities" CIP review, in addition to the development of any new streets in the City. These design guidelines were developed through the process detailed in Table 11.

Table 11: "Complete Green Streets Checklist" Stakeholder Outreach

Jan. 2019	Preliminary review of existing design guidelines by the Environmental Division.
Jan. 30, 2019	Meeting between the Environmental and Planning Divisions to discuss design "Checklist" and planning document integration.
Feb. 27, 2019	Meeting between the Environmental and Planning Divisions to review draft "Checklist."
Mar. 26, 2019	Meeting between the Environmental and Planning Divisions to review updated "Checklist."
Apr. 25, 2019	Meeting between the Environmental and Planning Divisions to finalize City "Checklist."
May 13, 2019	Final review of "Checklist" by Engineering Division.

Table 12: Complete Green Streets Checklist

Street Feature	Recommended Street Locations	Definition	Design Considerations	Green Street Opportunities
Bicycle Facilities	Residential Districts Mixed-Use Districts Commercial Corridor Arterial & Boulevard Shared-Use Pathways	*Class I*: Shared bicycle and pedestrian path *Class II*: Separated bicycle facility on roadway *Class III*: Shared bicycle and vehicle traffic facility ("bike route" or "sharrow") *Class IV*: Separated and protected bicycle facility on roadway	Design bicycle facilities in accordance with Caltrans requirements. Use different pavement materials and colors to delineate bicycle lane from vehicular travel lane. Class IV facilities are preferred for high-traffic and high-speed roadways.	Bioretention facilities can serve as buffers for Class IV bicycle facilities to increase safety and collect stormwater runoff.
Sidewalks / Walkways	Residential Districts Mixed-Use Districts Commercial Corridor Arterial & Boulevard	Paved paths for pedestrians, typically adjacent to roadways.	Design sidewalks and walkways in accordance with the Americans with Disabilities Act (ADA), City, County, and Caltrans requirements. Wider sidewalks support pedestrian activity, especially around non-residential land uses. Include landscaping and street furniture, as appropriate given street design and available space.	Incorporate bioretention facilities and/or street trees. Incorporate pervious pavers and/or pervious paving when appropriate.
Curb Bulb-Out	Residential Districts Mixed-Use Districts Commercial Corridor Arterial & Boulevard Parking Lots	Extended curb, primarily used to extend the sidewalk into the roadway and reduce the crossing distance for pedestrians. A traffic-calming measure.	Design curb bulb-outs in accordance with ADA, City, County, and Caltrans requirements. Appropriate at corners and mid-block, especially where there is on-street parking. Mid-block locations may support mid-block crossings. Bus bulb-outs may be used in locations with transit service in combination with on-street parking. If space permits, incorporate shelters, benches, and trash/recycling receptacles. Consider impacts to street operations and maintenance, such as street sweeping. Consider impacts of curb radius at intersections on crossing distance. Small radii may reduce the speed of turning movements onto residential streets.	New curb space may incorporate pervious pavers, bioretention facilities, or street trees.

Table 12: Complete Green Streets Checklist

Street Feature	Recommended Street Locations	Definition	Design Considerations	Green Street Opportunities
Curb Ramps & Crosswalks	Residential Districts Mixed-Use Districts Commercial Corridor Arterial & Boulevard Parking Lots	Ramp graded from a sidewalk to a street.	Design curb ramps to meet ADA, City, County, and Caltrans requirements. Wider ramps can accommodate higher pedestrian volumes (e.g. near schools or parks). Striped crosswalks recommended across arterials.	Safety requirement. Incorporate pervious pavers and/or pervious paving when appropriate.
Landscaping	Residential Districts Mixed-Use Districts Commercial Corridor Arterial & Boulevard Parking Lots Alley Ways Shared-Use Pathways	Trees and groundcover.	Follow the *City of San Pablo Master Landscape Plan* for appropriate native and drought-resistant species, which minimize establishment requirements and maintenance/irrigation. Landscaping within GI facilities should follow guidelines in the Contra Costa Clean Water Program *Stormwater C.3 Guidebook.* Low-level landscaping preserves sight lines at arterial crosswalks.	Bioretention facilities can serve as a buffer between pedestrians and vehicles. Street trees provide pedestrian shading, decrease the urban heat island effect, increase aesthetic of the street, and increase pervious surface.
Outdoor Furniture	Residential Districts Mixed-Use Districts Commercial Corridor Arterial & Boulevard Shared-Use Pathways	Including, but not limited to, benches, bus shelters, trash and recycling receptacles, bicycle parking, and way finding.	Use as appropriate given sidewalk width and landscaping. Color-code trash and recycling receptacles to be intuitive to community members.	No GI opportunities expected.
Lighting	Residential Districts Mixed-Use Districts Commercial Corridor Arterial & Boulevard Parking Lots Alley Ways Shared-Use Pathways	Lights along roadways and walkways. Lighting should be adapted for motorists' and pedestrians' needs.	Follow the *City-Wide Street Lighting Evaluation* and Illuminating Engineering Society guidelines. Prioritize street lighting at intersections, pedestrian crossings on arterial roads, near priority destinations (e.g. schools, community centers, business districts, parks, transit stops), and areas with security concerns. Use "dark sky" friendly light fixtures.	Solar powered lighting or LED lights minimize electricity usage.
Decorative Elements	Residential Districts Mixed-Use Districts Commercial Corridor Arterial & Boulevard Parking Lots Alley Ways Shared-Use Pathways	Design elements that promote and support community goals, values, and character, e.g. public art, specialty paving.	Encouraged in pedestrian zones on residential, mixed-use, commercial, and arterial streets. Consider the amount of maintenance that will be needed. Use graffiti-resistant materials and preventative designs (e.g. Crime Prevention Through Environmental Design guidelines).	Incorporate pervious pavers in pedestrian-only zones or low vehicle traffic areas. Decorative elements may be added to street furniture or bioretention facilities.

Table 12: Complete Green Streets Checklist

Street Feature	Recommended Street Locations	Definition	Design Considerations	Green Street Opportunities
Medians	Mixed-Use Districts Commercial Corridor Arterial & Boulevard Parking Lots	A strip of dividing land between lands of traffic or parking areas. Generally linear and continuous.	Raised medians in crosswalks provide a mid-roadway safe space for pedestrians, as well as a potential location for pedestrian safety features, traffic control devices, or other amenities.	Incorporate bioretention facilities to reduce impervious surface, as appropriate given site grading.
Travel Lanes	Residential Districts Mixed-Use Districts Commercial Corridor Arterial & Boulevard	Lane for the movement of vehicles, not including shoulders.	Design travel lanes in accordance with City and Caltrans requirements. Narrower motor vehicle lanes calm traffic, reduce pedestrian crossing distances, and enhance allocation of across all users and uses of right-of-way.	No GI opportunities expected.
On-Street Parking	Residential Districts Mixed-Use Districts Commercial Corridor	Parking for vehicles along the street curb.	Location and size of zones and parking stalls shall be designed in accordance with City and Caltrans requirements. May be considered in areas where transit service is not a priority. Can be used as a buffer between sidewalks/bicycle facilities and traffic.	May be integrated with street trees, curb bulb-outs, or bicycle facilities to distinguish parking zones and separate motorists from cyclists and pedestrians. Incorporate pervious pavers and/or pervious paving when appropriate.
Driveways	Residential Districts Mixed-Use Districts Commercial Corridor Arterial & Boulevard Parking Lots	A connection from public road to a parking area, either for residential or commercial uses.	Design driveways to meet ADA, City, and Caltrans requirements. Narrower driveway widths minimize area of potential conflict between pedestrians and motorized vehicles.	Incorporate pervious pavers and/or pervious paving when appropriate.
Loading / Unloading Zones	Mixed-Use Districts Commercial Corridor Arterial & Boulevard Parking Lots	Curbside areas to allow for loading or unloading of passengers or freight.	Location and size of zones shall be designed in accordance with City, Manual on Uniform Traffic Control Devices (MUTCD), and Caltrans requirements. Consider presence of rideshare vehicles and demand for pick-up/drop-off space.	Street trees and curb bulbs-outs may be used to distinguish loading/unloading zones.

6.2 Specifications and Typical Design Details

All GI features and facilities must be designed and constructed in accordance with the applicable specifications and criteria in the CCCWP *Stormwater C.3 Guidebook*. Staff created City-specific typical details and specifications for the GI facilities and elements that are most relevant for San Pablo: slope-sided bioretention facilities, planter-box bioretention facilities, curb cut inlets, concrete check dams, and permeable pavers. See the City website for the most up-to-date City typical details and specifications. See Appendix 7 for City GI typical details and specifications, updated as of May 2019.

LIDI *Bioretention Standard Details and Specifications*, which were developed with funding support from California Stormwater Quality Association (CASQA) Prop 84 Grant, were used as the basis for the City standards. The San Francisco Public Utilities Commission (SFPUC) *Stormwater Requirements and Design Guidelines Appendix B* also served as a reference. Additional typical details and specifications, as may be needed for design of ROW improvement projects, may be adapted from the Central Coast LIDI *Bioretention Standard Details and Specifications*, SFPUC *Stormwater Requirements and Design Guidelines Appendix B*, or other resources compiled by the CCCWP and available through the CCCWP website, subject to approval by the City Engineer.

Table 13: Typical Details and Specifications Stakeholder Outreach

Jan. 2019	Preliminary review of existing typical details and specifications—e.g. CASQA, SFPUC—by the Engineering and Environmental Divisions.
Jan. 23, 2019	Meeting between the Engineering and Environmental Divisions to discuss City-specific design requirements for typical details and specifications.
Feb. 5, 2019	Meeting between long-time staff from the Engineering, Environmental, and Maintenance Divisions to discuss lessons learned from existing GI facilities in the City.
Feb. 12, 2019	Meeting between the Engineering and Environmental Divisions to review City-specific design requirements for typical details and specifications.
Feb. – Mar. 2019	Secondary review of draft City typical details and specifications by the Engineering, Environmental, and Maintenance Divisions.
Apr. 2019	Tertiary review of draft City typical details and specifications by the Engineering, Environmental, and Maintenance Divisions.

Table 13: Typical Details and Specifications Stakeholder Outreach

May 13, 2019	Meeting between the Engineering, Environmental, and Maintenance Divisions to finalize City bioretention facility typical details and specifications.

Moving forward, the City supports regional standardization of GI typical details and specifications to facilitate cross-jurisdictional simplicity and consistency. At this time there are no Countywide standards. Should a countywide interagency process by convened by the CCCWP to promote consistency in the design and construction of GI facilities, the City will:

- Share with other Contra Costa municipalities, through the CCCWP, plans and specifications developed for GI projects.
- Share lessons learned and best practices via interagency workshops and meetings.
- Participate in the evaluation and recommendation of typical design details and specifications for GI, with the goal of advancing countywide consistency, cost-efficiency, and quality of GI facilities.
- Provide comments on a countywide "Green Infrastructure Design Guide" to assist with project identification, evaluation, and design.
- Consider superseding City standards with the Countywide standards.

6.3 Sizing Requirements

MRP Provision C.3.d contains criteria for sizing stormwater treatment facilities. Facilities may be sized on the basis of flow, volume, or a combination of flow and volume. The adoption of the 2009 MRP allowed for an additional option, where "treatment systems that use a combination of flow and volume capacity shall be sized to treat at least 80 percent of the total runoff over the life of the project, using local rainfall data." This option can also be used to develop sizing factors for facilities with a standard cross-section (i.e. where the volume available to detain runoff is proportional to facility surface area). To calculate sizing factors, inflows, storage, infiltration to groundwater, underdrain discharge, and overflows are tracked for each time-step during a long-term simulation. The continuous simulation is repeated, with variations in the treatment surface area, to determine the minimum area required for the facility to capture and treat 80% of the inflow during the simulation.

The City uses the sizing guidelines generated by the BASMAA report, *Guidance for Sizing Green Infrastructure Facilities in Street Projects*.

7 Funding Options

The City of San Pablo is committed to incorporating GI facilities in future development and infrastructure retrofits in order to move away from existing "gray" infrastructure. The City will collaborate with fellow Contra Costa permittees in the pursuit of funding and project opportunities that enable GI development. Note that private (re)development must cover the costs of GI facilities and NPDES permit compliance within their own budgets. The following discussion of GI funding is specific to City projects on publicly-owned parcels and/or the public ROW.

Existing Permittee Resources

Currently the City has a Stormwater Utility Assessment that provides approximately $400,000 per year for all programs and activities related to the City's stormwater infrastructure and implementation of the NPDES permit. These funds are not sufficient to cover all of the costs related to the implementation of the NPDES permit; therefore, the NPDES program is supplemented by the City's General Fund.

However, the City's General Fund will not be able to cover the additional expected expense for GI as part of public (re)development of public priority parcels and ROW in San Pablo. Given that San Pablo is a low-income community, the City does not anticipate proposing a new tax or fee on residents for GI construction. Therefore, the City will rely on funding from outside sources for any implementation of GI beyond the requirements outlined in Provision C.3.b of the MRP.

7.1 Grant Funding Strategies

As a low-income, state-identified disadvantaged community, the City relies on grants to help fund the majority of public projects that occur in the City; GI is no exception. To this end, the City was active in the development of the *CCW SWRP* in order to better prepare the City to secure grant funding for GI development; see Section 2.1.1 for details.

The City plans to seek grant funding for public parcel-based and ROW projects through various dynamic sources. Current state funding opportunities for projects that incorporate GI facilities include Prop 1 (2014)—the "Water Quality, Supply, and Infrastructure Improvement Act of 2014"—and Prop 68 (2018)—the "California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access for All Act of 2018."

Additional potential funding opportunities for ROW projects, which may incorporate GI facilities, include the Greenhouse Gas Reduction Fund from State Cap-and-Trade proceeds. However, many funding sources for ROW projects include many specific requirements, such as a projected reduction in vehicle miles travelled or the inclusion of specific safety improvements. Such requirements can limit the opportunities to incorporate GI; however, the City will continuously review projects and outside funding sources to include GI features whenever possible.

Grant funding opportunities are summarized in Table 14. Many of these opportunities were drawn from the *Roadmap of Funding Solutions for Sustainable Streets* Report produced by the Regional Roundtable on Sustainable Streets, convened by BASMAA in 2017, as well as summary reports produced by the California Natural Resources Agency (CNRA).

Table 14 will be consulted as part of the funding evaluations for priority CIP projects, but does not require the City to apply for these funds nor does it require that the City implement the listed example projects. The City will utilize other local and regional funding opportunities and will seek out additional funding opportunities as needed.

Table 14: Grant Programs to Fund Public GI Project Implementation[12]

Grant Program	Administering Agency	Funding Source	Match Requirements	Example Projects	Funding Timeline
One Bay Area Grant (OBAG) Program	MTC/ABAG	Surface Transportation Block Grant Program (federal) Congestion Mitigation and Air Quality Improvement (federal)	11.47% Locally-funded design is highly encouraged.	ROW projects that incorporate GI as part of streetscape/safety improvement, e.g. Sutter Ave., Market Ave., Giant Rd.	OBAG Round 2 closed 2017.
Active Transportation Program (ATP)	CTC (California Transportation Commission)	Multiple (federal and state)	Not required by CTC. MTC requires 11.47% (may be waived for disadvantaged communities).	ROW projects that incorporate GI as part of streetscape/safety improvement, e.g. Sutter Ave., Market Ave., Giant Rd.	Cycle 4 closed July 2018. Cycle 5 anticipated 2020.
Transportation Development Act (TDA) Article 3	Contra Costa County via MTC/ABAG	TDA (state)	Not required.	ROW projects that incorporate GI as part of intersection safety improvements, e.g. Sutter Ave.	Last funding round closed Winter 2019. Annual funding rounds.
Transportation for Livable Communities	Contra Costa County via MTC/ABAG	Measure J (local)	Not required, but improves score.	ROW projects that incorporate GI as part of bicycle and pedestrian facilities, e.g. Sutter Ave., Market Ave., Giant Rd.	Last funding round closed 2017. Every 4 years.
Safe Routes to School (SRTS)	Contra Costa County via MTC/ABAG	Congestion Mitigation and Air Quality Improvement (federal)	Not required by Congestion Management and Air Quality Improvement funds.	ROW projects that incorporate GI as part of pedestrian safety improvements. As of May 2019, no GI priority projects are within a Safe Routes to School Zone.	Last funding round closed 2017. *SRTS funding overlaps with OBAG and ATP.*

[12] Updated as of May 2019.

Table 14: Grant Programs to Fund Public GI Project Implementation[12]

Grant Program	Administering Agency	Funding Source	Match Requirements	Example Projects	Funding Timeline
Transportation for Clean Air (TFCA)	Bay Area Air Quality Management District	TFCA Regional Fund (state)	10% of total eligible project costs.	ROW projects that incorporate GI as part of new bicycle facilities, e.g. Giant Rd.	Last funding round closed March 2018.
Pedestrian, Bicycle and Trail Facilities	Contra Costa County	Measure J (local)	Not required, but improves score.	ROW projects that incorporate GI as part of bicycle and pedestrian facilities, e.g. Sutter Ave., Market Ave., Giant Rd.	Last funding round closed 2017. Every 4 years.
Storm Water Grant Program (SWGP) – Implementation Grants	State Water Resources Control Board	Prop 1 (state)	Min. 50% (may be reduced for disadvantaged communities).	Multi-benefit projects that include GI, e.g. Sutter Ave., Market Ave., Giant Rd., Moraga Rd. Parcel.	Last round closed 2016. Round 2 anticipated Summer 2019.
Integrated Regional Water Management Implementation Grants	Department of Water Resources	Prop 1 (state)	Min. 50% cost share.	Multi-benefit projects that include GI, e.g. Sutter Ave., Market Ave., Giant Rd., Moraga Rd. Parcel.	Round 1 to close summer 2019. Round 2 anticipated 2020.
Proposition (Prop) 1	State Coastal Conservancy	Prop 1 (state)	Not required, but improves score.	Multi-benefit projects that include GI, e.g. Sutter Ave., Market Ave., Giant Rd., Moraga Rd. Parcel.	Last funding round closed April 2019.
Urban Greening Grant Program	CNRA	Cap-and-Trade funding (state)	Not required, but improves score.	Multi-benefit projects that include GI, e.g. Sutter Ave., Market Ave., Giant Rd., Moraga Rd. Parcel.	Round 3 closed Spring 2019.
San Francisco Bay Water Quality Improvement Grants	US Environmental Protection Agency	Multiple (federal)	Min. 50%.	Multi-benefit projects that include GI, e.g. Sutter Ave., Market Ave., Giant Rd., Moraga Rd. Parcel.	Last funding round closed Dec. 2018.
Cultural Community & Natural Resources	CNRA	Prop 68 (state)	Not required, but improves score.	Projects that enhance park, water, and natural resources and/or develop community resources, e.g. Moraga Rd. Parcel.	Funding round closed Feb. 2019. Likely no future rounds of funding.

Table 14: Grant Programs to Fund Public GI Project Implementation[12]

Grant Program	Administering Agency	Funding Source	Match Requirements	Example Projects	Funding Timeline
Green Infrastructure Program	CNRA	Prop 68 (state)	Not required in draft guidelines.	Multi-benefit projects that include GI, e.g. Sutter Ave., Market Ave., Giant Rd., Moraga Rd. Parcel.	Funding round to open mid-2019.
California River Parkways	CNRA	Prop 68 (state)	Not required, but improves score.	River parkway projects that provide public access along creeks, e.g. projects in Plaza San Pablo that border Wildcat Creek.	Funding round close Sept. 2018. Likely no future rounds of funding.
Environmental Enhancement and Mitigation	CNRA	Prop 68 (state)	Not required, but improves score.	Projects that incorporate GI to mitigate negative impacts of transportation projects, Sutter Ave., Market Ave., Giant Rd.	2019 Grant Cycle closed June 2019. 2020 Grant Cycle to begin Apr. 2020.
California Trails and Greenway Investments	CNRA	Prop 68 (state)	Unclear.	Projects that incorporate GI with trails, e.g. Moraga Rd. Parcel.	Funding round to open mid-2019.
Urban Stormwater and Waterways Improvement Program	CNRA	Prop 68 (state)	Unclear.	Multi-benefit projects that address urban flooding and include GI, e.g. Sutter Ave., Market Ave.	Funding round anticipated to begin late 2019.

The *Roadmap of Funding Solutions for Sustainable Streets* produced by BASMAA's Regional Roundtable compiled a list of key challenges that may constrain the City's ability to utilize grant funding sources:

- ***Ineligible components***: Grant funding might not cover certain project components, e.g. transportation grants might not cover the cost of GI facilities and water quality grants might not cover the cost of transportation facilities.
- ***Ineligible activities***: Grant funding might not cover all project phases, e.g. planning or maintenance.
- ***Matching funds constraints***: Constraints on federal, state, and local eligible matching funds can limit the City's ability to fund a project due to lack of available General Funds or in-kind match.
- ***Lack of funding cycle coordination***: Corridor projects—such as the ROW priorities identified by the City—are large projects that typically require multiple funding sources with different grant application, administration, and completion schedules.
- ***Grant application requirements***: Limited staff capacity in PW (the Department responsible for securing grant funding) limits the number of grants that staff can pursue at a given time.
- ***Grant administration requirements***: Limited staff capacity in PW (the Department responsible for grant management) limits the number of grants that staff can manage at a given time.
- ***Counterproductive scoring mechanisms***: Most competitive grant applications incorporate cost-effectiveness as a key criterion; however, most multi-benefit projects incur significant costs because of the intent to create holistic improvements.

7.2 Local Funding Strategies

The City may evaluate instituting in-lieu fees and/or local alternative compliance for certain types of projects to fund the development of non-regulated GI facilities in public projects located in other regions of the City. No in-lieu fee program will be developed until further analysis has been completed; however, in concept, a potential in-lieu fee would be applied to development within hillside regions (as outlined in Appendix 3.2) and in potentially contaminated lands, where it has been determined that GI facilities may cause a safety or water quality concern. Such an in-lieu fee would fund the developer's "fair share" of GI facility development within the City. The intent is to levy a fee that is approximately equal to what it would have cost to develop the appropriate GI facilities on the proposed project site. The exact value of such a fee is yet to be determined.

Alternative Compliance

The City of San Pablo views local and regional alternative compliance as a key funding opportunity for GI implementation. In 2018, the City began discussions with the Tesoro Refinery, located in Martinez, California, and with the California Department of Transportation (Caltrans) regarding alternative compliance funding, given the limitations that these entities face in constructing on-site GI at particular project locations. The City will continue to build relationships with transportation and industry partners, as well as other outside entities, to address pollutant load reduction requirements throughout the San Francisco Bay watershed.

7.3 Potential Future Regional Funding Strategy

The cities of San Pablo, Walnut Creek, and Richmond (in conjunction with cities across the Bay Area) are proposing to research the feasibility of a water quality trading/banking system. Water quality credit trading and banking systems have been developed across the country as a way to reduce overall compliance costs of reducing pollutant sources within a watershed. Credit trading/banking systems are based on the fact that the cost of controlling pollutant sources may vary substantially depending on the location within a watershed. Trading systems enable locations facing higher pollution control costs to meet regulatory obligations by purchasing environmentally equivalent (or superior) pollution reductions from another source at a lower cost. Establishing a credit banking/trading or alternative compliance system will be very complex with many different legal, regulatory, and political matters to resolve before a program can be implemented. Any commitment to the implementation of an alternative compliance scenario will require regional agreement and is beyond the scope of this Plan. However, the City of San Pablo will actively investigate the viability of these regional systems as a potential funding source for GI facilities in the City.

8 Adaptive Management

8.1 Process for Adaptive Management

The City of San Pablo will amend or update this *GI Plan* as required by the RWQCB. Plan revisions may include updates of implemented public and private GI projects, as well as public GI projects identified for future implementation. As significant changes occur, the City may choose to update the *GI Plan* to reflect the changing environment; otherwise, all changes relevant to GI implementation will be incorporated directly into internal policies and procedures.

The City will employ adaptive management techniques to assess City policies, procedures, and decision processes to allow for continual improvement in *GI Plan* implementation. This learn-implement-evaluate-adjust approach is appropriate for contexts with considerable uncertainty. Identified uncertainties of the *GI Plan* include:

- funding sources and amounts;
- costs of GI implementation (labor, materials, and maintenance);
- rates of private (re)development;
- NPDES permit requirements;
- changing community concerns and priorities;
- infrastructure existing conditions; and
- new technologies.

As projects are identified and built, the City will evaluate project performance, identify internal and external barriers to implementation, document best practices and lessons learned, and adjust for future implementation. This approach will lead to continual improvement and revisiting of the *GI Plan*, along with an evolving list of potential projects.

8.2 Key Areas for Adaptation

Two key areas will greatly influence implementation of the City's *GI Plan*:

1. Future Funding Sources
2. Rates of (Re)Development

8.2.1 Future Funding Sources

Due to California Prop 13, Prop 218, and Prop 26, the City does not currently have the ability to independently raise taxes to implement the projects identified in the *GI Plan*. In 2012, Contra Costa County

Permittees put forth a ballot measure to establish a tax in Contra Costa to help with the compliance costs of the NPDES permit; however, this measure failed. The City will continue to evaluate the feasibility to raise funds for the implementation of this plan through grant sources, fees, or other means. However, until an established funding source can be identified, the City cannot commit to implementation of public projects beyond those identified for completion by 2020 in Section 3.1.

8.2.2 Rates of (Re)Development

The City of San Pablo has no control over the location and timeline for private (re)development in the City. The City will encourage (re)development when applicable, while following all federal, state, and local laws. Due to the limited control over (re)development, the projects and timelines listed in Section 4.1 are projections only, with no implied City commitment to their (re)development.

The City will ensure that all projects regulated under Provision C.3.b, or any other future provisions, will comply with the City's NPDES permit. As rates of development change, and projects are implemented, the City may choose to update the private project list to reflect the current situation. The City envisions this update to occur through the AGOL tool discussed in Section 5.1.

Appendix 1

Definitions

Green Infrastructure Plan Definitions	
Capital Improvement Program (CIP)	Identifies capital projects and equipment purchases, provides a schedule, and identifies options for financing planned projects and purchases.
Complete Streets	A street right-of-way that, through a variety of design and operational treatments, gives priority to pedestrian circulation and open space over other transportation uses. Treatments may include sidewalk widening, landscaping, traffic calming, and other pedestrian-oriented features. Streets may be considered "Complete Green Streets" through the incorporation of GI facilities that capture and treat stormwater.
Contra Costa Clean Water Program (CCCWP)	Comprised of the 19 cities and towns of Contra Costa County, the County, and the Contra Costa County Flood Control and Water Conservation District. Works to protect local creeks, reservoirs, watersheds, Delta, and Bay from contamination and pollution, as required by Federal and State clean water regulations.
***Contra Costa Watersheds Stormwater Resource Plan* (*CCW SWRP*)**	A Plan that identified and prioritized potential multi-benefit stormwater management projects, including GI projects in watersheds and jurisdictions throughout Contra Costa County. Projects identified within the *CCW SWRP* are eligible to apply for future state funding.
Gray Infrastructure	Constructed structures, such as treatment facilities, sewer systems, stormwater systems, or storage basins. The term "gray" refers to the fact that such structures are often made of concrete.
Green Infrastructure (GI)	Storm drainage systems that are designed to reduce runoff volumes, disperse runoff to vegetated areas, harvest and use runoff where feasible, promote infiltration and evapotranspiration, and use bioretention and other natural systems to treat runoff before it reaches nearby water bodies. GI facilities include bioretention facilities, raingardens, pervious pavers, infiltration basins, green roofs, and rainwater harvesting systems.
Low Impact Development (LID)	Systems and practices that use or mimic natural processes to infiltrate stormwater. LID includes GI facilities.
Municipal Regional Stormwater Permit (MRP)	The San Francisco Bay Regional Water Quality Control Board (RWQCB) issued county-wide municipal stormwater permits in the 1990s to operators of MS4s serving populations over 100,000 (Phase 1). On November 19, 2015, the San Francisco Bay RWQCB re-issued these county-wide municipal stormwater permits as one Municipal Regional Stormwater NPDES Permit to regulate stormwater discharges from municipalities and local agencies in Alameda, Contra Costa, San Mateo, and Santa Clara counties, and the cities of Fairfield, Suisun City, and Vallejo.

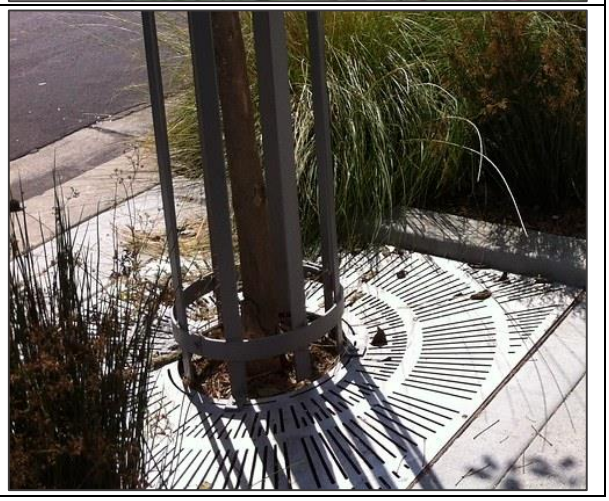
MRP Provision Chapter 3 (C.3)	Provision C.3, of the MRP approved in 2015, requires Permittees to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address stormwater runoff pollutant discharges. This goal is to be accomplished in part through the implementation of LID techniques, such as GI. Projects that surpass the MRP-specified threshold of new or retrofitted impervious surfaces trigger Provision C.3. requirements and are considered "regulated" projects. See the most recent version of the MRP for relevant trigger thresholds. • C.3.b: Provision subsection that requires Permittees to ensure that all regulated projects implement LID source control, site design, and stormwater treatment on-site or at a joint stormwater treatment facility.
MRP Provision Chapter 11 (C.11)	Provision C.11, of the MRP approved in 2015, regulates how Permittees are to reduce mercury from the MS4. • C.11.c: Provision subsection that requires Permittees to plan and implement GI to reduce mercury loads. • C.11.d: Provision subsection that requires Permittees to prepare an implementation plan and schedule to achieve TMDL allocations for mercury.
MRP Provision Chapter 12 (C.12)	Provision C.12, of the MRP approved in 2015, regulates how Permittees are to reduce Polychlorinated Biphenyls (PCBs) from the MS4. • C.12.c: Provision subsection that requires Permittees to plan and implement GI to reduce PCBs loads. • C.12.d: Provision subsection that requires Permittees to prepare an implementation plan and schedule to achieve TMDL allocations for PCBs.
Municipal Separate Storm Sewer System (MS4)	Sewer infrastructure that collects stormwater runoff and directs it to a receiving water body with limited or no water quality treatment. In San Pablo, the receiving water bodies are the creeks, which feed into the Bay.
National Pollutant Discharge Elimination System (NPDES) Permit	A type of permit issued by the RWQCB with the purpose of reducing pollution discharges from stormwater and effectively maintaining public storm drain facilities.
Reasonable Assurance Analysis (RAA)	Provisions C.11/12.c.ii.(2) of the MRP require Permittees to prepare a RAA to demonstrate that pollutant load reductions for the San Francisco PCBs and Mercury TMDLs will be met through a combination of GI Plan implementation and other stormwater management measures.
Stormwater Runoff	Rainfall that flows over the ground surface. It is created when rain falls on roads, driveways, parking lots, rooftops, and other impervious surfaces that do not allow water to soak into the ground.
Total Maximum Daily Load (TMDL)	The calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet water quality standards for that particular pollutant. A TMDL determines a pollutant reduction target and allocates load reductions necessary to the source(s) of the pollutant.
Transit Oriented Development (TOD)	A type of walkable, mixed-use, and sustainable community development centered around public transit.

Green Infrastructure Facility Examples		
Bioretention Facility[13]	A basin designed to capture and infiltrate stormwater into soil below. Bioretention facilities can be designed as a "planter box" (vertical sides) or as a "swale" (sloped sides). If water infiltration is not desired or possible, facilities may include an underdrain to direct filtered water to the MS4. Contaminants and sediment are removed from runoff by the treatment area, which may include a grass buffer strip, sand bed, mulch layer, soil, and/or plants.	
Curb Bulb-Out[14]	A curb extended into a roadway that may calm traffic and reduce the pedestrian crossing distance. GI facilities can be incorporated into curb bulb-outs in order to collect stormwater from the roadway and sidewalks and enhance local aesthetics through landscaping.	
Permeable Pavers[15]	Type of surfacing that allows for stormwater infiltration through the pervious gaps between interlocking pavers into the soil below. Best suited for low-volume roadways, driveways, parking lots, or bicycle and pedestrian facilities.	

[13] Photo: "Right of Way Bioswale" by ChrisHamby under Creative Commons (CC) license. Cropped. commons.wikimedia.org/wiki/File:Right_of_Way_Bioswale.jpg

[14] Photo: "Bioswale" by Eric Fischer under CC license. flickr.com/photos/walkingsf/40369762221

[15] Photo: "Permeable Pavers on Cycle court (4575038342) (2)" by Brett VA under CC license. Cropped. commons.wikimedia.org/wiki/File:Permeable_Pavers_on_Cycle_court_(4575038342)_(2).jpg

Permeable Paving[16]	Type of paving that allows for stormwater infiltration through the porous paved surface into the soil below. Best suited for low-volume roadways, driveways, parking lots, or bicycle and pedestrian facilities.	
Rainwater Harvesting[17]	Systems that collect stormwater runoff from structures or other impervious surfaces for later use. Such systems can range in size from a rain barrel to an above or belowground cistern that may supply indoor and outdoor household demand.	
Tree Well[18]	Tree planting area designed to collect large amounts of stormwater and treat it prior to discharge into the storm drain system or to the subsoil. Tree wells (single tree) or tree trenches (multiple trees) are often located in sidewalks or medians. Tree selection should follow local requirements.	

[16] Photo: "Closeup_of_pavement_with_grass" by Angel caboodle under CC license. Cropped. en.wikipedia.org/wiki/File:Closeup_of_pavement_with_grass.JPG

[17] Photo: "Painted Barrels! (#0646)" by regan76 under CC license. Cropped. flickr.com/photos/j_regan/9005225009

[18] Photo: "IMG_0971" by Brad Davis, AICP under CC license. Cropped. flickr.com/photos/77021165@N03/7998505477

Appendix 2

Mercury and PCBs in the San Francisco Bay

The MRP pollutant-load reduction requirements are driven by the Total Maximum Daily Load (TMDL) threshold adopted by the RWQCB for mercury[19] and PCBs[20]. Each TMDL allocates allowable annual pollutant loads to the Bay (a Waste Load Allocation, or WLA) from identified sources, including from urban stormwater.

Mercury TMDL

The mercury TMDL addresses two (2) water quality objectives. The first applies to fish large enough to be consumed by humans and was established with the intent of protecting the health of people who consume Bay fish. The objective is 0.2 milligrams (mg) of mercury per kilogram (kg) of fish tissue[21]. The second objective applies to small fish (3-5 centimeters in length) commonly consumed by the California least tern, an endangered species of bird. This objective is 0.03 mg mercury per kg fish[22]. In order to achieve these water quality, human health, fish tissue, and bird egg monitoring targets, the Bay-wide suspended sediment mercury concentration must reach 0.2 mg mercury per kg dry sediment.

A decrease of approximately 50% in sediment, fish tissue, and bird egg mercury concentrations is necessary for the Bay to meet water quality standards. Reductions in sediment mercury concentrations are assumed to result in a proportional reduction in the total amount of mercury in the system, which will result in the achievement of target fish tissue and bird egg concentrations.

PCBs TMDL

The PCBs TMDL was developed based on a fish tissue target of ten (10) nanograms (ng) of PCBs per gram (g) of fish tissue. This target is based on a cancer risk of one (1) case per an exposed population of 100,000 for the 95th percentile San Francisco Bay Area sport and subsistence fish consumer[23]. A food web model was developed by the San Francisco Estuary Institute to identify the sediment target concentration that would yield the fish tissue target; this sediment target was found to be one (1) microgram (µg) of PCBs per kg of sediment.

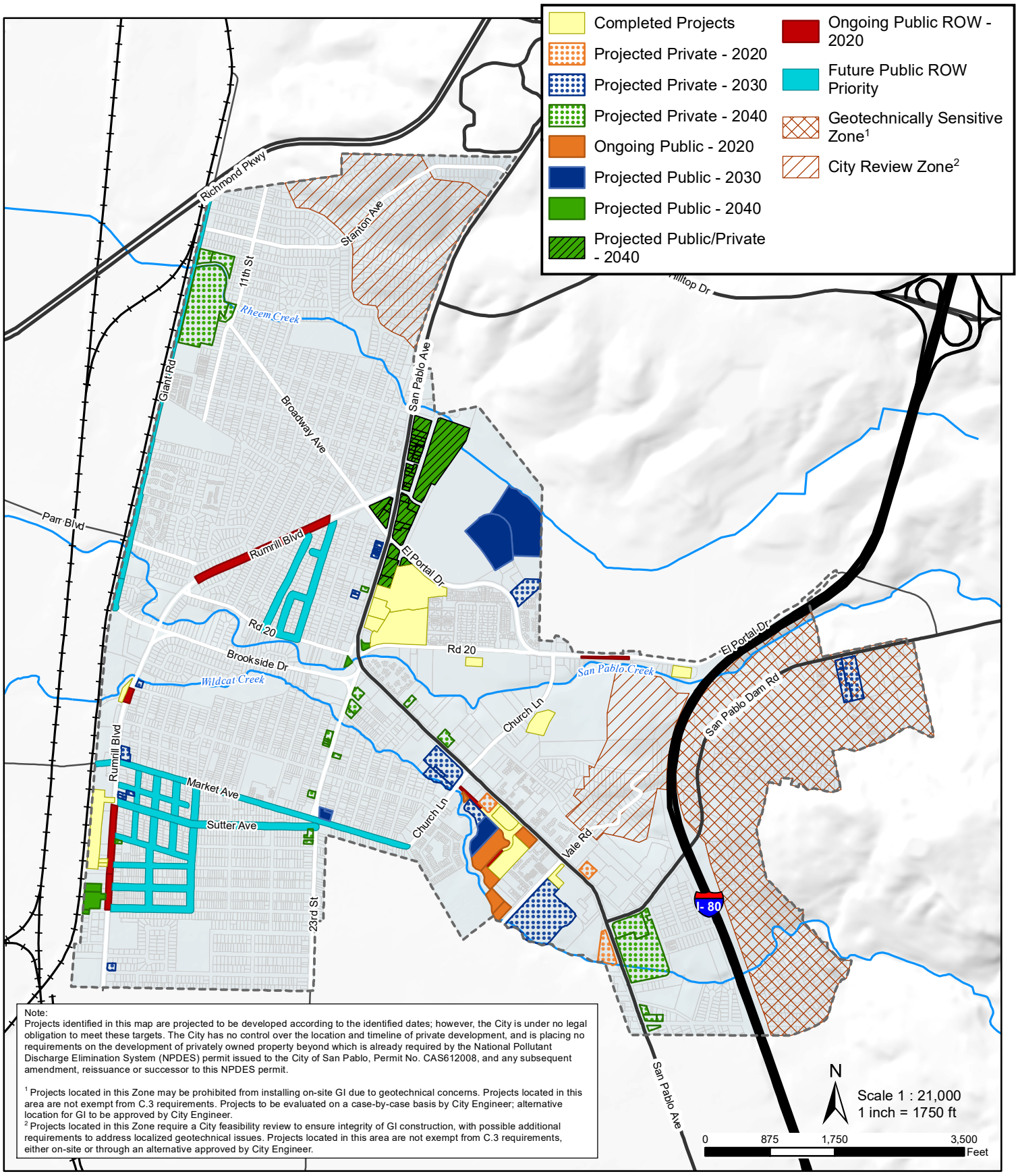
Twenty percent of the estimated allowable PCBs external load was allocated to urban stormwater runoff. The Bay Area-wide WLA for PCBs for urban stormwater is two (2) kg/year by 2030. This value was developed based on applying the required sediment concentration (1 µg/kg) to the estimated annual sediment load discharged from local tributaries.

[19] Order No. R2-2004-0082 and R2-2005-0060.
[20] Order No. R2-2008-0012.
[21] Average wet weight concentration measured in the muscle tissue of fish large enough to be consumed by humans.
[22] Average wet weight concentration.
[23] Assumed consumption of 32 g fish per day.

Appendix 3

San Pablo Green Infrastructure Priority Maps

The following maps identify projected green infrastructure (GI) projects and priority areas, for public and private development, as well as zones with restrictions regarding GI development:



Note:
Projects identified in this map are projected to be developed according to the identified dates; however, the City is under no legal obligation to meet these targets. The City has no control over the location and timeline of private development, and is placing no requirements on the development of privately owned property beyond which is already required by the National Pollutant Discharge Elimination System (NPDES) permit issued to the City of San Pablo, Permit No. CAS612008, and any subsequent amendment, reissuance or successor to this NPDES permit.

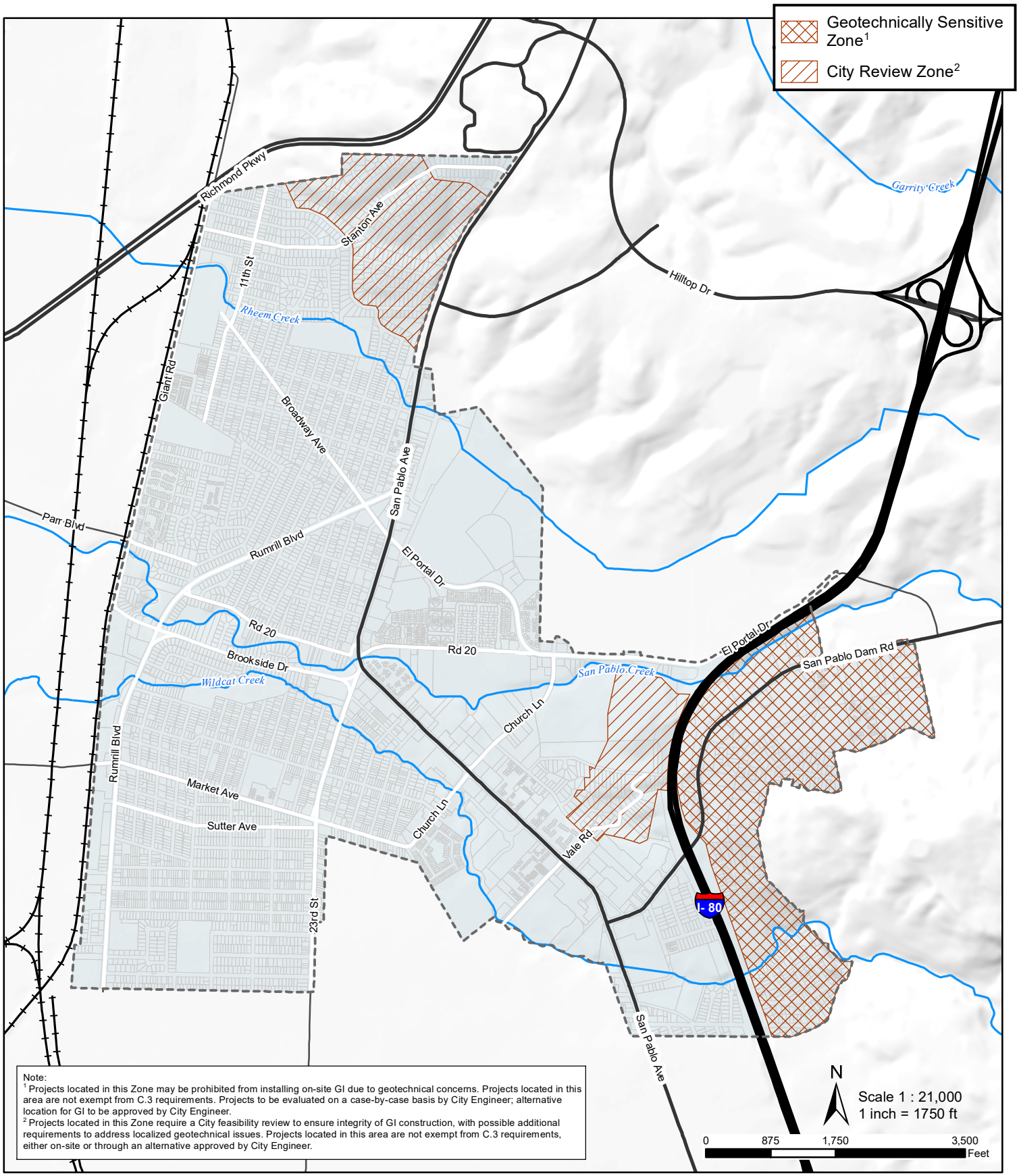
[1] Projects located in this Zone may be prohibited from installing on-site GI due to geotechnical concerns. Projects located in this area are not exempt from C.3 requirements. Projects to be evaluated on a case-by-case basis by City Engineer; alternative location for GI to be approved by City Engineer.
[2] Projects located in this Zone require a City feasibility review to ensure integrity of GI construction, with possible additional requirements to address localized geotechnical issues. Projects located in this area are not exempt from C.3 requirements, either on-site or through an alternative approved by City Engineer.

CITY OF SAN PABLO
City of New Directions

San Pablo
All-America City
NATIONAL CIVIC LEAGUE
2014

Figure 1: Green Infrastructure Priority Areas

City of San Pablo



Note:
[1] Projects located in this Zone may be prohibited from installing on-site GI due to geotechnical concerns. Projects located in this area are not exempt from C.3 requirements. Projects to be evaluated on a case-by-case basis by City Engineer; alternative location for GI to be approved by City Engineer.
[2] Projects located in this Zone require a City feasibility review to ensure integrity of GI construction, with possible additional requirements to address localized geotechnical issues. Projects located in this area are not exempt from C.3 requirements, either on-site or through an alternative approved by City Engineer.

CITY OF SAN PABLO
City of New Directions

San Pablo
All-America City
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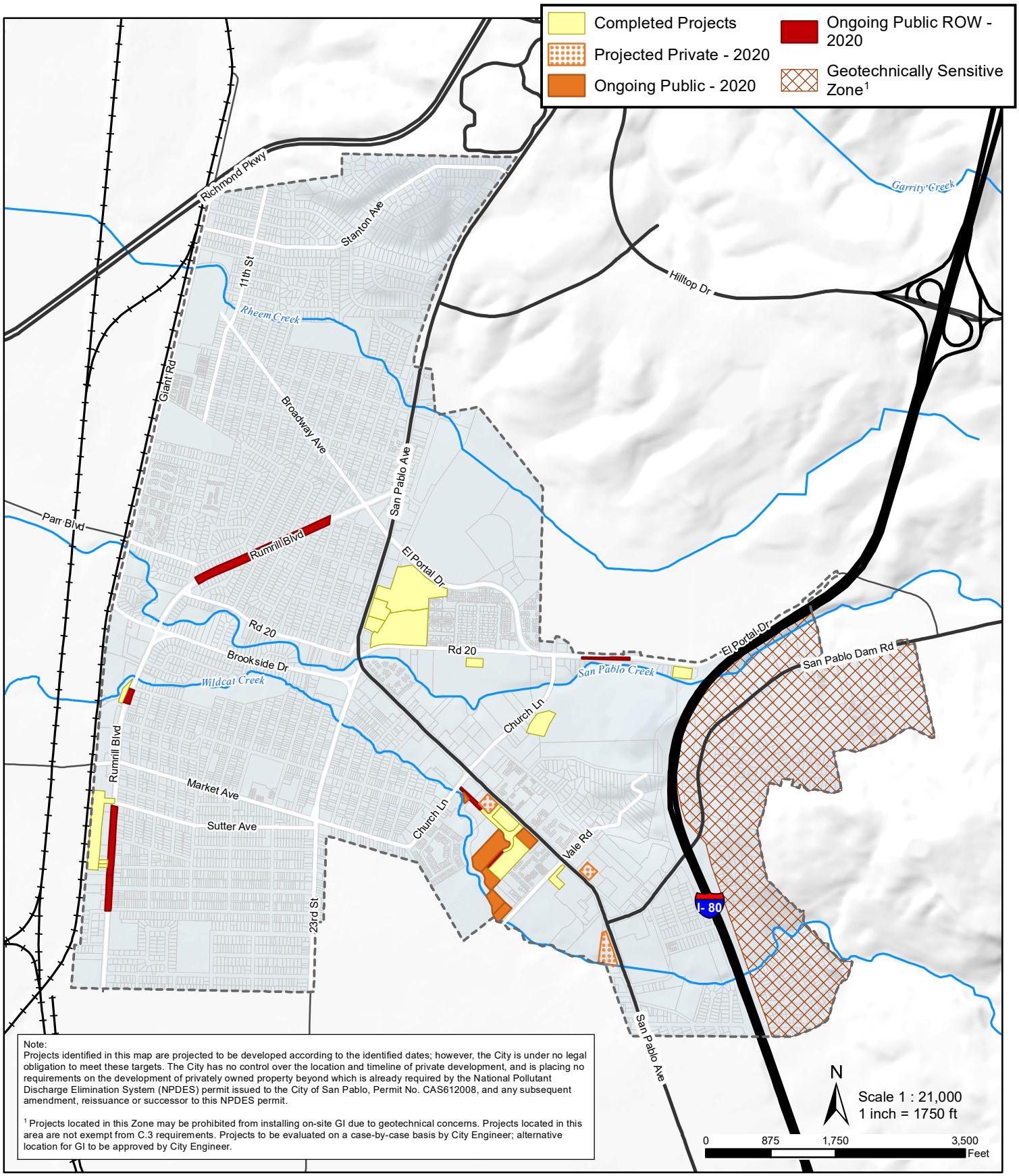
2014

Figure 2: Green Infrastructure Restricted Zones

City of San Pablo



Note:
Projects identified in this map are projected to be developed according to the identified dates; however, the City is under no legal obligation to meet these targets. The City has no control over the location and timeline of private development, and is placing no requirements on the development of privately owned property beyond which is already required by the National Pollutant Discharge Elimination System (NPDES) permit issued to the City of San Pablo, Permit No. CAS612008, and any subsequent amendment, reissuance or successor to this NPDES permit.

[1] Projects located in this Zone may be prohibited from installing on-site GI due to geotechnical concerns. Projects located in this area are not exempt from C.3 requirements. Projects to be evaluated on a case-by-case basis by City Engineer; alternative location for GI to be approved by City Engineer.

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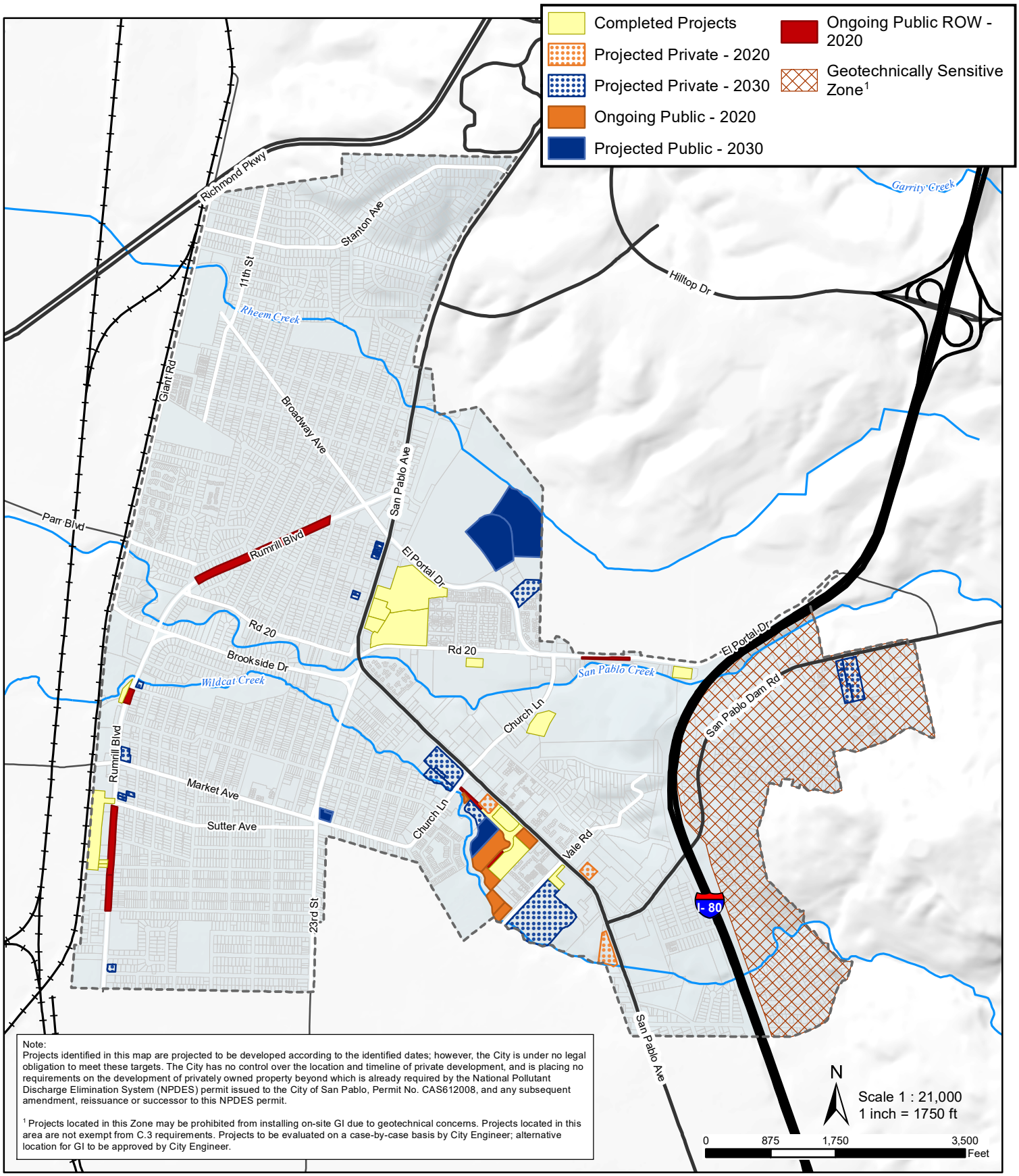
2014

Figure 3: Green Infrastructure Priority Areas - 2020

City of San Pablo



Note:
Projects identified in this map are projected to be developed according to the identified dates; however, the City is under no legal obligation to meet these targets. The City has no control over the location and timeline of private development, and is placing no requirements on the development of privately owned property beyond which is already required by the National Pollutant Discharge Elimination System (NPDES) permit issued to the City of San Pablo, Permit No. CAS612008, and any subsequent amendment, reissuance or successor to this NPDES permit.

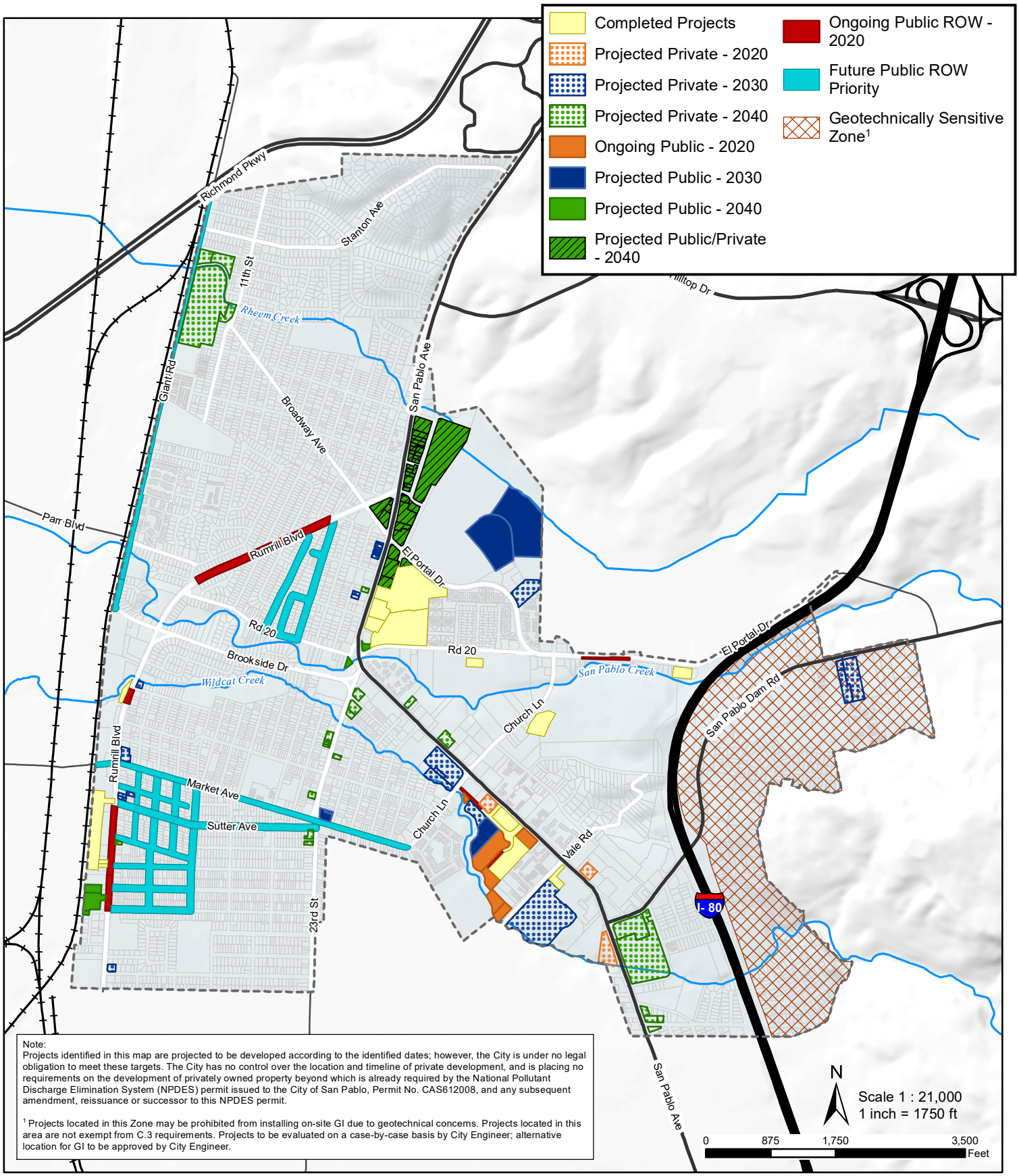
[1] Projects located in this Zone may be prohibited from installing on-site GI due to geotechnical concerns. Projects located in this area are not exempt from C.3 requirements. Projects to be evaluated on a case-by-case basis by City Engineer; alternative location for GI to be approved by City Engineer.

CITY OF SAN PABLO
City of New Directions

San Pablo
All-America City
NATIONAL CIVIC LEAGUE
2014

Figure 4: Green Infrastructure Priority Areas - 2030

City of San Pablo



Note:
Projects identified in this map are projected to be developed according to the identified dates; however, the City is under no legal obligation to meet these targets. The City has no control over the location and timeline of private development, and is placing no requirements on the development of privately owned property beyond which is already required by the National Pollutant Discharge Elimination System (NPDES) permit issued to the City of San Pablo, Permit No. CAS612008, and any subsequent amendment, reissuance or successor to this NPDES permit.

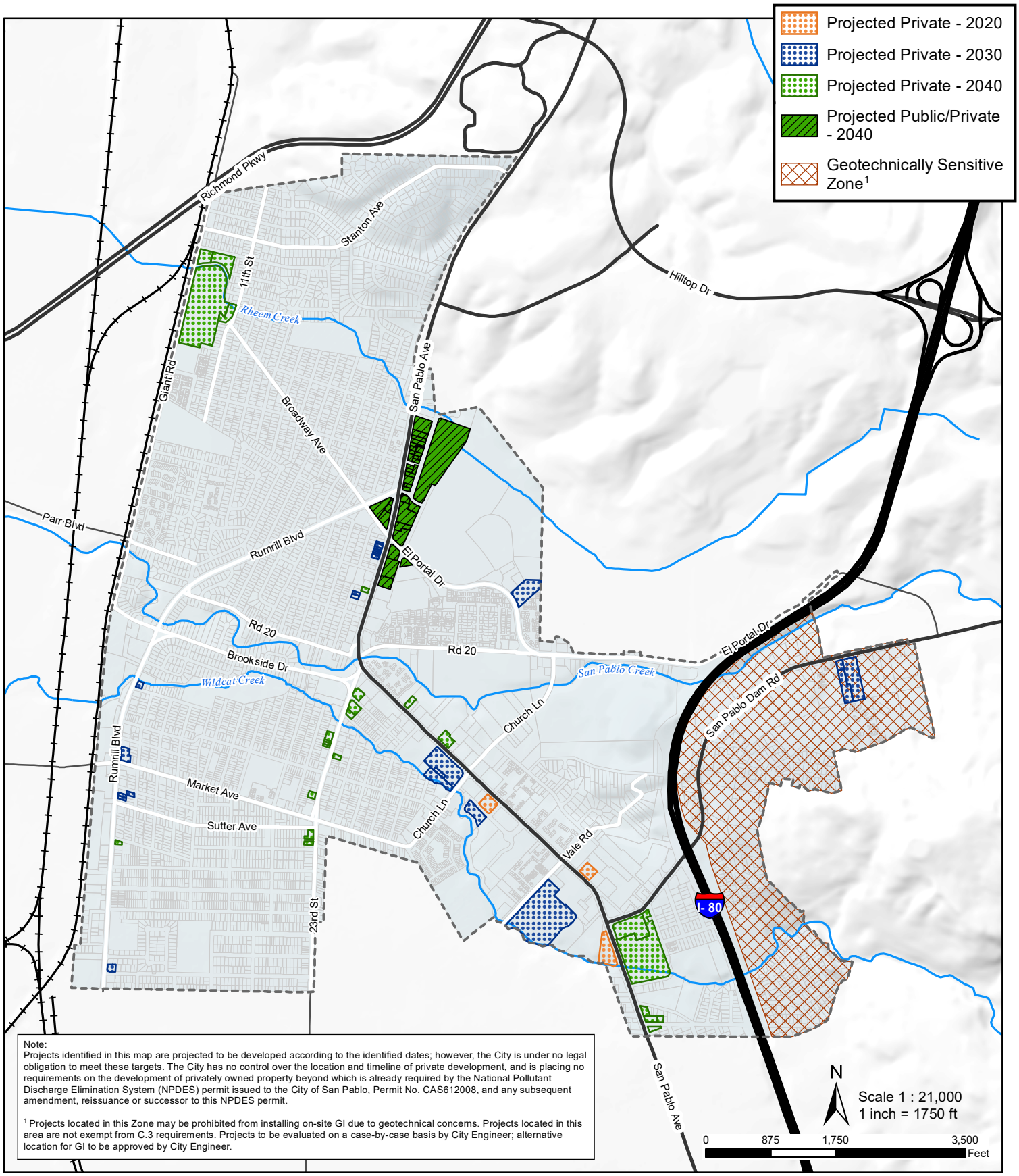
[1] Projects located in this Zone may be prohibited from installing on-site GI due to geotechnical concerns. Projects located in this area are not exempt from C.3 requirements. Projects to be evaluated on a case-by-case basis by City Engineer; alternative location for GI to be approved by City Engineer.

CITY OF SAN PABLO
City of New Directions

San Pablo
All-America City
NATIONAL CIVIC LEAGUE
2014

Figure 5: Green Infrastructure Priority Areas - 2040

City of San Pablo

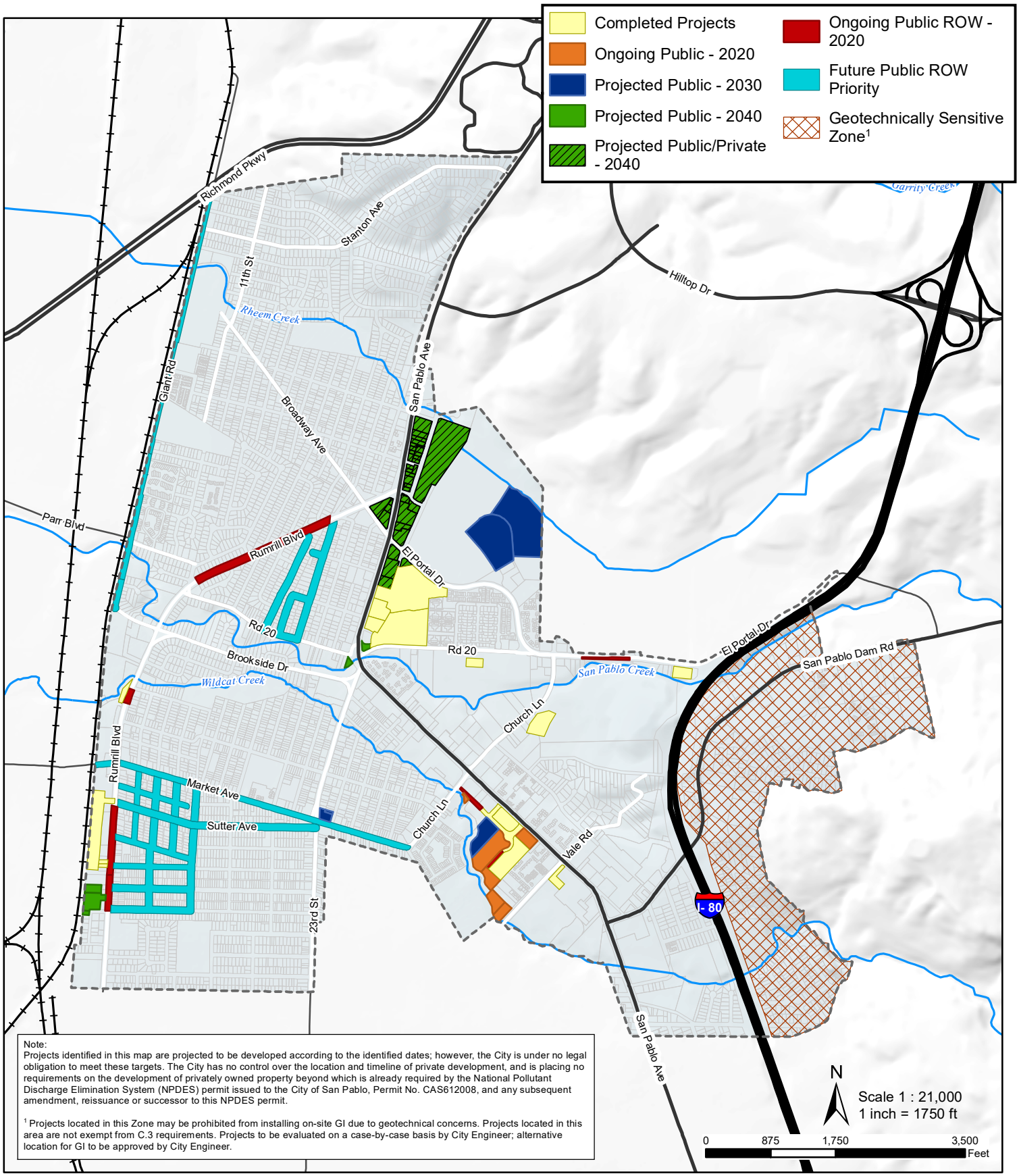


CITY OF SAN PABLO
City of New Directions

San Pablo
All-America City
NATIONAL CIVIC LEAGUE
2014

Figure 6: Potential Green Infrastructure Development - Private

City of San Pablo



Note:
Projects identified in this map are projected to be developed according to the identified dates; however, the City is under no legal obligation to meet these targets. The City has no control over the location and timeline of private development, and is placing no requirements on the development of privately owned property beyond which is already required by the National Pollutant Discharge Elimination System (NPDES) permit issued to the City of San Pablo, Permit No. CAS612008, and any subsequent amendment, reissuance or successor to this NPDES permit.

[1] Projects located in this Zone may be prohibited from installing on-site GI due to geotechnical concerns. Projects located in this area are not exempt from C.3 requirements. Projects to be evaluated on a case-by-case basis by City Engineer; alternative location for GI to be approved by City Engineer.

CITY OF SAN PABLO
City of New Directions

San Pablo
All-America City
NATIONAL CIVIC LEAGUE
2014

Figure 7: Potential Green Infrastructure Development - Public

City of San Pablo

Appendix 4

Recommended Planning Document Updates

The following identifies potential updates to key City planning and policy documents to support the implementation of the *City of San Pablo Green Infrastructure (GI) Plan*, per Provision C.3.j.i.(2)(h) of the MRP.

The outlined recommendations are a starting point for incorporating GI implementation language into future plans to facilitate efficient GI planning, design, construction, and maintenance within San Pablo. It is the intent of the City to consider incorporating language to support implementation of the *GI Plan* into any new or amended City plans. Recommended revisions will require consideration by the appropriate entities (e.g. Planning Commission, City Council) in a public process.

Potential updates are formatted with existing planning document text as normal text, deleted text is ~~red with strikethrough~~, and new text is red and underlined. Page numbers and general framing comments are *italicized in green*.

Appendix 4.1

San Pablo General Plan 2030

Chapter 9: Safety & Noise

9.1 Seismic and Geoglogic Hazards

GEOLOGY

P. 9-2

The "hillside zone" of the city is comprised of steep to moderate sloping hillside areas in two locations: (1) The eastern and southeastern portions of the city on the northwestern flank of San Pablo Ridge, generally aboce 100 feet in elevation, and (2) the northern portion of the city, generally above 60 feet in elevation. Most of the bedrock consists of non-marine sedimentary rocks, consisting of weakly consolidated pebble, conglomerate, sandstone, claystone and siltstone. The hills in San Pablo form part of a system of foothills that is ultimately connected to the Diablo Range south of the region.

As a result of the geotechnical sensitivity of the "hillside zone" of the City, development in these areas will be guided by the provisions outlined in the City's Hillside Overlay Zoning District as well as the "City Review" and "Geotechnically Sensitive" zones identified in the *City of San Pablo Green Infrastructure (GI) Plan.*

IMPLEMENTING POLICIES

P. 9-7

SN-I-7 Ensure that green infrastructure (GI) development, as required by the most recent version of the Municipal Regional Stormwater Permit (MRP) and guided by the *City of San Pablo GI Plan* and the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook,* is implemented according to the "City Review" and "Geotechnically Sensitive" zones identified in the *City of San Pablo GI Plan*.

9.2 Flood Hazards

P. 9-7

Floo~~r~~d-prone areas in San Pablo are generally located in topographically low areas and in areas close to ~~shorelines and~~ creeks.

MITIGATION OF FLOOD HAZARDS

Storm Drainage Management

P. 9-10

The Public Works ~~Division~~ Department performs cleaning and maintenance activities on creeks, drainage channels, pipes and catch basins in City easements and rights-of-way in accordance with an established schedule and other standard operating procedures. The City encourages homeowners with property along the creeks to ~~help~~ keep them clear of obstructions and to purchase flood insurance as a precaution. By way of City ordinance, it is illegal to dump trash, leaves, landscape debris, paint, greaes, or any other material into any portion of the City's drainage system, and it is illegal to construct structures in the creek channels, regardless of private ownership.

The development of green infrastructure (GI) facilities, either voluntarily or as required by the most recent version of the Municipal Regional Stormwater Permit (MRP), is a strategy to help address storm drain management issues by encouraging stormwater infiltration and slowing the flow of water entering the storm drain system. See the *City of San Pablo GI Plan* and the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* for additional resources and details regarding GI implementation requirements.

IMPLEMENTING POLICIES

P. 9-12

SN-I-~~7~~8 Continue to minimize the risk of flooding ~~to development~~ through the development review process. Require new development within a flood plain to comply with the City's Floodplain Management and Flood Damage Prevention Ordinance and to submit hydrologic studies, identify site development and construction methods, and implement appropriate mitigation measures to minimize surface water run-off.

Developers will be required to provide an assessment of a project's potential impacts on the local storm drainage system as part of the development review process. If development is found to have a negative impact on storm drainage, mitigation measures such as the creation of permanent or temporary detention or retention basins, provision of additional landscaped areas and green roofs, installation of pump stations, and the use of permeable paving in driveways, walkways and parking areas, may be required. Developers shall refer to the City of San Pablo Green Infrastructure (GI) Plan *and the most recent edition of the Contra Costa Clean Water Program* Stormwater C.3 Guidebook *for additional resources and details regarding GI construction.*

P. 9-13

Additional policies to control stormwater and reduce urban runoff are in the 'Wastewater and Stormwater' section of the Parks, Schools, Community Facilities and Utilities Element. Refer to the City of San Pablo

Green Infrastructure (GI) Plan *and the most recent edition of the Contra Costa Clean Water Program* Stormwater C.3 Guidebook *for additional resources and details regarding GI construction.*

Appendix 4.2

City of San Pablo, California Zoning Ordinance

ARTICLE III ZONING DISTRICT, ALLOWED USES, AND DEVELOPMENT STANDARDS

Chapter 17.27 Implementation of Green Infrastructure Facilities

Sections in this chapter:

17.27.010 Purpose

The purpose of this chapter is to protect and enhance the water quality in the City of San Pablo's watercourses through the implementation of the Municipal Regional Stormwater Permit (MRP), as issued by the California Regional Water Quality Control Board (RWQCB) for the San Francisco Bay Region in order to comply with the National Pollutant Discharge Elimination System (NPDES) program under the Federal Clean Water Act.

17.27.020 Applicability

The MRP is applicable in all areas of the City on all projects that meet or surpass the development thresholds identified in the most recent version of the MRP and detailed in the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook.* All development within the City must comply with Chapter 8.40 of the *San Pablo Municipal Code* (Stormwater Management and Discharge Control).

17.27.030 *Green Infrastructure Plan*

The *City of San Pablo Green Infrastructure (GI) Plan* was adopted by resolution of the City Council, as required by the MRP 2.0 (RWQCB San Francisco Bay Region MRP Order No. R2-2015-0049, NPDES Permit No. CAS612008). Development of GI facilities within the City of San Pablo, either as a voluntary project

feature or as required for projects regulated by the MRP, shall refer to the City's *GI Plan* for guidelines and specifications for GI facilities.

17.27.040 Green Infrastructure Zones

A. City Review Zone. The "City Review" zone in the *City of San Pablo GI Plan* identifies areas within the City in which a feasibility review is required for the development of GI facilities. Projects located in a City Review zone that are regulated under the most recent version of the MRP are not exempt from any applicable GI requirements. On-site compliance with GI requirements for projects located in a City Review zone may be required by the City to incorporate special structural elements in order to address local geotechnical conditions and ensure integrity of GI construction. Approval by City Engineer required for on-site development of GI or for an off-site compliance alternative.

B. Geotechnically Sensitive Zone. The "Geotechnically Sensitive" zone in the *City of San Pablo GI Plan* identifies areas within the City in which projects may be prohibited from installing on-site GI due to geotechnical concerns. Projects located in a Geotechnically Sensitive zone that are regulated under the most recent version of the MRP are not exempt from any applicable GI requirements. On-site compliance with GI requirements for projects located in a Geotechnically Sensitive zone may be required by the City to incorporate special structural elements in order to address local geotechnical conditions and ensure integrity of GI construction. Approval by City Engineer is required for on-site development of GI or for an off-site compliance alternative.

Appendix 4.3

San Pablo Municipal Code

Chapter 8.40 STORMWATER MANAGEMENT AND DISCHARGE CONTROL

8.40.010 Intent and purpose.

C. It is the purpose of the city council in enacting this chapter to protect the health, safety and general welfare of San Pablo's citizens by:

1. Minimizing non-stormwater discharges, whose pollutants would otherwise degrade the water quality of local streams, to the stormwater system.

2. Minimizing increases in nonpoint source pollution caused by stormwater runoff from development that would otherwise degrade local water quality.

3. Controlling the discharge to the city's stormwater system from spills, dumping or disposal of materials other than stormwater.

4. Reducing stormwater run-off rates and volumes and nonpoint source pollution whenever possible, through stormwater management controls and ensuring that these management controls are properly maintained and pose no threat to public safety. (Ord. 2016-006 § 1 (part), 2016: Ord. 05-001 § 1 (part), 2005)

5. Using the *City of San Pablo Green Infrastructure (GI) Plan* to guide public and private development of GI facilities in the City.

8.40.020 Definitions.

"Enforcement officer or officer" shall mean those individuals designated by the director to act as authorized enforcement officers.

"Green infrastructure" or "GI" shall mean the construction and retrofit of storm drainage systems to reduce runoff volumes, disperse runoff to vegetated areas, harvest and use runoff where feasible, promote infiltration and evapotranspiration, and use bioretention and other natural systems to detain and treat runoff.

"*GI Plan*" shall mean the *City of San Pablo Green Infrastructure Plan* adopted by resolution by the City Council.

"Guidebook" shall mean the most recent version of the Contra Costa Clean Water Program Stormwater C.3. Guidebook.

8.40.050 Stormwater control plan required.

A. In accordance with thresholds and effective dates in the city's NPDES permit, every application for a development project, including but not limited to a rezoning, tentative map, parcel map, conditional use

permit, variance, site development permit, design review, or building permit that is subject to the development runoff requirements in the city's NPDES permit shall be accompanied by a stormwater control plan that meets the criteria in the most recent version of the Contra Costa Clean Water Program Stormwater C.3. Guidebook and the most recent version of the *City of San Pablo GI Plan*.

Appendix 4.4

San Pablo Avenue Specific Plan

As part of the upcoming General Plan *update, the* San Pablo Avenue Specific Plan *may be updated or a new targeted plan may be created to guide the development of San Pablo's major corridors. Should the* San Pablo Avenue Specific Plan *be updated, the following changes will be recommended for incorporation. All amendments to specific plans require a public hearing process following a public notice; thus, exact updates are subject to change. If a new targeted plan is created, then the intent of the following changes may be incorporated into the content of the new plan.*

Chapter 4: Urban Design and Building Development Standards

4.2 STREETSCAPE DESIGN

Streetscape Plan

P. 4-21

Additional items the community wanted to see included trash receptacles, security cameras, enhanced landscaping—such as green infrastructure facilities, which are specially designed landscaped areas that provide additional benefits like stormwater filtration and localized flood control—, and the undergrounding of electrical lines.

GUIDING POLICIES

P. 4-30

4-G-11 Design the streetscape at the pedestrian scale with wide sidewalks, bike lanes, and amenities for pedestrians and cyclists such as bike racks, comfortable street furnishings, sufficient and attractive lighting, green infrastructure facilities, and street trees for shading and aesthetics.

IMPLEMENTING POLICIES

P. 4-30

4-I-33 Where possible, provide curb bulb-outs—which may incorporate green infrastructure facilities— at street corners and midblock crossings to calm traffic and heighten pedestrian visibility and comfort.

P. 4-31

San Pablo Avenue

4-I-37 Create a clear identity for San Pablo Avenue by developing a comprehensive master streetscape plan that:

- Provides wide sidewalks, pedestrian-scaled lighting, shade, multi-benefit landscaping—like green infrastructure—~~planters,~~ and benches.
- Provides landscaped medians—incorporating green infrastructure when possible—that alternate as turn lanes where the width of the street permits and provide pedestrian refuge at midblock crossings.

P. 4-32

4-I-41 Employ the use of rain gardens—or other green infrastructure facilities—~~in planting areas and~~ curb extensions, and median islands to provide retention basins and improved stormwater management along San Pablo Avenue.

IMPLEMENTING POLICIES

P. 4-34

4-I-49 Provide wide sidewalks for areas that allow outdoor seating and uses. Ensure that these areas are buffered from the street edge through landscaping or low physical barriers such as bollards or green infrastructure facilities~~planters~~.

4.2 DEVELOPMENT STANDARDS AND BUILDING DESIGN GUIDELINES

TABLE 4-1 DEVELOPMENT STANDARDS BY LAND USE

p. 4-41

OPEN SPACE	
Green Infrastructure	Refer to the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* for green infrastructure requirements. Refer to the *City of San Pablo Green Infrastructure Plan* for additional green infrastructure details and resources.

Open Space

P. 4-49

DG-22 Limit hardscape to a maximum of 50% of required private common open space. Encourage the use of pervious materials to assist in stormwater management. Refer to the most recent edition

of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* for drainage and green infrastructure requirements.

P. 4-50

DG-25 Encourage sustainable landscape design with the use of hardy, native, low-water consumption, drought-tolerant planting, as well as stormwater management systems. Utilize bioswales, ~~and~~ rain gardens, or other forms of green infrastructure in street medians, ~~or~~ landscaped buffers or curb bulb-outs. Employ moisture-sensitive irrigation systems.

Chapter 5: Utilities and Public Services

5.1 UTILITIES

Storm Drainage

P. 5-4

Under the NPDES permit issued by the Regional Water Quality Control Board, San Francisco Bay Region, the City requires new development to treat storm water runoff using methods such as infiltration prior to discharge to the city storm drain system and creeks. Refer to the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* and the *City of San Pablo Green Infrastructure Plan* for additional details and resources.

Chapter 8: Environment, Health, and Safety

8.1 WATER QUALITY AND FLOODING

Low Impact Development

P. 8-4

The proposed redevelopment in the Planning Area will employ low impact development techniques in order to capture and treat stormwater runoff at its source, as required by the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* and guided by the *City of San Pablo Green Infrastructure Plan.* On-site treatment reduces the amount of pollutants picked up in comparison to stormwater that drains to a central collection site.

IMPLEMENTING POLICIES

P. 8-4

8-I-1 Require development in the San Pablo Avenue Specific Plan Planning Area to include low impact development features to reduce stormwater pollutant loads and increase on-site infiltration, consistent with General Plan policy PSCU-I-34. Refer to the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* and the *City of San Pablo Green Infrastructure Plan* for additional details and resources. ~~Features should be drawn from the Bay Area Stormwater Management Agency's "Start at the Source Design Guidance Manual for Stormwater Quality protection."~~ Ensure the update of zoning stormwater management standards pursuant to General Plan policy PSCU-I-34 includes provisions for stronger stormwater management on sites within 300 feet of creeks in the Planning Area, with an emphasis on maintaining or restoring the natural character of the water feature.

8.4 HAZARDOUS MATERIALS AND AIR TOXICS

Toxic Air Contaminants

GUIDING POLICIES

P. 8-13

8-G-4 Ensure that infill and redevelopment in the San Pablo Avenue Specific Plan corridor minimize exposure to hazardous materials and toxic air contaminants. Green infrastructure facilities may not be appropriate in areas with soil toxicity concerns.

Chapter 9: Implementation

9.2 IMPLEMENTATION MEASURES

TABLE 9-2 IMPLEMENTATION PLAN

p. 9-3

Construct pedestrian streetscape improvements per figures 4-7, 4-9, and 4-11. This includes installing street trees, green infrastructure facilities~~planters~~, signage, lighting, gateway features, and other pedestrian amenities within the right-of-way. Efforts should be focused on Pedestrian Priority Zones, as identified in Figure 3-3: Accessibility.

Appendix 4.5

23rd Street Specific Plan

As part of the upcoming General Plan *update, the* 23rd Street Specific Plan *may be updated or a new targeted plan may be created to guide the development of San Pablo's major corridors. Should the* 23rd Street Specific Plan *be updated, the following changes will be recommended for incorporation. All amendments to specific plans require a public hearing process following a public notice; thus, exact updates are subject to change. If a new targeted plan is created, then the intent of the following changes may be incorporated into the content of the new plan.*

Chapter 4: GOALS AND POLICIES

B. Goals and Policies

1. Land Use

P. 4-2

Policy LU-2.3: Require outdoor components of new development to include design or construction components that minimize impacts to adjacent uses, for example green infrastructure that improves the local aesthetic and drainage.

2. Urban Design

P. 4-2

Policy UD-1.3: Encourage environmentally sensitive, green building construction and green infrastructure development to address water quality and drainage in the Plan Area.

6. Green Building and Sustainability

P. 4-7

Policy GRN-2.1: Provide incentives for buildings and construction methods that minimize energy use, reduce waste and limit stormwater runoff. Ensure compliance with regional stormwater management requirements, as found in the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* and guided by the *City of San Pablo Green Infrastructure Plan*.

Chapter 5: LAND USE

C. Open Space

1. Allowed Uses

P. 5-3

Non-recreational open space includes cemeteries, utility easements, flood control facilities—such as green infrastructure facilities—and related open areas for infrastructure facilities.

E. Infrastructure

P. 5-6

It is anticipated that these improvements will accommodate any additional runoff generated by development in the Plan Area. However, all new development must comply with on-site stormwater management requirements, as described in the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook*. For additional resources regarding on-site stormwater management, refer to the *City of San Pablo Green Infrastructure Plan*.

Chapter 6: DEVELOPMENT STANDARDS

DEVELOPMENT STANDARDS: 23RD STREET SPECIFIC PLAN AREA

P. 6-20

10. STORMWATER MANAGEMENT New development and significant redevelopment projects shall comply with the C.3 provisions of the city of San Pablo national pollutant discharge elimination system (NPDES) permit.	10.1 Stormwater Management *Add at end of section* Refer to the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* and the *City of San Pablo Green Infrastructure Plan* for additional details and resources.

Appendix 4.6

City of San Pablo Bicycle & Pedestrian Master Plan

Chapter 6: Implementation Strategy

Maintenance Costs

P. 6-4

On-street bikeways should be maintained as part of the normal roadway maintenance program. Emphasis should be placed on keeping bicycle lanes and roadway shoulders clear of debris and keeping vegetation overgrowth from blocking visibility. Landscaping adjacent to bicycle and pedestrian facilities, such as green infrastructure facilities, should be regularly maintained in order to ensure proper facility drainage and positive aesthetics for cyclists and pedestrians. See the *City of San Pablo Green Infrastructure Plan* for resources and design guidelines.

Appendix A Review of Existing Plans and Policies

City Plans and Policies

23rd Street Specific Plan (2007)

Streetscape Design

Guiding Policies

P. A-26

4-G-11: Design the streetscape at the pedestrian scale with wide sidewalks, bike lanes, and amenities for pedestrians and cyclists such as bike racks, comfortable street furnishings, sufficient and attractive lighting, green infrastructure facilities, and street trees for shading and aesthetics.

Implementing Policies

P. A-26

4-I-33: Where possible, provide curb bulb-outs—which may incorporate green infrastructure facilities—at street corners and midblock crossings to calm traffic and heighten pedestrian visibility and comfort.

P. A-26

San Pablo Avenue

4-I-37: Create a clear identity for San Pablo Avenue by developing a comprehensive master streetscape plan that:

- Provides wide sidewalks, pedestrian-scaled lighting, shade, multi-benefit landscaping—like green infrastructure—~~planters,~~ and benches.
- Provides landscaped medians—incorporating green infrastructure when possible—that alternate as turn lanes where the width of the street permits and provide pedestrian refuge at midblock crossings.

Appendix 4.7

City of San Pablo Climate Action Plan

After reviewing the City of San Pablo Climate Action Plan*, it was determined that no updates were necessary to facilitate the implementation of the City's* Green Infrastructure (GI) Plan*. The City's* GI Plan *will inform the next* Climate Action Plan *update process, and language to facilitate the implementation of the City's* GI Plan *will be incorporated as relevant to identified strategies.*

Appendix 4.8

Davis Park Master Plan

DESIGN CONSIDERATIONS

REGULATORY REQUIREMENTS

P. 20

- **RWQCB**: The Regional Water Quality Control Board's (RWQCB) mission is to preserve, enhance and restore the quality of California's water resources, which includes managing construction-related discharge of stormwater runoff. Adhering to the 2001 National Pollutant Discharge Elimination System (NPDES) requirements, project owners disturbing more than one-acre of land must obtain a General Permit for Discharges of Storm Water Associated with Construction Activity from the RWQCB prior to commencing construction activities. Refer to the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* and the *City of San Pablo Green Infrastructure Plan* for additional details and resources.

- **C.3**: Effective August 15, 2006, provision C.3 of the revised 2003 NPDES permit requires that new and redevelopment projects that create or replace more than 10,000 square feet of impervious area must treat and/or detain stormwater runoff before it is discharged to creeks or storm drains. Refer to the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* and the *City of San Pablo Green Infrastructure Plan* for additional details and resources.

PARK MASTER PLAN

STORMWATER TREATMENT

P. 32

Several additional green infrastructure measures should also be considered to improve stormwater treatment and increase infiltration on the site.

P. 33

The above and other stormwater treatment and detention strategies should be employed as needed to meet the requirements of provision C.3 and manage pollutant discharge into the storm system. Refer to the *City of San Pablo Green Infrastructure Plan* for additional details and resources.

P. 33

OPERATIONS AND ~~MAITENANCE~~MAINTENANCE

Appendix 4.9

City of San Pablo Storm Drain Master Plan

After reviewing the City of San Pablo Storm Drain Master Plan*, it was determined that no updates were necessary to facilitate the implementation of the City's* Green Infrastructure Plan*. The* Storm Drain Master Plan *was used to inform the* Green Infrastructure Plan *regarding locations that are well suited for green infrastructure development to address flooding concerns.*

Appendix 4.10

City of San Pablo Master Landscape Plan

The City of San Pablo Master Landscape Plan *should incorporate references to the most recent edition of the Contra Costa Clean Water Program* Stormwater C.3 Guidebook *upon the next update of the* Master Landscape Plan*.*

C3 BIOSWALE PLANTING GUIDE

The following is a general guide for the purpose of promoting an acceptable condition for the starting of a tree/shrub in a bio-retention facility (bioswale). Not all conditions will allow complete adherence, but it ~~will~~ is imperative that these guide-lines be followed as closely as possible. Refer to the *City of San Pablo Green Infrastructure Plan* and the most recent edition of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* for additional details and resources regarding green infrastructure requirements and design. See the City's website for typical details and specifications for green infrastructure design and construction.

Appendix 5

Contra Costa Clean Water Program Countywide Attainment Draft Memorandum

The following draft memorandum was produced by Geosyntec Consultants for the Contra Costa Clean Water Program (CCCWP) regarding the Reasonable Assurance Analysis (RAA) and Countywide Attainment Strategy.

Geosyntec consultants

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Oakland, California 94607
PH 510.836.3034
FAX 510.836.3036
www.geosyntec.com

DRAFT Memorandum

Date:	May 1, 2019
To:	Courtney Riddle and Lucile Paquette, Contra Costa Clean Water Program
Copy:	Dan Cloak, Dan Cloak Environmental Consulting
From:	Lisa Austin, Principal; Kelly Havens, Senior Engineer; and Austin Orr, Professional Engineer
Subject:	Reasonable Assurance Analysis Countywide Attainment Strategy Geosyntec Project Number: WW2407

1. BACKGROUND

1.1 Regulatory Requirements

Provisions C.11/12.c.ii.(2) of the Municipal Regional Permit (MRP) require Permittees to prepare Reasonable Assurance Analyses (RAA) for mercury and PCBs, respectively, that achieve the following objectives:

a) Quantify the relationship between areal extent of green infrastructure (GI) implementation and load reductions, taking into consideration the scale of contamination of the treated area as well as the pollutant removal effectiveness of likely GI strategies;

b) Estimate the amount and characteristics of land area that will be treated through GI by 2020, 2030, and 2040;

c) Estimate the amount of load reductions that will result from GI implementation by 2020, 2030, and 2040; and

d) Quantitatively demonstrate that PCBs reductions of at least 0.5 kg/yr and mercury reductions of 1.7 kg/yr will be realized within Contra Costa County by 2040 through implementation of GI projects.

1.2 Preliminary RAA Findings

Geosyntec Consultants (Geosyntec) is conducting RAA modeling for the Contra Costa Clean Water Program (CCCWP) as required by the MRP for submittal with the 2020 Annual Report. In

Fiscal Year 2018/19, Geosyntec conducted RAA modeling to assist the Permittees with GI planning[1].

As part of the preliminary RAA modeling conducted to assist Permittees with GI Planning, a "Countywide Attainment Scenario" was modeled which examined PCBs loads reduced by each project opportunity incorporated in the Contra Costa Watersheds Storm Water Resource Plan (CCW SWRP). This scenario focused on PCBs, consistent with the MRP's emphasis on measures designed to reduce PCBs, while also evaluating opportunities for mercury reduction. CCCWP has drafted this Countywide Attainment Scenario memorandum to summarize these results and further the Permittees' group discussion of how PCBs load reduction goals could be achieved on a countywide basis.

The results of this analysis demonstrate that the public GI retrofit opportunities that have the highest potential to reduce PCBs loads are concentrated within a small subset of Contra Costa Permittee area due to the pattern of pre-1980 industrial development within the region. (Note that GI implementation feasibility was not field-evaluated as part of development of the CCW SWRP, thus the feasibility of implementation for these potential project locations has yet to receive a site-specific evaluation.) Conversely, many Contra Costa Permittees have no or very few opportunities to contribute significantly toward achievement of countywide PCBs loading reductions via implementation of GI in their communities. Further, if load reductions are not achieved on a regional or countywide scale, and load reductions are allocated at a local level (by population), these Permittees would not be able to achieve those load reduction allocations due to a lack of opportunity.

Thus, given these findings, the Contra Costa Permittees, collectively, believe that a countywide strategy would be the best way to achieve the PCBs load reduction goals in a more efficient and effective manner. For the purposes of creating their local GI Plans, Contra Costa Permittees have prioritized their GI projects based on achieving other multiple benefits. These other benefits include controlling other stormwater pollutants, preserving and enhancing local stream hydrology, reducing localized flooding, helping communities adapt to climate change by increasing the resiliency of water supply, ancillary benefits that derive from adding landscaped areas within the urbanized environment, and mitigating the urban heat island effect.

This Countywide Attainment Strategy memorandum is referenced in the Permittees' GI Plans for information only, and it does not represent, in any way, an intent to implement the strategy or any

[1] The results of this RAA modeling are preliminary. The CCCWP is in the process, in collaboration with BASMAA, of having the RAA modeling approach peer-reviewed. The RAA modeling results are subject to revision depending on the outcome of the peer review process.

of the projects listed herein. For projects for which potential implementation will be pursued, refer to each Permittee's individual GI Plan project list and prioritization.

This memorandum describes the approach used to model the Countywide Attainment scenario and presents the results of the analysis, in addition to potential next steps for Contra Costa County Permittees to implement projects collectively in an effort to meet the load reduction requirements included in the MRP.

2. COUNTYWIDE ATTAINMENT SCENARIO METHODOLOGY

2.1 Methodology Overview

To conduct the RAA Countywide Attainment Scenario modeling, calculations were performed, and inputs procured or developed, as follows:

1. Baseline modeling was conducted to estimate the baseline (i.e., 2003) load of PCBs and mercury for Contra Costa County.
2. Using the resulting baseline load, calculations were performed to establish the MRP-required load reduction through GI for 2040.
3. GIS inputs were obtained or finalized for existing redevelopment and public GI projects and future private (i.e., C.3.d) projects, as follows:
    a. New development and redevelopment projects from 2003 – 2018 were compiled from existing AGOL[2] project data, and
    b. UrbanSim[3] redevelopment projections for 2020, 2030, and 2040 were confirmed or revised by the Permittees.
4. The GI load reduction model was applied to the existing development (through 2018) and predicted future private redevelopment (2019 – 2040) to assess the PCBs loads reduced by these projects.

[2] The CCCWP's stormwater GIS platform, created using ESRI's ArcGIS Online (AGOL) for Organizations environment. The *C.3 Project Tracking and Load Reduction Accounting Tool* is used for tracking GI projects implemented under C.3 within the CCCWP AGOL system.

[3] A model developed by the Urban Analytics Lab at the University of California under contract to the Bay Area MTC. The Bay Area's application of UrbanSim was developed specifically to support the development of Plan Bay Area, the Bay Area's Sustainable Communities planning effort. MTC forecasts growth in households and jobs and uses the UrbanSim model to identify development and redevelopment sites to satisfy future demand. This model was applied to Contra Costa County to project new and redevelopment for the RAA model timeframes.

5. A countywide PCBs public retrofit load reduction goal was then calculated by subtracting the load reduced by the existing and projected future private redevelopment load from the countywide goal established in Step 2.

6. The GI load reduction model was applied to the CCW SWRP project opportunities list to assess PCBs loads reduced by each project opportunity.

Additional detail is provided in the following sections.

2.2 Baseline Modeling

The countywide baseline model was developed as described in the *Quantitative Relationship Between GI Implementation and PCBs/Mercury Load Reductions* report (CCCWP, 2018).

A GIS analysis was conducted to apportion the modeled baseline load to areas above and below dams, within the San Francisco Bay Regional Water Quality Control Board (Region 2) versus Central Valley Regional Water Quality Control Board (Region 5), and other NPDES permittee area (i.e., parcels associated with individual NPDES permits, Industrial General Permit facilities, and Phase 2 permittee areas). The TMDLs were calculated for all urban areas draining to San Francisco Bay (thus only Region 2) and for areas below dams (as it is assumed that the dams capture sediments and prevent them from carrying pollutants to the Bay). Additionally, the parcel area associated with other NPDES permits was removed to estimate the baseline load attributable to the MS4 permit area only. Thus, the baseline countywide PCBs load below dams, within Region 2, was used to establish the PCBs load reduction goal for the MS4 permit area.

The results of the baseline modeling are presented in Table 1 below. The baseline countywide load used to establish the PCBs load reduction goal for the Permittee area is shown in bold.

Table 1: RAA Baseline PCBs Load Allocation Table (grams)

RWQCB Region	Above/Below Dam	Permit	Baseline Load PCBs (grams)
Region 2	**Below Dam**	**MRP**	**1,581.0**
		NPDES	776.7
		Phase 2	13.7
	Above Dam	MRP	41.4
		NPDES	0.1
		Phase 2	0
Region 5	Below Dam	MRP	133.0
		NPDES	14.8
		Phase 2	0.6
	Above Dam	MRP	1.0
		NPDES	0
		Phase 2	0
		Total	2,562.2

2.3 Load Reduction Goal Calculations

Calculations were conducted to develop the load reduction goals for 2020, 2030, and 2040, as described in the *Bay Area RAA Guidance Document* (BASMAA, 2017). The calculation methodology is summarized below.

TMDL Attainment Load Reduction (2030)

LR_{goal} = Baseline – WLA (kg/yr)

Where:

LR_{goal} = The load reduction goal (kg/yr)

Baseline = The baseline pollutant loading as calculated through the RAA

WLA = The population-based wasteload allocation

The TMDL population-based wasteload allocations for Contra Costa County is provided Table 2.

Table 2: TMDL Population-Based Wasteload Allocations for Contra Costa County

Stormwater Improvement Goal	Mercury (kg/yr)	PCBs (kg/yr)
Contra Costa County	11	0.3

Per the equation above, the revised load reduction goal for Contra Costa County is 1.281 kg/yr.

MRP Load Reduction through GI by 2040

The PCBs load reduction required to be achieved through GI by 2040 (i.e., 3 kg/yr MRP area-wide or 0.5 kg/yr for Contra Costa County) should be adjusted to reflect the RAA-calculated baseline load (i.e., 1.581 kg/yr). The MRP load reduction requirement for GI for all permittees (3 kg/yr) represents 20.8% of the overall required TMDL load reduction. Therefore, the adjusted countywide load reduction through GI can be calculated as:

$LR_{MRP, GI, 2040} = LR_{goal} * 20.8\%$

The adjusted countywide PCBs load reduction goal through GI by 2040 was calculated to be 0.266 kg/yr.

2.4 Finalize GIS Inputs for Existing and Future Redevelopment

New development and redevelopment projects completed between 2003 – 2018 were compiled from the existing AGOL project data entered by the Permittees into their respective AGOL C.3 Tracking Tool databases.

UrbanSim redevelopment projections for 2020, 2030, and 2040, as confirmed or revised by the Permittees, were used to model future C.3 projects. The UrbanSim projections for 2020 only included parcels that were predicted to have been redeveloped from 2019 – 2020.

2.5 Develop Countywide Attainment Scenario

The 2040 PCBs load reduction goal for the Countywide Attainment scenario is calculated as the countywide load reduction goal (0.266 kg/yr) minus the load reduced by the current, projected private, and planned CIP/public retrofit GI projects through 2040. Table 3 indicates the remaining load reduction target for 2040 is approximately 56 grams per year.

Table 3: Load Reduction Goal for Contra Costa Countywide Attainment Scenario

PCBs 2040 Load Reduction Goal (kg/yr)	PCBs Load Reduction Achieved by Public and Private GI 2003 -2020 (kg/yr)	Projected PCBs Load Reduction Achieved by Public and Private GI 2003 - 2030 (kg/yr)	Projected PCBs Load Reduction Achieved by Public and Private GI 2003 - 2040 (kg/yr)	Load Reduction Target for Public GI by 2040 PCBs (kg/yr)
0.266	0.118	0.133	0.211	0.056

The baseline model produces a PCBs and mercury "load production" GIS layer that estimates the load corresponding with each parcel and ROW segment within the county (note that individual parcel loadings are representative of the 'average tendency' of loading for similar parcels). This "load production" layer was combined in GIS with the public retrofit project opportunities (parcels, regional project drainage areas, and ROW segments) listed in the CCW SWRP to estimate the potential load reduced by each project opportunity, assuming standard bioretention treatment.

3. COUNTYWIDE ATTAINMENT SCENARIO RESULTS

The modeled load reduction associated with each project opportunity from the CCW SWRP that is not included as a planned GI project in a Permittee's GI Plan are listed in the table included in Attachment 1. This table only includes those projects achieving at least 0.01 grams of PCBs load reduction per year, based on the model output. For each project opportunity, the total area and impervious area treated[4], baseline PCBs yield, and PCBs loads reduced are presented.

[4] The SWRP did not include delineation of actual off-site tributary drainage areas for the regional project opportunities. Therefore, the pollutant load reduction for these projects was calculated for this Countywide Attainment scenario using the project opportunity parcel area only and the estimated load reduction is less than it would be for the full tributary area.

To achieve the load reduction goal through GI by 2040 of 56 grams per year would require treating, at a minimum, 350 acres of the highest-load-producing project area in 170 projects across the county (pending feasibility evaluations, and requiring implementation primarily focused in a few Permittee jurisdictions) and would require much more area and projects using less-load-reducing projects.

4. COUNTYWIDE ATTAINMENT STRATEGY

To allow for the most efficient implementation of GI to achieve the MRP-stipulated load reduction goal, some Contra Costa Permittees have been actively investigating ways that communities without opportunities to reduce PCBs via GI might potentially fund GI projects in communities that do have such opportunities. This has included consideration of funding streams derived from new developments (for example, in-lieu fees charged when only a portion of on-site C.3 compliance is achieved). However, the legal and administrative requirements are complex, would require considerable effort to resolve, and may not ultimately be resolvable.

The Permittees will continue to consider how to balance the goals of efficient PCBs load reduction via GI (which has been demonstrated to be highly location-specific, and not obtainable by all Permittees) versus the other benefits of GI. This consideration will include participation, with Water Board staff, in ongoing discussions of GI and PCBs load reduction requirements that may be included in MRP 3.0. The Permittees, collectively, will also consider the outcomes of these discussions when preparing the "reasonable assurance analysis to demonstrate quantitatively that PCBs reductions of 3 kg/year will be realized by 2040 through implementation of green infrastructure projects," which is due in September 2020 as specified in Provision C.12.iii.(3).

Because resources are limited, there will ultimately be trade-offs between the goals of PCBs load reduction via GI versus the other benefits of GI. In the majority of Contra Costa communities, which have few or no locations where PCB loads could be efficiently reduced via GI, the pursuit of a potential Countywide Attainment Strategy would require trade-offs, including minimizing the opportunities to build community engagement and local support for GI. A similar trade-off exists within the communities that do have locations where PCBs loads could be efficiently reduced via GI, as the highest-ranked load-reduction locations rarely coincide with locations where other benefits to the community would be maximized.

5. REFERENCES

Bay Area Stormwater Management Agencies Association (BASMAA), 2017. Bay Area Reasonable Assurance Analysis Guidance Document. Prepared by Geosyntec Consultants and Paradigm Environmental for BASMAA. June 30, 2017.

Contra Costa Clean Water Program (CCCWP), 2018. Quantitative Relationship Between Green Infrastructure Implementation and PCBs/Mercury Load Reductions. Prepared by Geosyntec Consultants for the CCCWP. August 22, 2018.

* * * * *

Attachment 1
Countywide Attainment Scenario
Load Reduction Results Table

Jurisdiction	Permit	Project ID	Project Type	Area (Acres)	Impervious Area (Acres)	Percent Impervious	PCBs Yield (g/acre)	PCBs Mass reduced (g)
Clayton	2	ROW_4341	ROW Opportunity	26.22	12.30	47%	0.001	0.072
Clayton	2	Parcel_283666	Parcel-Based Opportunity	6.77	2.04	30%	0.002	0.034
Clayton	2	ROW_3872	ROW Opportunity	2.82	1.25	44%	0.003	0.026
Clayton	2	ROW_11618	ROW Opportunity	1.61	0.77	48%	0.004	0.022
Clayton	2	ROW_5783	ROW Opportunity	1.29	0.56	43%	0.005	0.021
Clayton	2	ROW_12947	ROW Opportunity	1.05	0.43	41%	0.004	0.017
Clayton	2	ROW_11934	ROW Opportunity	10.54	5.01	48%	0.001	0.015
Clayton	2	ROW_13056	ROW Opportunity	8.81	3.84	44%	0.001	0.014
Clayton	2	ROW_13758	ROW Opportunity	5.93	1.49	25%	0.001	0.012
Clayton	2	ROW_19397	ROW Opportunity	5.73	2.58	45%	0.001	0.010
Concord	2	Parcel_376303	Parcel-Based Opportunity	494.22	25.30	5%	0.004	8.822
Concord	2	Parcel_376306	Parcel-Based Opportunity	208.83	10.65	5%	0.004	3.719
Concord	2	Parcel_177920	Parcel-Based Opportunity	18.60	14.13	76%	0.041	3.276
Concord	2	Parcel_324333	Parcel-Based Opportunity	163.95	8.57	5%	0.003	1.752
Concord	2	ROW_16900	ROW Opportunity	20.40	9.18	45%	0.016	1.300
Concord	2	ROW_21618	ROW Opportunity	37.07	24.40	66%	0.008	1.039
Concord	2	Parcel_184135	Parcel-Based Opportunity	5.35	3.96	74%	0.041	0.920
Concord	2	ROW_21616	ROW Opportunity	27.30	18.24	67%	0.008	0.799
Concord	2	ROW_1201	ROW Opportunity	20.53	13.24	64%	0.010	0.746
Concord	2	Parcel_192657	Parcel-Based Opportunity	5.89	3.00	51%	0.029	0.722
Concord	2	Parcel_244879	Parcel-Based Opportunity	66.94	3.41	5%	0.003	0.722
Concord	2	ROW_5707	ROW Opportunity	18.71	11.09	59%	0.009	0.650
Concord	2	ROW_17557	ROW Opportunity	5.80	3.71	64%	0.023	0.558
Concord	2	ROW_1712	ROW Opportunity	12.97	8.30	64%	0.010	0.500
Concord	2	ROW_7508	ROW Opportunity	5.32	3.73	70%	0.021	0.454
Concord	2	ROW_4583	ROW Opportunity	4.46	3.26	73%	0.024	0.437
Concord	2	ROW_20084	ROW Opportunity	2.97	2.10	71%	0.027	0.328
Concord	2	ROW_5817	ROW Opportunity	3.19	2.16	68%	0.023	0.295
Concord	2	Parcel_338478	Parcel-Based Opportunity	38.88	1.98	5%	0.002	0.292
Concord	2	ROW_19024	ROW Opportunity	2.48	1.34	54%	0.028	0.291
Concord	2	Parcel_191035	Regional Opportunity	2.32	1.16	50%	0.028	0.278
Concord	2	ROW_8864	ROW Opportunity	1.38	0.97	70%	0.037	0.214
Concord	2	ROW_5806	ROW Opportunity	7.28	4.91	67%	0.008	0.213
Concord	2	ROW_15327	ROW Opportunity	31.55	17.19	54%	0.002	0.211
Concord	2	ROW_4439	ROW Opportunity	1.97	1.40	71%	0.025	0.205
Concord	2	ROW_7624	ROW Opportunity	6.85	4.66	68%	0.008	0.204
Concord	2	ROW_9455	ROW Opportunity	4.02	2.74	68%	0.013	0.190
Concord	2	ROW_3954	ROW Opportunity	1.94	1.42	73%	0.024	0.185
Concord	2	ROW_21113	ROW Opportunity	48.19	24.40	51%	0.002	0.182
Concord	2	Parcel_186608	Regional Opportunity	1.06	0.73	69%	0.038	0.171
Concord	2	ROW_8938	ROW Opportunity	1.26	1.03	82%	0.032	0.169
Concord	2	Parcel_229694	Parcel-Based Opportunity	6.43	3.65	57%	0.007	0.166
Concord	2	Parcel_235175	Parcel-Based Opportunity	6.15	3.59	58%	0.007	0.160
Concord	2	ROW_2934	ROW Opportunity	5.33	3.63	68%	0.008	0.159
Concord	2	ROW_12379	ROW Opportunity	5.60	3.63	65%	0.008	0.157
Concord	2	ROW_7623	ROW Opportunity	1.90	1.39	73%	0.020	0.155
Concord	2	Parcel_205735	Parcel-Based Opportunity	4.42	3.53	80%	0.010	0.154
Concord	2	Parcel_198247	Parcel-Based Opportunity	5.13	3.94	77%	0.009	0.153
Concord	2	ROW_4349	ROW Opportunity	1.39	1.03	74%	0.025	0.141
Concord	2	ROW_11894	ROW Opportunity	16.04	9.24	58%	0.003	0.139
Concord	2	ROW_10734	ROW Opportunity	2.73	1.85	68%	0.013	0.136
Concord	2	ROW_19586	ROW Opportunity	32.40	16.40	51%	0.002	0.136
Concord	2	ROW_11140	ROW Opportunity	0.69	0.57	83%	0.045	0.132
Concord	2	ROW_4621	ROW Opportunity	21.49	10.65	50%	0.002	0.130
Concord	2	Parcel_240615	Parcel-Based Opportunity	14.13	8.79	62%	0.003	0.122
Concord	2	ROW_16782	ROW Opportunity	10.53	5.42	51%	0.004	0.122
Concord	2	Parcel_242414	Parcel-Based Opportunity	4.67	2.72	58%	0.007	0.121
Concord	2	ROW_10221	ROW Opportunity	14.29	7.61	53%	0.003	0.118
Concord	2	ROW_14417	ROW Opportunity	7.27	4.56	63%	0.005	0.113
Concord	2	ROW_20964	ROW Opportunity	9.96	4.91	49%	0.004	0.112
Concord	2	ROW_17558	ROW Opportunity	0.91	0.61	67%	0.029	0.109
Concord	2	Parcel_232269	Parcel-Based Opportunity	3.76	2.45	65%	0.008	0.108
Concord	2	ROW_14842	ROW Opportunity	15.90	7.68	48%	0.002	0.108
Concord	2	ROW_4342	ROW Opportunity	43.01	22.81	53%	0.001	0.106
Concord	2	ROW_545	ROW Opportunity	12.27	5.54	45%	0.003	0.106
Concord	2	ROW_1200	ROW Opportunity	9.75	5.67	58%	0.004	0.105
Concord	2	Parcel_203140	Parcel-Based Opportunity	3.46	2.29	66%	0.008	0.100
Concord	2	ROW_18045	ROW Opportunity	13.09	7.25	55%	0.003	0.099
Concord	2	ROW_14001	ROW Opportunity	12.47	6.86	55%	0.003	0.094
Concord	2	ROW_21494	ROW Opportunity	29.51	15.04	51%	0.001	0.094
Concord	2	ROW_8159	ROW Opportunity	9.23	5.02	54%	0.003	0.094
Concord	2	ROW_12852	ROW Opportunity	22.99	12.35	54%	0.002	0.092
Concord	2	ROW_12856	ROW Opportunity	2.03	1.22	60%	0.011	0.088
Concord	2	ROW_15146	ROW Opportunity	5.50	3.01	55%	0.005	0.084
Concord	2	ROW_4608	ROW Opportunity	4.23	2.67	63%	0.006	0.084
Concord	2	ROW_7622	ROW Opportunity	1.50	1.10	73%	0.015	0.084
Concord	2	ROW_1470	ROW Opportunity	1.70	1.14	67%	0.013	0.081
Concord	2	Parcel_247239	Regional Opportunity	2.44	1.71	70%	0.009	0.077
Concord	2	ROW_4619	ROW Opportunity	13.13	6.40	49%	0.002	0.076
Concord	2	ROW_8157	ROW Opportunity	13.11	7.08	54%	0.002	0.076
Concord	2	ROW_6819	ROW Opportunity	1.92	1.26	66%	0.011	0.075
Concord	2	Parcel_144216	Parcel-Based Opportunity	40.90	18.50	45%	0.001	0.074
Concord	2	ROW_4618	ROW Opportunity	18.48	9.41	51%	0.002	0.074
Concord	2	Parcel_231090	Parcel-Based Opportunity	3.71	1.58	43%	0.006	0.073
Concord	2	ROW_13705	ROW Opportunity	11.05	5.52	50%	0.002	0.071
Concord	2	ROW_1577	ROW Opportunity	2.98	1.51	51%	0.007	0.071
Concord	2	Parcel_192425	Parcel-Based Opportunity	0.48	0.28	58%	0.033	0.067
Concord	2	Parcel_291299	Parcel-Based Opportunity	40.01	16.11	40%	0.001	0.066
Concord	2	ROW_1474	ROW Opportunity	7.02	3.51	50%	0.003	0.066
Concord	2	ROW_20692	ROW Opportunity	4.78	2.17	45%	0.004	0.064
Concord	2	ROW_5673	ROW Opportunity	11.65	5.87	50%	0.002	0.063
Concord	2	ROW_4514	ROW Opportunity	4.22	2.32	55%	0.005	0.062
Concord	2	ROW_12217	ROW Opportunity	9.08	4.78	53%	0.002	0.058
Concord	2	ROW_21132	ROW Opportunity	2.04	1.36	67%	0.008	0.058

Jurisdiction	Permit	Project ID	Project Type	Area (Acres)	Impervious Area (Acres)	Percent Impervious	PCBs Yield (g/acre)	PCBs Mass reduced (g)
Concord	2	Parcel_214703	Parcel-Based Opportunity	3.81	1.22	32%	0.004	0.057
Concord	2	ROW_11820	ROW Opportunity	2.06	1.02	50%	0.008	0.057
Concord	2	ROW_6785	ROW Opportunity	2.52	1.66	66%	0.007	0.056
Concord	2	Parcel_190759	Regional Opportunity	1.26	1.11	88%	0.012	0.055
Concord	2	Parcel_251412	Parcel-Based Opportunity	3.12	1.06	34%	0.005	0.054
Concord	2	Parcel_376302	Parcel-Based Opportunity	42.06	12.85	31%	0.001	0.054
Concord	2	ROW_4137	ROW Opportunity	7.10	3.61	51%	0.003	0.053
Concord	2	ROW_13078	ROW Opportunity	4.96	2.60	52%	0.003	0.052
Concord	2	ROW_9759	ROW Opportunity	1.82	1.20	66%	0.008	0.051
Concord	2	ROW_13704	ROW Opportunity	9.77	5.13	53%	0.002	0.050
Concord	2	ROW_5392	ROW Opportunity	0.92	0.65	71%	0.014	0.050
Concord	2	ROW_4966	ROW Opportunity	6.49	2.88	44%	0.003	0.049
Concord	2	Parcel_290823	Regional Opportunity	1.29	1.10	85%	0.010	0.048
Concord	2	planned_203	Planned Creek/Marsh Restoration	131.53	18.22	14%	0.000	0.048
Concord	2	ROW_20635	ROW Opportunity	5.04	2.60	52%	0.003	0.048
Concord	2	Parcel_214282	Parcel-Based Opportunity	30.73	11.51	37%	0.001	0.047
Concord	2	ROW_7731	ROW Opportunity	2.11	1.48	70%	0.007	0.047
Concord	2	ROW_8996	ROW Opportunity	2.02	1.16	57%	0.007	0.046
Concord	2	Parcel_233711	Regional Opportunity	1.41	1.00	71%	0.009	0.044
Concord	2	ROW_6856	ROW Opportunity	15.51	7.43	48%	0.001	0.044
Concord	2	ROW_12679	ROW Opportunity	7.36	3.68	50%	0.002	0.043
Concord	2	ROW_4968	ROW Opportunity	15.10	7.32	48%	0.001	0.043
Concord	2	ROW_13077	ROW Opportunity	6.74	3.68	55%	0.002	0.042
Concord	2	ROW_14213	ROW Opportunity	3.96	2.09	53%	0.004	0.042
Concord	2	ROW_2389	ROW Opportunity	7.58	3.81	50%	0.002	0.041
Concord	2	ROW_9299	ROW Opportunity	2.01	1.31	65%	0.006	0.040
Concord	2	ROW_1445	ROW Opportunity	15.65	7.47	48%	0.001	0.039
Concord	2	ROW_19589	ROW Opportunity	1.50	0.88	59%	0.007	0.039
Concord	2	ROW_20799	ROW Opportunity	9.69	4.87	50%	0.002	0.039
Concord	2	ROW_8514	ROW Opportunity	2.14	1.69	79%	0.006	0.039
Concord	2	ROW_14399	ROW Opportunity	1.15	0.88	77%	0.009	0.038
Concord	2	ROW_8633	ROW Opportunity	2.16	1.19	55%	0.005	0.038
Concord	2	Parcel_206674	Regional Opportunity	1.53	0.90	59%	0.007	0.037
Concord	2	ROW_1496	ROW Opportunity	9.68	4.76	49%	0.002	0.037
Concord	2	ROW_11474	ROW Opportunity	13.96	6.70	48%	0.001	0.036
Concord	2	ROW_2707	ROW Opportunity	3.07	1.72	56%	0.004	0.036
Concord	2	ROW_19429	ROW Opportunity	2.86	1.57	55%	0.004	0.035
Concord	2	ROW_7830	ROW Opportunity	5.91	2.96	50%	0.002	0.035
Concord	2	ROW_8405	ROW Opportunity	0.88	0.57	65%	0.011	0.035
Concord	2	ROW_14485	ROW Opportunity	3.31	1.63	49%	0.003	0.034
Concord	2	ROW_15145	ROW Opportunity	3.60	1.90	53%	0.003	0.034
Concord	2	Parcel_143398	Parcel-Based Opportunity	17.79	8.05	45%	0.001	0.032
Concord	2	ROW_10594	ROW Opportunity	12.05	5.90	49%	0.001	0.032
Concord	2	ROW_14712	ROW Opportunity	2.42	1.43	59%	0.004	0.032
Concord	2	ROW_19358	ROW Opportunity	10.05	5.04	50%	0.001	0.032
Concord	2	ROW_19557	ROW Opportunity	0.29	0.17	59%	0.026	0.032
Concord	2	ROW_3955	ROW Opportunity	3.56	1.78	50%	0.003	0.032
Concord	2	planned_422	Planned Unlined Bioretention	2.14	1.20	56%	0.004	0.030
Concord	2	ROW_12567	ROW Opportunity	14.87	7.28	49%	0.001	0.030
Concord	2	ROW_13167	ROW Opportunity	11.13	5.31	48%	0.001	0.030
Concord	2	ROW_18933	ROW Opportunity	1.85	1.04	56%	0.005	0.030
Concord	2	ROW_686	ROW Opportunity	3.34	1.70	51%	0.003	0.030
Concord	2	ROW_7347	ROW Opportunity	1.22	0.93	76%	0.007	0.030
Concord	2	Parcel_189589	Regional Opportunity	1.31	0.64	49%	0.006	0.029
Concord	2	ROW_12422	ROW Opportunity	2.70	1.38	51%	0.004	0.029
Concord	2	ROW_9241	ROW Opportunity	1.67	0.80	48%	0.005	0.029
Concord	2	Parcel_215855	Regional Opportunity	1.37	0.61	45%	0.006	0.028
Concord	2	ROW_13981	ROW Opportunity	3.75	1.83	49%	0.002	0.028
Concord	2	ROW_330	ROW Opportunity	7.40	3.68	50%	0.002	0.028
Concord	2	ROW_4033	ROW Opportunity	3.71	1.78	48%	0.003	0.028
Concord	2	Parcel_231516	Regional Opportunity	1.44	0.59	41%	0.005	0.027
Concord	2	ROW_14000	ROW Opportunity	1.10	0.63	57%	0.007	0.027
Concord	2	ROW_4609	ROW Opportunity	1.62	1.09	67%	0.005	0.027
Concord	2	ROW_6347	ROW Opportunity	1.82	0.92	51%	0.004	0.027
Concord	2	ROW_6349	ROW Opportunity	7.25	3.95	54%	0.002	0.027
Concord	2	ROW_9635	ROW Opportunity	3.66	1.68	46%	0.003	0.027
Concord	2	ROW_11942	ROW Opportunity	2.12	1.16	55%	0.004	0.026
Concord	2	ROW_14482	ROW Opportunity	2.43	1.00	41%	0.003	0.026
Concord	2	ROW_15994	ROW Opportunity	7.13	3.36	47%	0.001	0.026
Concord	2	ROW_1867	ROW Opportunity	3.65	1.92	53%	0.003	0.026
Concord	2	ROW_2690	ROW Opportunity	4.41	2.49	56%	0.002	0.026
Concord	2	ROW_4136	ROW Opportunity	3.43	1.60	47%	0.003	0.026
Concord	2	Parcel_208247	Regional Opportunity	0.79	0.57	72%	0.009	0.025
Concord	2	ROW_1535	ROW Opportunity	3.62	2.07	57%	0.002	0.025
Concord	2	ROW_15747	ROW Opportunity	1.16	0.75	65%	0.006	0.025
Concord	2	ROW_16947	ROW Opportunity	13.34	6.33	47%	0.001	0.025
Concord	2	ROW_663	ROW Opportunity	3.78	1.89	50%	0.002	0.025
Concord	2	Parcel_228202	Regional Opportunity	0.75	0.54	72%	0.009	0.024
Concord	2	ROW_18838	ROW Opportunity	1.39	0.79	57%	0.005	0.024
Concord	2	ROW_18934	ROW Opportunity	1.22	0.76	62%	0.006	0.024
Concord	2	ROW_20559	ROW Opportunity	10.08	4.59	46%	0.001	0.024
Concord	2	ROW_20591	ROW Opportunity	5.62	3.00	53%	0.002	0.024
Concord	2	ROW_21160	ROW Opportunity	12.09	5.95	49%	0.001	0.024
Concord	2	ROW_7875	ROW Opportunity	8.98	4.45	50%	0.001	0.024
Concord	2	ROW_9740	ROW Opportunity	9.01	4.21	47%	0.001	0.024
Concord	2	Parcel_214996	Parcel-Based Opportunity	8.68	5.91	68%	0.001	0.023
Concord	2	ROW_12594	ROW Opportunity	1.04	0.65	63%	0.007	0.023
Concord	2	ROW_12595	ROW Opportunity	1.05	0.64	61%	0.006	0.023
Concord	2	ROW_1269	ROW Opportunity	3.07	1.61	52%	0.003	0.023
Concord	2	ROW_15782	ROW Opportunity	1.11	0.70	63%	0.006	0.023
Concord	2	ROW_19980	ROW Opportunity	1.29	0.65	50%	0.005	0.023
Concord	2	ROW_20290	ROW Opportunity	2.46	1.49	61%	0.003	0.023
Concord	2	ROW_20752	ROW Opportunity	2.19	1.61	74%	0.004	0.023
Concord	2	ROW_7581	ROW Opportunity	1.16	0.71	61%	0.006	0.023

Jurisdiction	Permit	Project ID	Project Type	Area (Acres)	Impervious Area (Acres)	Percent Impervious	PCBs Yield (g/acre)	PCBs Mass reduced (g)
Concord	2	ROW_8121	ROW Opportunity	8.21	3.76	46%	0.001	0.023
Concord	2	Parcel_140573	Parcel-Based Opportunity	9.15	5.56	61%	0.001	0.022
Concord	2	Parcel_196927	Regional Opportunity	0.93	0.65	70%	0.007	0.022
Concord	2	Parcel_231203	Parcel-Based Opportunity	14.55	5.28	36%	0.001	0.022
Concord	2	planned_421	Planned Unlined Bioretention	2.87	1.58	55%	0.003	0.022
Concord	2	ROW_1178	ROW Opportunity	4.47	2.20	49%	0.002	0.022
Concord	2	ROW_7635	ROW Opportunity	2.74	1.32	48%	0.003	0.022
Concord	2	Parcel_148570	Parcel-Based Opportunity	10.29	5.19	50%	0.001	0.021
Concord	2	ROW_1480	ROW Opportunity	1.83	1.02	56%	0.004	0.021
Concord	2	ROW_16608	ROW Opportunity	10.91	5.23	48%	0.001	0.021
Concord	2	ROW_231	ROW Opportunity	1.44	0.80	56%	0.004	0.021
Concord	2	ROW_6904	ROW Opportunity	8.33	3.99	48%	0.001	0.021
Concord	2	Parcel_282436	Parcel-Based Opportunity	11.78	4.88	41%	0.001	0.020
Concord	2	Parcel_298561	Parcel-Based Opportunity	38.95	5.79	15%	0.000	0.020
Concord	2	ROW_2388	ROW Opportunity	5.15	2.44	47%	0.002	0.020
Concord	2	ROW_272	ROW Opportunity	3.17	1.68	53%	0.002	0.020
Concord	2	ROW_5431	ROW Opportunity	11.51	5.65	49%	0.001	0.020
Concord	2	ROW_6270	ROW Opportunity	10.98	5.38	49%	0.001	0.020
Concord	2	ROW_6428	ROW Opportunity	3.11	1.75	56%	0.002	0.020
Concord	2	ROW_7665	ROW Opportunity	4.31	2.22	52%	0.002	0.020
Concord	2	Parcel_220285	Parcel-Based Opportunity	9.96	4.72	47%	0.001	0.019
Concord	2	ROW_12020	ROW Opportunity	4.76	2.29	48%	0.002	0.019
Concord	2	ROW_12340	ROW Opportunity	8.43	4.07	48%	0.001	0.019
Concord	2	ROW_16428	ROW Opportunity	8.29	3.98	48%	0.001	0.019
Concord	2	ROW_3778	ROW Opportunity	1.34	0.88	66%	0.005	0.019
Concord	2	ROW_472	ROW Opportunity	0.82	0.45	55%	0.007	0.019
Concord	2	Parcel_186686	Regional Opportunity	0.75	0.45	60%	0.007	0.018
Concord	2	Parcel_202503	Parcel-Based Opportunity	5.94	4.60	77%	0.001	0.018
Concord	2	Parcel_209956	Regional Opportunity	0.66	0.42	64%	0.008	0.018
Concord	2	ROW_16285	ROW Opportunity	4.76	2.23	47%	0.002	0.018
Concord	2	ROW_17122	ROW Opportunity	7.41	3.30	45%	0.001	0.018
Concord	2	ROW_4335	ROW Opportunity	9.00	4.52	50%	0.001	0.018
Concord	2	ROW_4353	ROW Opportunity	9.22	4.47	48%	0.001	0.018
Concord	2	ROW_4354	ROW Opportunity	4.55	2.23	49%	0.002	0.018
Concord	2	ROW_6786	ROW Opportunity	0.62	0.41	66%	0.008	0.018
Concord	2	Parcel_166238	Parcel-Based Opportunity	7.81	3.85	49%	0.001	0.017
Concord	2	Parcel_167541	Regional Opportunity	0.73	0.37	51%	0.006	0.017
Concord	2	Parcel_204041	Parcel-Based Opportunity	0.49	0.42	86%	0.010	0.017
Concord	2	Parcel_238207	Parcel-Based Opportunity	9.03	4.20	47%	0.001	0.017
Concord	2	Parcel_288737	Regional Opportunity	0.93	0.40	43%	0.005	0.017
Concord	2	ROW_13364	ROW Opportunity	9.62	4.24	44%	0.001	0.017
Concord	2	ROW_13763	ROW Opportunity	1.83	1.14	62%	0.003	0.017
Concord	2	ROW_14442	ROW Opportunity	1.54	0.81	53%	0.004	0.017
Concord	2	ROW_17045	ROW Opportunity	8.58	4.24	49%	0.001	0.017
Concord	2	ROW_18989	ROW Opportunity	1.44	0.71	49%	0.004	0.017
Concord	2	ROW_4337	ROW Opportunity	8.58	4.26	50%	0.001	0.017
Concord	2	ROW_5444	ROW Opportunity	7.67	3.18	41%	0.001	0.017
Concord	2	ROW_5808	ROW Opportunity	1.41	0.85	60%	0.004	0.017
Concord	2	ROW_7088	ROW Opportunity	5.53	2.70	49%	0.001	0.017
Concord	2	ROW_8374	ROW Opportunity	6.24	2.74	44%	0.001	0.017
Concord	2	Parcel_189945	Parcel-Based Opportunity	9.41	4.05	43%	0.001	0.016
Concord	2	Parcel_209201	Regional Opportunity	0.96	0.36	38%	0.005	0.016
Concord	2	Parcel_231117	Parcel-Based Opportunity	9.30	3.93	42%	0.001	0.016
Concord	2	ROW_11295	ROW Opportunity	1.02	0.63	62%	0.005	0.016
Concord	2	ROW_13815	ROW Opportunity	4.98	2.54	51%	0.001	0.016
Concord	2	ROW_14488	ROW Opportunity	2.78	1.40	50%	0.002	0.016
Concord	2	ROW_16235	ROW Opportunity	4.82	2.25	47%	0.001	0.016
Concord	2	ROW_18426	ROW Opportunity	5.82	3.22	55%	0.001	0.016
Concord	2	ROW_19300	ROW Opportunity	6.58	3.21	49%	0.001	0.016
Concord	2	ROW_3418	ROW Opportunity	8.49	3.91	46%	0.001	0.016
Concord	2	Parcel_149994	Parcel-Based Opportunity	10.00	3.69	37%	0.001	0.015
Concord	2	Parcel_193540	Parcel-Based Opportunity	7.39	3.59	49%	0.001	0.015
Concord	2	Parcel_200676	Parcel-Based Opportunity	5.03	3.86	77%	0.001	0.015
Concord	2	Parcel_210557	Regional Opportunity	0.59	0.34	58%	0.007	0.015
Concord	2	Parcel_211022	Parcel-Based Opportunity	7.84	3.86	49%	0.001	0.015
Concord	2	Parcel_228429	Parcel-Based Opportunity	8.15	3.64	45%	0.001	0.015
Concord	2	ROW_10926	ROW Opportunity	8.71	4.01	46%	0.001	0.015
Concord	2	ROW_12001	ROW Opportunity	6.33	4.11	65%	0.001	0.015
Concord	2	ROW_12464	ROW Opportunity	6.99	3.40	49%	0.001	0.015
Concord	2	ROW_14169	ROW Opportunity	7.12	3.63	51%	0.001	0.015
Concord	2	ROW_14214	ROW Opportunity	1.27	0.73	57%	0.004	0.015
Concord	2	ROW_14589	ROW Opportunity	8.26	3.76	46%	0.001	0.015
Concord	2	ROW_15996	ROW Opportunity	1.51	0.82	54%	0.003	0.015
Concord	2	ROW_16812	ROW Opportunity	3.85	1.82	47%	0.002	0.015
Concord	2	ROW_16832	ROW Opportunity	4.69	2.13	45%	0.001	0.015
Concord	2	ROW_19307	ROW Opportunity	5.38	3.83	71%	0.001	0.015
Concord	2	ROW_21441	ROW Opportunity	7.99	3.70	46%	0.001	0.015
Concord	2	ROW_4958	ROW Opportunity	5.71	2.74	48%	0.001	0.015
Concord	2	ROW_5672	ROW Opportunity	2.80	1.35	48%	0.002	0.015
Concord	2	ROW_7089	ROW Opportunity	5.57	2.70	48%	0.001	0.015
Concord	2	ROW_9096	ROW Opportunity	7.26	3.76	52%	0.001	0.015
Concord	2	Parcel_198111	Regional Opportunity	1.88	0.30	16%	0.003	0.014
Concord	2	Parcel_205796	Regional Opportunity	0.51	0.35	69%	0.008	0.014
Concord	2	Parcel_212241	Parcel-Based Opportunity	10.42	3.26	31%	0.001	0.014
Concord	2	Parcel_245777	Regional Opportunity	0.52	0.31	60%	0.008	0.014
Concord	2	Parcel_306186	Regional Opportunity	9.66	3.42	35%	0.001	0.014
Concord	2	planned_423	Planned Unlined Bioretention	0.45	0.32	71%	0.009	0.014
Concord	2	ROW_10430	ROW Opportunity	3.97	1.89	48%	0.001	0.014
Concord	2	ROW_11163	ROW Opportunity	0.60	0.49	82%	0.007	0.014
Concord	2	ROW_11347	ROW Opportunity	7.18	3.36	47%	0.001	0.014
Concord	2	ROW_13157	ROW Opportunity	10.52	4.40	42%	0.001	0.014
Concord	2	ROW_15822	ROW Opportunity	4.36	2.16	50%	0.001	0.014
Concord	2	ROW_17904	ROW Opportunity	2.21	1.14	52%	0.002	0.014
Concord	2	ROW_19257	ROW Opportunity	4.31	3.48	81%	0.001	0.014

Jurisdiction	Permit	Project ID	Project Type	Area (Acres)	Impervious Area (Acres)	Percent Impervious	PCBs Yield (g/acre)	PCBs Mass reduced (g)
Concord	2	ROW_5809	ROW Opportunity	0.74	0.49	66%	0.006	0.014
Concord	2	ROW_9449	ROW Opportunity	5.91	2.94	50%	0.001	0.014
Concord	2	Parcel_172659	Parcel-Based Opportunity	8.26	3.21	39%	0.001	0.013
Concord	2	Parcel_176235	Parcel-Based Opportunity	0.43	0.29	67%	0.009	0.013
Concord	2	Parcel_198956	Regional Opportunity	1.88	0.31	16%	0.002	0.013
Concord	2	Parcel_200446	Regional Opportunity	1.05	0.58	55%	0.004	0.013
Concord	2	Parcel_202662	Parcel-Based Opportunity	4.54	3.47	76%	0.001	0.013
Concord	2	Parcel_203482	Parcel-Based Opportunity	0.44	0.28	64%	0.008	0.013
Concord	2	Parcel_207366	Parcel-Based Opportunity	0.44	0.35	80%	0.009	0.013
Concord	2	Parcel_245349	Parcel-Based Opportunity	0.50	0.29	58%	0.007	0.013
Concord	2	Parcel_283640	Parcel-Based Opportunity	8.85	3.17	36%	0.001	0.013
Concord	2	ROW_13215	ROW Opportunity	10.87	4.95	46%	0.000	0.013
Concord	2	ROW_15854	ROW Opportunity	6.90	3.41	49%	0.001	0.013
Concord	2	ROW_3470	ROW Opportunity	3.85	1.96	51%	0.001	0.013
Concord	2	ROW_425	ROW Opportunity	3.93	1.83	47%	0.001	0.013
Concord	2	ROW_6675	ROW Opportunity	3.24	1.53	47%	0.002	0.013
Concord	2	ROW_9266	ROW Opportunity	3.06	1.20	39%	0.002	0.013
Concord	2	Parcel_304455	Parcel-Based Opportunity	9.99	2.87	29%	0.001	0.012
Concord	2	ROW_10746	ROW Opportunity	5.86	2.84	48%	0.001	0.012
Concord	2	ROW_12239	ROW Opportunity	6.14	3.06	50%	0.001	0.012
Concord	2	ROW_12681	ROW Opportunity	6.89	3.12	45%	0.001	0.012
Concord	2	ROW_13166	ROW Opportunity	2.36	1.19	50%	0.002	0.012
Concord	2	ROW_14679	ROW Opportunity	6.33	3.08	49%	0.001	0.012
Concord	2	ROW_17761	ROW Opportunity	3.82	2.04	53%	0.001	0.012
Concord	2	ROW_18425	ROW Opportunity	2.25	1.39	62%	0.002	0.012
Concord	2	ROW_19367	ROW Opportunity	5.72	2.91	51%	0.001	0.012
Concord	2	ROW_19741	ROW Opportunity	15.61	6.71	43%	0.000	0.012
Concord	2	ROW_311	ROW Opportunity	4.66	2.30	49%	0.001	0.012
Concord	2	ROW_4967	ROW Opportunity	6.62	3.00	45%	0.001	0.012
Concord	2	ROW_7274	ROW Opportunity	5.67	2.85	50%	0.001	0.012
Concord	2	ROW_9397	ROW Opportunity	6.20	3.03	49%	0.001	0.012
Concord	2	Parcel_205395	Parcel-Based Opportunity	0.41	0.29	71%	0.008	0.011
Concord	2	ROW_1026	ROW Opportunity	6.02	2.70	45%	0.001	0.011
Concord	2	ROW_10444	ROW Opportunity	1.27	0.76	60%	0.003	0.011
Concord	2	ROW_13801	ROW Opportunity	3.61	1.92	53%	0.001	0.011
Concord	2	ROW_14604	ROW Opportunity	6.37	2.78	44%	0.001	0.011
Concord	2	ROW_15422	ROW Opportunity	3.73	1.82	49%	0.001	0.011
Concord	2	ROW_16761	ROW Opportunity	5.65	2.77	49%	0.001	0.011
Concord	2	ROW_19961	ROW Opportunity	5.36	2.71	51%	0.001	0.011
Concord	2	ROW_20887	ROW Opportunity	1.92	1.00	52%	0.002	0.011
Concord	2	ROW_2166	ROW Opportunity	4.72	3.21	68%	0.001	0.011
Concord	2	ROW_4343	ROW Opportunity	5.13	2.65	52%	0.001	0.011
Concord	2	ROW_6655	ROW Opportunity	5.76	2.88	50%	0.001	0.011
Concord	2	ROW_7547	ROW Opportunity	1.93	1.08	56%	0.002	0.011
Concord	2	ROW_840	ROW Opportunity	4.32	2.13	49%	0.001	0.011
Concord	2	ROW_9171	ROW Opportunity	5.93	2.70	46%	0.001	0.011
Concord	2	ROW_9371	ROW Opportunity	5.95	2.73	46%	0.001	0.011
Concord	2	Parcel_219241	Parcel-Based Opportunity	5.43	2.56	47%	0.001	0.010
Concord	2	ROW_10733	ROW Opportunity	0.86	0.41	48%	0.004	0.010
Concord	2	ROW_11477	ROW Opportunity	5.28	2.53	48%	0.001	0.010
Concord	2	ROW_13104	ROW Opportunity	2.83	1.42	50%	0.002	0.010
Concord	2	ROW_1509	ROW Opportunity	5.06	2.54	50%	0.001	0.010
Concord	2	ROW_17227	ROW Opportunity	3.24	2.61	81%	0.001	0.010
Concord	2	ROW_18867	ROW Opportunity	0.57	0.30	53%	0.005	0.010
Concord	2	ROW_18875	ROW Opportunity	5.49	2.53	46%	0.001	0.010
Concord	2	ROW_1942	ROW Opportunity	5.76	2.61	45%	0.001	0.010
Concord	2	ROW_4931	ROW Opportunity	5.95	2.64	44%	0.001	0.010
Concord	2	ROW_6969	ROW Opportunity	1.44	0.74	51%	0.003	0.010
Concord	2	ROW_7644	ROW Opportunity	3.34	2.69	81%	0.001	0.010
Concord	2	ROW_8954	ROW Opportunity	3.65	1.80	49%	0.001	0.010
Concord	2	ROW_9917	ROW Opportunity	5.57	2.54	46%	0.001	0.010
Danville	2	ROW_16936	ROW Opportunity	26.83	15.18	57%	0.009	0.752
Danville	2	ROW_3153	ROW Opportunity	22.64	11.45	51%	0.005	0.352
Danville	2	ROW_19015	ROW Opportunity	21.63	9.10	42%	0.004	0.264
Danville	2	ROW_10363	ROW Opportunity	15.72	7.19	46%	0.006	0.255
Danville	2	ROW_8645	ROW Opportunity	6.22	3.02	49%	0.012	0.252
Danville	2	ROW_5779	ROW Opportunity	29.66	12.29	41%	0.003	0.236
Danville	2	ROW_15495	ROW Opportunity	5.40	2.73	51%	0.013	0.235
Danville	2	ROW_6494	ROW Opportunity	13.53	5.65	42%	0.003	0.123
Danville	2	ROW_7569	ROW Opportunity	4.67	1.77	38%	0.008	0.114
Danville	2	ROW_20439	ROW Opportunity	5.29	2.56	48%	0.007	0.105
Danville	2	ROW_6553	ROW Opportunity	22.66	7.42	33%	0.002	0.101
Danville	2	ROW_10751	ROW Opportunity	6.96	2.81	40%	0.005	0.088
Danville	2	Parcel_3595	Regional Opportunity	1.32	0.94	71%	0.018	0.081
Danville	2	ROW_16231	ROW Opportunity	1.61	0.79	49%	0.013	0.071
Danville	2	ROW_11030	ROW Opportunity	4.72	1.69	36%	0.005	0.063
Danville	2	ROW_2419	ROW Opportunity	1.41	0.74	52%	0.014	0.063
Danville	2	Parcel_84842	Regional Opportunity	2.50	1.28	51%	0.007	0.061
Danville	2	ROW_15065	ROW Opportunity	3.30	1.46	44%	0.006	0.061
Danville	2	ROW_8646	ROW Opportunity	1.33	0.71	53%	0.013	0.058
Danville	2	planned_56	Planned Creek/Marsh Restoration	28.05	7.45	27%	0.001	0.054
Danville	2	ROW_13678	ROW Opportunity	1.73	0.69	40%	0.009	0.051
Danville	2	ROW_6273	ROW Opportunity	1.21	0.60	50%	0.012	0.049
Danville	2	ROW_4229	ROW Opportunity	1.02	0.47	46%	0.013	0.043
Danville	2	ROW_7541	ROW Opportunity	4.06	1.59	39%	0.004	0.043
Danville	2	ROW_8647	ROW Opportunity	1.24	0.61	49%	0.011	0.042
Danville	2	ROW_11350	ROW Opportunity	4.15	1.41	34%	0.003	0.035
Danville	2	ROW_5386	ROW Opportunity	10.48	3.17	30%	0.001	0.032
Danville	2	ROW_17662	ROW Opportunity	4.65	1.54	33%	0.003	0.030
Danville	2	ROW_8243	ROW Opportunity	17.78	6.46	36%	0.001	0.028
Danville	2	ROW_1278	ROW Opportunity	2.38	1.11	47%	0.004	0.027
Danville	2	ROW_20482	ROW Opportunity	4.27	1.25	29%	0.002	0.026
Danville	2	ROW_6485	ROW Opportunity	27.58	10.93	40%	0.000	0.026
Danville	2	ROW_7899	ROW Opportunity	5.60	1.66	30%	0.002	0.026

Jurisdiction	Permit	Project ID	Project Type	Area (Acres)	Impervious Area (Acres)	Percent Impervious	PCBs Yield (g/acre)	PCBs Mass reduced (g)
Danville	2	ROW_14380	ROW Opportunity	10.15	3.63	36%	0.001	0.025
Danville	2	ROW_2772	ROW Opportunity	8.71	2.89	33%	0.001	0.025
Danville	2	ROW_5569	ROW Opportunity	8.89	2.11	24%	0.001	0.025
Danville	2	ROW_6880	ROW Opportunity	4.97	1.50	30%	0.002	0.025
Danville	2	ROW_17254	ROW Opportunity	0.58	0.26	45%	0.012	0.024
Danville	2	ROW_3171	ROW Opportunity	9.06	3.83	42%	0.001	0.024
Danville	2	ROW_10398	ROW Opportunity	8.60	2.53	29%	0.001	0.023
Danville	2	ROW_18078	ROW Opportunity	4.08	1.19	29%	0.002	0.023
Danville	2	ROW_4663	ROW Opportunity	14.21	5.41	38%	0.001	0.023
Danville	2	ROW_6934	ROW Opportunity	7.87	2.54	32%	0.001	0.023
Danville	2	ROW_12934	ROW Opportunity	9.74	3.39	35%	0.001	0.021
Danville	2	ROW_16006	ROW Opportunity	3.00	1.95	65%	0.003	0.020
Danville	2	ROW_21104	ROW Opportunity	3.41	0.72	21%	0.002	0.020
Danville	2	ROW_13883	ROW Opportunity	5.95	1.96	33%	0.001	0.018
Danville	2	ROW_3169	ROW Opportunity	27.83	11.62	42%	0.000	0.018
Danville	2	Parcel_7023	Parcel-Based Opportunity	4.47	2.08	47%	0.002	0.017
Danville	2	ROW_19889	ROW Opportunity	2.38	0.83	35%	0.003	0.017
Danville	2	ROW_4459	ROW Opportunity	4.95	1.71	35%	0.001	0.017
Danville	2	ROW_6502	ROW Opportunity	3.58	1.36	38%	0.002	0.017
Danville	2	ROW_20045	ROW Opportunity	6.37	1.75	27%	0.001	0.016
Danville	2	ROW_7490	ROW Opportunity	5.22	2.31	44%	0.001	0.016
Danville	2	ROW_8595	ROW Opportunity	10.06	3.71	37%	0.001	0.016
Danville	2	Parcel_2847	Parcel-Based Opportunity	0.35	0.16	46%	0.012	0.015
Danville	2	ROW_10387	ROW Opportunity	4.17	1.86	45%	0.002	0.015
Danville	2	ROW_13940	ROW Opportunity	6.12	2.31	38%	0.001	0.015
Danville	2	Parcel_2825	Parcel-Based Opportunity	0.35	0.14	40%	0.011	0.014
Danville	2	ROW_3111	ROW Opportunity	6.77	1.67	25%	0.001	0.014
Danville	2	ROW_7016	ROW Opportunity	3.24	0.99	31%	0.002	0.014
Danville	2	ROW_10801	ROW Opportunity	10.37	3.70	36%	0.001	0.013
Danville	2	ROW_8639	ROW Opportunity	5.23	1.56	30%	0.001	0.013
Danville	2	ROW_12473	ROW Opportunity	2.77	0.92	33%	0.002	0.012
Danville	2	ROW_13144	ROW Opportunity	6.32	2.32	37%	0.001	0.012
Danville	2	ROW_14418	ROW Opportunity	7.93	2.81	35%	0.001	0.012
Danville	2	ROW_3170	ROW Opportunity	17.87	7.49	42%	0.000	0.012
Danville	2	ROW_8231	ROW Opportunity	3.49	1.32	38%	0.002	0.012
Danville	2	ROW_9408	ROW Opportunity	3.29	1.31	40%	0.002	0.012
Danville	2	Parcel_2786	Parcel-Based Opportunity	0.34	0.13	38%	0.009	0.011
Danville	2	Parcel_7198	Regional Opportunity	2.07	1.46	71%	0.003	0.011
Danville	2	ROW_11870	ROW Opportunity	3.31	0.88	27%	0.002	0.011
Danville	2	ROW_12945	ROW Opportunity	3.98	1.15	29%	0.001	0.011
Danville	2	ROW_3876	ROW Opportunity	2.83	1.65	58%	0.002	0.011
Danville	2	ROW_7424	ROW Opportunity	1.50	1.04	69%	0.003	0.011
Danville	2	Parcel_8521	Regional Opportunity	0.89	0.19	21%	0.003	0.010
Danville	2	ROW_2262	ROW Opportunity	4.76	1.72	36%	0.001	0.010
Danville	2	ROW_3224	ROW Opportunity	6.67	2.37	36%	0.001	0.010
El Cerrito	2	ROW_57	ROW Opportunity	20.16	12.24	61%	0.008	0.521
El Cerrito	2	ROW_55	ROW Opportunity	8.61	5.54	64%	0.008	0.227
El Cerrito	2	ROW_15171	ROW Opportunity	5.98	3.48	58%	0.010	0.215
El Cerrito	2	planned_99	Planned Unlined Bioretention	3.97	2.99	75%	0.011	0.152
El Cerrito	2	ROW_17243	ROW Opportunity	5.47	3.28	60%	0.007	0.129
El Cerrito	2	planned_131	Planned Unlined Bioretention	10.94	5.84	53%	0.004	0.113
El Cerrito	2	Parcel_120972	Parcel-Based Opportunity	4.68	2.01	43%	0.006	0.100
El Cerrito	2	ROW_9948	ROW Opportunity	3.37	2.16	64%	0.008	0.083
El Cerrito	2	Parcel_121635	Parcel-Based Opportunity	2.11	1.58	75%	0.010	0.071
El Cerrito	2	ROW_3506	ROW Opportunity	4.25	2.52	59%	0.006	0.070
El Cerrito	2	planned_98	Planned Unlined Bioretention	14.94	10.23	68%	0.002	0.068
El Cerrito	2	ROW_10275	ROW Opportunity	2.52	1.58	63%	0.008	0.065
El Cerrito	2	Parcel_120393	Parcel-Based Opportunity	2.79	1.19	43%	0.006	0.060
El Cerrito	2	planned_122	Planned Unlined Bioretention	2.79	1.19	43%	0.006	0.060
El Cerrito	2	ROW_9949	ROW Opportunity	8.99	5.41	60%	0.003	0.056
El Cerrito	2	ROW_20173	ROW Opportunity	1.18	0.68	58%	0.012	0.053
El Cerrito	2	ROW_3882	ROW Opportunity	7.74	4.70	61%	0.003	0.053
El Cerrito	2	ROW_6997	ROW Opportunity	2.01	1.26	63%	0.008	0.053
El Cerrito	2	ROW_5240	ROW Opportunity	14.23	7.45	52%	0.002	0.051
El Cerrito	2	ROW_12667	ROW Opportunity	7.60	4.07	54%	0.003	0.048
El Cerrito	2	ROW_15194	ROW Opportunity	2.45	1.67	68%	0.006	0.044
El Cerrito	2	Parcel_108912	Parcel-Based Opportunity	19.52	10.10	52%	0.001	0.042
El Cerrito	2	ROW_13601	ROW Opportunity	9.94	5.69	57%	0.002	0.038
El Cerrito	2	ROW_18539	ROW Opportunity	3.28	1.97	60%	0.004	0.038
El Cerrito	2	ROW_4566	ROW Opportunity	9.09	4.81	53%	0.002	0.037
El Cerrito	2	Parcel_128153	Parcel-Based Opportunity	2.55	1.76	69%	0.005	0.036
El Cerrito	2	planned_389	Planned Creek/Marsh Restoration	1.00	0.66	66%	0.011	0.035
El Cerrito	2	ROW_9950	ROW Opportunity	2.05	1.31	64%	0.006	0.035
El Cerrito	2	Parcel_133358	Regional Opportunity	1.27	0.75	59%	0.008	0.034
El Cerrito	2	ROW_13602	ROW Opportunity	7.52	4.21	56%	0.002	0.033
El Cerrito	2	ROW_11539	ROW Opportunity	0.79	0.54	68%	0.011	0.029
El Cerrito	2	ROW_13367	ROW Opportunity	8.37	4.33	52%	0.002	0.029
El Cerrito	2	ROW_3041	ROW Opportunity	1.55	0.94	61%	0.006	0.029
El Cerrito	2	ROW_6936	ROW Opportunity	9.70	5.56	57%	0.001	0.029
El Cerrito	2	ROW_1264	ROW Opportunity	6.94	3.84	55%	0.002	0.028
El Cerrito	2	ROW_2251	ROW Opportunity	4.66	2.74	59%	0.003	0.028
El Cerrito	2	Parcel_118487	Parcel-Based Opportunity	1.00	0.55	55%	0.008	0.027
El Cerrito	2	planned_89	Planned Unlined Bioretention	80.88	5.47	7%	0.000	0.026
El Cerrito	2	ROW_20541	ROW Opportunity	1.08	0.66	61%	0.008	0.026
El Cerrito	2	ROW_16009	ROW Opportunity	1.55	0.96	62%	0.005	0.025
El Cerrito	2	ROW_15096	ROW Opportunity	6.18	3.20	52%	0.002	0.024
El Cerrito	2	ROW_6938	ROW Opportunity	6.31	3.67	58%	0.002	0.024
El Cerrito	2	Parcel_129420	Parcel-Based Opportunity	9.98	5.33	53%	0.001	0.023
El Cerrito	2	Parcel_137929	Parcel-Based Opportunity	5.49	2.41	44%	0.002	0.023
El Cerrito	2	ROW_10958	ROW Opportunity	7.39	4.41	60%	0.001	0.023
El Cerrito	2	ROW_15895	ROW Opportunity	9.74	5.57	57%	0.001	0.023
El Cerrito	2	ROW_20026	ROW Opportunity	0.68	0.54	79%	0.010	0.023
El Cerrito	2	ROW_15894	ROW Opportunity	9.10	5.36	59%	0.001	0.022
El Cerrito	2	ROW_11691	ROW Opportunity	5.62	3.28	58%	0.002	0.021

Jurisdiction	Permit	Project ID	Project Type	Area (Acres)	Impervious Area (Acres)	Percent Impervious	PCBs Yield (g/acre)	PCBs Mass reduced (g)
El Cerrito	2	ROW_20328	ROW Opportunity	4.46	2.50	56%	0.002	0.021
El Cerrito	2	ROW_3523	ROW Opportunity	5.21	2.90	56%	0.002	0.021
El Cerrito	2	ROW_539	ROW Opportunity	6.98	3.97	57%	0.001	0.021
El Cerrito	2	ROW_10929	ROW Opportunity	5.36	3.22	60%	0.002	0.018
El Cerrito	2	ROW_11011	ROW Opportunity	4.83	2.80	58%	0.002	0.018
El Cerrito	2	ROW_14649	ROW Opportunity	0.60	0.40	67%	0.009	0.018
El Cerrito	2	ROW_6691	ROW Opportunity	7.35	4.29	58%	0.001	0.018
El Cerrito	2	ROW_10097	ROW Opportunity	6.15	3.70	60%	0.001	0.017
El Cerrito	2	ROW_15535	ROW Opportunity	4.95	2.77	56%	0.002	0.017
El Cerrito	2	ROW_20028	ROW Opportunity	0.50	0.39	78%	0.010	0.017
El Cerrito	2	ROW_20526	ROW Opportunity	4.64	2.70	58%	0.002	0.017
El Cerrito	2	ROW_6694	ROW Opportunity	6.59	3.78	57%	0.001	0.017
El Cerrito	2	planned_130	Planned Unlined Bioretention	0.45	0.37	82%	0.011	0.016
El Cerrito	2	ROW_6234	ROW Opportunity	1.67	0.95	57%	0.003	0.016
El Cerrito	2	ROW_6998	ROW Opportunity	2.36	1.37	58%	0.003	0.016
El Cerrito	2	Parcel_134601	Parcel-Based Opportunity	5.18	3.92	76%	0.001	0.015
El Cerrito	2	ROW_16809	ROW Opportunity	4.87	2.71	56%	0.002	0.015
El Cerrito	2	ROW_21519	ROW Opportunity	3.43	2.17	63%	0.002	0.015
El Cerrito	2	ROW_3495	ROW Opportunity	0.56	0.36	64%	0.008	0.015
El Cerrito	2	ROW_6367	ROW Opportunity	0.63	0.42	67%	0.007	0.015
El Cerrito	2	ROW_6911	ROW Opportunity	3.73	2.13	57%	0.002	0.015
El Cerrito	2	ROW_15196	ROW Opportunity	0.57	0.35	61%	0.007	0.014
El Cerrito	2	ROW_16545	ROW Opportunity	1.24	0.82	66%	0.004	0.014
El Cerrito	2	ROW_5254	ROW Opportunity	1.74	1.09	63%	0.003	0.014
El Cerrito	2	ROW_7864	ROW Opportunity	5.06	2.85	56%	0.001	0.014
El Cerrito	2	ROW_10953	ROW Opportunity	4.85	2.82	58%	0.001	0.013
El Cerrito	2	ROW_10955	ROW Opportunity	4.39	2.60	59%	0.001	0.013
El Cerrito	2	ROW_13600	ROW Opportunity	0.67	0.42	63%	0.006	0.013
El Cerrito	2	ROW_4340	ROW Opportunity	5.48	3.03	55%	0.001	0.013
El Cerrito	2	ROW_4650	ROW Opportunity	0.62	0.37	60%	0.007	0.013
El Cerrito	2	Parcel_376467	Parcel-Based Opportunity	5.15	2.93	57%	0.001	0.012
El Cerrito	2	ROW_10802	ROW Opportunity	4.97	2.88	58%	0.001	0.012
El Cerrito	2	ROW_13910	ROW Opportunity	0.48	0.28	58%	0.008	0.012
El Cerrito	2	ROW_1672	ROW Opportunity	5.53	3.07	56%	0.001	0.012
El Cerrito	2	ROW_5917	ROW Opportunity	4.58	2.67	58%	0.001	0.012
El Cerrito	2	ROW_6511	ROW Opportunity	3.16	1.88	59%	0.002	0.012
El Cerrito	2	ROW_9947	ROW Opportunity	0.92	0.61	66%	0.004	0.012
El Cerrito	2	Parcel_140018	Parcel-Based Opportunity	0.39	0.05	13%	0.008	0.011
El Cerrito	2	ROW_10930	ROW Opportunity	3.54	2.10	59%	0.001	0.011
El Cerrito	2	ROW_6968	ROW Opportunity	0.48	0.36	75%	0.007	0.011
El Cerrito	2	ROW_9065	ROW Opportunity	2.03	1.20	59%	0.002	0.011
El Cerrito	2	Parcel_120884	Regional Opportunity	0.59	0.21	36%	0.005	0.010
El Cerrito	2	ROW_15090	ROW Opportunity	4.58	2.54	55%	0.001	0.010
Hercules	2	Parcel_253834	Parcel-Based Opportunity	6.24	3.65	58%	0.034	0.860
Hercules	2	Parcel_258137	Parcel-Based Opportunity	11.26	2.85	25%	0.015	0.661
Hercules	2	ROW_1743	ROW Opportunity	11.16	4.37	39%	0.013	0.535
Hercules	2	ROW_15756	ROW Opportunity	4.43	2.04	46%	0.028	0.522
Hercules	2	ROW_13267	ROW Opportunity	3.21	1.44	45%	0.027	0.369
Hercules	2	ROW_20166	ROW Opportunity	8.49	3.53	42%	0.011	0.360
Hercules	2	ROW_16990	ROW Opportunity	5.25	1.32	25%	0.016	0.333
Hercules	2	Parcel_257979	Parcel-Based Opportunity	5.62	1.27	23%	0.013	0.303
Hercules	2	ROW_16634	ROW Opportunity	3.21	1.39	43%	0.022	0.290
Hercules	2	ROW_16909	ROW Opportunity	15.96	6.87	43%	0.005	0.260
Hercules	2	ROW_16911	ROW Opportunity	3.92	1.61	41%	0.016	0.247
Hercules	2	ROW_16090	ROW Opportunity	2.62	1.05	40%	0.022	0.243
Hercules	2	Parcel_257367	Parcel-Based Opportunity	3.87	0.86	22%	0.014	0.224
Hercules	2	ROW_14290	ROW Opportunity	6.27	2.06	33%	0.009	0.223
Hercules	2	ROW_6342	ROW Opportunity	2.63	0.75	29%	0.019	0.206
Hercules	2	ROW_19139	ROW Opportunity	3.17	0.80	25%	0.015	0.195
Hercules	2	ROW_18985	ROW Opportunity	21.38	7.42	35%	0.003	0.173
Hercules	2	Parcel_258157	Regional Opportunity	2.96	0.60	20%	0.014	0.168
Hercules	2	ROW_10622	ROW Opportunity	1.33	0.63	47%	0.028	0.160
Hercules	2	ROW_10623	ROW Opportunity	2.15	1.01	47%	0.017	0.153
Hercules	2	ROW_15482	ROW Opportunity	1.75	0.48	27%	0.020	0.141
Hercules	2	ROW_20676	ROW Opportunity	1.62	0.73	45%	0.021	0.140
Hercules	2	ROW_20171	ROW Opportunity	1.96	0.83	42%	0.016	0.125
Hercules	2	ROW_15483	ROW Opportunity	5.37	1.35	25%	0.006	0.115
Hercules	2	Parcel_257429	Regional Opportunity	1.90	0.43	23%	0.015	0.111
Hercules	2	ROW_1748	ROW Opportunity	1.51	0.38	25%	0.018	0.108
Hercules	2	Parcel_256321	Parcel-Based Opportunity	2.36	0.25	11%	0.010	0.097
Hercules	2	ROW_19622	ROW Opportunity	2.25	0.81	36%	0.011	0.095
Hercules	2	ROW_1435	ROW Opportunity	1.57	0.35	22%	0.014	0.086
Hercules	2	ROW_13170	ROW Opportunity	0.60	0.27	45%	0.026	0.067
Hercules	2	Parcel_257692	Regional Opportunity	1.04	0.24	23%	0.015	0.064
Hercules	2	ROW_1791	ROW Opportunity	1.59	0.35	22%	0.009	0.058
Hercules	2	ROW_7393	ROW Opportunity	1.06	0.36	34%	0.014	0.057
Hercules	2	ROW_7699	ROW Opportunity	0.56	0.19	34%	0.023	0.054
Hercules	2	ROW_17257	ROW Opportunity	0.40	0.21	53%	0.030	0.052
Hercules	2	ROW_10624	ROW Opportunity	0.39	0.17	44%	0.027	0.044
Hercules	2	ROW_7341	ROW Opportunity	0.35	0.15	43%	0.026	0.039
Hercules	2	ROW_11067	ROW Opportunity	7.45	2.66	36%	0.002	0.035
Hercules	2	ROW_1079	ROW Opportunity	0.90	0.39	43%	0.010	0.033
Hercules	2	ROW_6380	ROW Opportunity	0.41	0.24	59%	0.018	0.029
Hercules	2	ROW_365	ROW Opportunity	0.21	0.11	52%	0.029	0.026
Hercules	2	Parcel_257844	Parcel-Based Opportunity	0.43	0.10	23%	0.015	0.025
Hercules	2	ROW_11619	ROW Opportunity	0.42	0.12	29%	0.015	0.024
Hercules	2	Parcel_257823	Parcel-Based Opportunity	0.37	0.08	22%	0.015	0.022
Hercules	2	Parcel_257685	Parcel-Based Opportunity	0.34	0.08	24%	0.015	0.020
Hercules	2	Parcel_260776	Parcel-Based Opportunity	11.52	2.65	23%	0.001	0.019
Hercules	2	ROW_19683	ROW Opportunity	0.49	0.17	35%	0.010	0.019
Hercules	2	Parcel_254443	Parcel-Based Opportunity	8.83	1.56	18%	0.001	0.016
Hercules	2	ROW_2481	ROW Opportunity	0.15	0.07	47%	0.022	0.014
Hercules	2	Parcel_255602	Parcel-Based Opportunity	13.98	5.74	41%	0.000	0.013
Hercules	2	ROW_21077	ROW Opportunity	1.10	0.21	19%	0.003	0.012

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Hercules	2	ROW_17543	ROW Opportunity	0.12	0.04	33%	0.022	0.011
Hercules	2	Parcel_253250	Parcel-Based Opportunity	0.32	0.10	31%	0.008	0.010
Lafayette	2	ROW_8037	ROW Opportunity	4.09	2.48	61%	0.014	0.183
Lafayette	2	ROW_2243	ROW Opportunity	1.43	1.06	74%	0.032	0.167
Lafayette	2	ROW_12876	ROW Opportunity	6.73	3.27	49%	0.008	0.153
Lafayette	2	ROW_151	ROW Opportunity	3.55	2.15	61%	0.014	0.153
Lafayette	2	ROW_397	ROW Opportunity	10.95	2.47	23%	0.004	0.132
Lafayette	2	ROW_10450	ROW Opportunity	2.88	1.58	55%	0.013	0.126
Lafayette	2	ROW_8546	ROW Opportunity	30.28	4.86	16%	0.002	0.126
Lafayette	2	ROW_8982	ROW Opportunity	8.86	3.34	38%	0.004	0.097
Lafayette	2	ROW_2803	ROW Opportunity	2.21	1.37	62%	0.012	0.079
Lafayette	2	Parcel_375734	Parcel-Based Opportunity	29.49	9.07	31%	0.001	0.077
Lafayette	2	ROW_235	ROW Opportunity	2.40	1.49	62%	0.011	0.075
Lafayette	2	Parcel_22842	Parcel-Based Opportunity	26.65	4.08	15%	0.001	0.061
Lafayette	2	Parcel_38918	Parcel-Based Opportunity	17.79	6.51	37%	0.001	0.056
Lafayette	2	ROW_5749	ROW Opportunity	2.62	1.31	50%	0.007	0.051
Lafayette	2	ROW_16160	ROW Opportunity	13.26	2.44	18%	0.002	0.050
Lafayette	2	ROW_18657	ROW Opportunity	1.15	0.72	63%	0.013	0.045
Lafayette	2	ROW_6188	ROW Opportunity	2.68	1.13	42%	0.006	0.042
Lafayette	2	ROW_8493	ROW Opportunity	5.88	1.11	19%	0.003	0.041
Lafayette	2	Parcel_45274	Regional Opportunity	0.74	0.44	59%	0.016	0.040
Lafayette	2	ROW_12869	ROW Opportunity	11.00	2.85	26%	0.002	0.039
Lafayette	2	ROW_12445	ROW Opportunity	4.44	0.97	22%	0.003	0.037
Lafayette	2	ROW_17249	ROW Opportunity	4.54	1.96	43%	0.003	0.037
Lafayette	2	ROW_18068	ROW Opportunity	1.26	0.64	51%	0.010	0.037
Lafayette	2	ROW_15000	ROW Opportunity	1.59	0.80	50%	0.007	0.036
Lafayette	2	ROW_7204	ROW Opportunity	0.97	0.35	36%	0.011	0.034
Lafayette	2	ROW_17831	ROW Opportunity	14.18	3.00	21%	0.001	0.033
Lafayette	2	ROW_21105	ROW Opportunity	1.83	0.76	42%	0.006	0.030
Lafayette	2	Parcel_376452	Parcel-Based Opportunity	9.70	3.28	34%	0.001	0.029
Lafayette	2	Parcel_40931	Parcel-Based Opportunity	6.84	3.62	53%	0.002	0.029
Lafayette	2	Parcel_43618	Parcel-Based Opportunity	7.13	3.51	49%	0.002	0.029
Lafayette	2	ROW_18408	ROW Opportunity	7.32	1.94	27%	0.002	0.029
Lafayette	2	ROW_3774	ROW Opportunity	0.85	0.48	56%	0.011	0.029
Lafayette	2	ROW_7943	ROW Opportunity	9.50	1.66	17%	0.001	0.029
Lafayette	2	ROW_8461	ROW Opportunity	0.61	0.39	64%	0.015	0.029
Lafayette	2	ROW_13640	ROW Opportunity	2.39	0.70	29%	0.004	0.028
Lafayette	2	planned_546	Planned Creek/Marsh Restoration	2.12	0.60	28%	0.005	0.027
Lafayette	2	ROW_19821	ROW Opportunity	13.08	2.06	16%	0.001	0.027
Lafayette	2	ROW_8508	ROW Opportunity	1.56	0.60	38%	0.006	0.027
Lafayette	2	ROW_20225	ROW Opportunity	1.46	0.47	32%	0.006	0.026
Lafayette	2	ROW_11383	ROW Opportunity	8.22	1.99	24%	0.001	0.022
Lafayette	2	ROW_680	ROW Opportunity	1.59	0.67	42%	0.005	0.022
Lafayette	2	ROW_9300	ROW Opportunity	1.68	0.70	42%	0.005	0.022
Lafayette	2	ROW_12963	ROW Opportunity	5.60	1.60	29%	0.002	0.021
Lafayette	2	ROW_2256	ROW Opportunity	0.32	0.25	78%	0.020	0.021
Lafayette	2	Parcel_41948	Regional Opportunity	0.54	0.21	39%	0.011	0.020
Lafayette	2	ROW_155	ROW Opportunity	2.84	1.02	36%	0.003	0.020
Lafayette	2	ROW_2070	ROW Opportunity	2.66	1.20	45%	0.003	0.020
Lafayette	2	ROW_21071	ROW Opportunity	0.48	0.22	46%	0.012	0.018
Lafayette	2	ROW_14991	ROW Opportunity	0.74	0.22	30%	0.007	0.017
Lafayette	2	ROW_20798	ROW Opportunity	1.38	0.59	43%	0.005	0.017
Lafayette	2	ROW_18029	ROW Opportunity	5.83	1.14	20%	0.001	0.015
Lafayette	2	ROW_20971	ROW Opportunity	0.57	0.22	39%	0.008	0.015
Lafayette	2	Parcel_40526	Parcel-Based Opportunity	0.40	0.12	30%	0.010	0.014
Lafayette	2	ROW_7898	ROW Opportunity	7.71	1.06	14%	0.001	0.014
Lafayette	2	ROW_18768	ROW Opportunity	4.41	1.13	26%	0.001	0.013
Lafayette	2	ROW_2955	ROW Opportunity	3.77	0.91	24%	0.002	0.013
Lafayette	2	Parcel_43103	Parcel-Based Opportunity	8.38	2.44	29%	0.001	0.012
Lafayette	2	ROW_14844	ROW Opportunity	3.47	0.54	16%	0.002	0.012
Lafayette	2	ROW_20581	ROW Opportunity	2.06	0.66	32%	0.002	0.012
Lafayette	2	ROW_3114	ROW Opportunity	4.89	1.20	25%	0.001	0.012
Lafayette	2	Parcel_104404	Parcel-Based Opportunity	7.73	0.73	9%	0.001	0.011
Lafayette	2	ROW_11327	ROW Opportunity	5.07	1.07	21%	0.001	0.011
Lafayette	2	ROW_13216	ROW Opportunity	5.56	0.90	16%	0.001	0.011
Lafayette	2	ROW_16250	ROW Opportunity	2.49	0.97	39%	0.002	0.011
Lafayette	2	ROW_16635	ROW Opportunity	5.34	0.92	17%	0.001	0.011
Lafayette	2	ROW_18973	ROW Opportunity	3.41	0.90	26%	0.001	0.011
Lafayette	2	ROW_9365	ROW Opportunity	3.71	1.19	32%	0.001	0.011
Lafayette	2	ROW_2177	ROW Opportunity	4.87	0.90	18%	0.001	0.010
Lafayette	2	ROW_4253	ROW Opportunity	0.63	0.32	51%	0.005	0.010
Lafayette	2	ROW_5759	ROW Opportunity	4.91	0.98	20%	0.001	0.010
Martinez	2	planned_7	Planned Creek/Marsh Restoration	94.31	39.77	42%	0.018	6.741
Martinez	2	ROW_11847	ROW Opportunity	18.15	11.75	65%	0.030	2.289
Martinez	2	ROW_9312	ROW Opportunity	15.70	8.30	53%	0.019	1.200
Martinez	2	Parcel_256879	Parcel-Based Opportunity	4.53	3.61	80%	0.045	0.840
Martinez	2	Parcel_258271	Regional Opportunity	11.25	3.16	28%	0.016	0.738
Martinez	2	ROW_2615	ROW Opportunity	4.67	2.85	61%	0.029	0.568
Martinez	2	ROW_17609	ROW Opportunity	3.03	1.75	58%	0.034	0.432
Martinez	2	ROW_1199	ROW Opportunity	10.11	5.56	55%	0.009	0.350
Martinez	2	ROW_12654	ROW Opportunity	2.07	1.21	58%	0.034	0.301
Martinez	2	Parcel_224745	Parcel-Based Opportunity	12.27	5.56	45%	0.006	0.275
Martinez	2	Parcel_256618	Regional Opportunity	1.53	1.15	75%	0.042	0.271
Martinez	2	ROW_9751	ROW Opportunity	3.95	1.31	33%	0.016	0.264
Martinez	2	ROW_1704	ROW Opportunity	2.43	1.03	42%	0.025	0.262
Martinez	2	ROW_613	ROW Opportunity	44.88	20.72	46%	0.002	0.257
Martinez	2	Parcel_257598	Parcel-Based Opportunity	4.12	0.90	22%	0.014	0.241
Martinez	2	ROW_11018	ROW Opportunity	1.72	0.97	56%	0.033	0.238
Martinez	2	ROW_2610	ROW Opportunity	2.98	0.86	29%	0.017	0.219
Martinez	2	ROW_6722	ROW Opportunity	3.14	1.29	41%	0.017	0.214
Martinez	2	ROW_7179	ROW Opportunity	6.44	3.23	50%	0.008	0.194
Martinez	2	ROW_14509	ROW Opportunity	5.63	2.94	52%	0.009	0.175
Martinez	2	ROW_12653	ROW Opportunity	1.13	0.68	60%	0.035	0.165
Martinez	2	ROW_1198	ROW Opportunity	20.20	10.22	51%	0.003	0.158

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Martinez	2	Parcel_257469	Parcel-Based Opportunity	1.47	0.63	43%	0.025	0.155
Martinez	2	ROW_2021	ROW Opportunity	3.08	1.19	39%	0.012	0.154
Martinez	2	Parcel_257037	Parcel-Based Opportunity	1.31	0.60	46%	0.027	0.148
Martinez	2	ROW_11846	ROW Opportunity	1.07	0.66	62%	0.032	0.140
Martinez	2	ROW_6258	ROW Opportunity	1.28	0.54	42%	0.025	0.138
Martinez	2	ROW_13093	ROW Opportunity	19.22	8.75	46%	0.003	0.135
Martinez	2	ROW_15102	ROW Opportunity	1.17	0.49	42%	0.026	0.126
Martinez	2	ROW_12899	ROW Opportunity	23.68	11.07	47%	0.002	0.123
Martinez	2	ROW_6843	ROW Opportunity	7.57	3.72	49%	0.005	0.119
Martinez	2	ROW_12656	ROW Opportunity	1.13	0.45	40%	0.024	0.114
Martinez	2	Parcel_259273	Parcel-Based Opportunity	53.06	7.74	15%	0.001	0.110
Martinez	2	planned_375	Planned Unlined Bioretention	0.69	0.47	68%	0.036	0.104
Martinez	2	Parcel_256439	Parcel-Based Opportunity	6.52	4.34	67%	0.005	0.101
Martinez	2	ROW_11617	ROW Opportunity	6.23	3.68	59%	0.005	0.098
Martinez	2	ROW_3734	ROW Opportunity	10.53	5.59	53%	0.003	0.090
Martinez	2	ROW_4932	ROW Opportunity	2.88	1.64	57%	0.008	0.089
Martinez	2	ROW_15103	ROW Opportunity	0.78	0.33	42%	0.026	0.085
Martinez	2	Parcel_257604	Parcel-Based Opportunity	5.42	1.42	26%	0.004	0.080
Martinez	2	ROW_7416	ROW Opportunity	0.97	0.55	57%	0.020	0.078
Martinez	2	ROW_2023	ROW Opportunity	6.59	0.76	12%	0.003	0.076
Martinez	2	ROW_12901	ROW Opportunity	3.64	1.75	48%	0.005	0.070
Martinez	2	ROW_20611	ROW Opportunity	5.63	3.27	58%	0.004	0.069
Martinez	2	ROW_2910	ROW Opportunity	0.47	0.34	72%	0.035	0.069
Martinez	2	Parcel_229067	Regional Opportunity	2.22	1.53	69%	0.008	0.068
Martinez	2	ROW_14854	ROW Opportunity	1.55	1.06	68%	0.012	0.067
Martinez	2	ROW_10676	ROW Opportunity	2.73	1.61	59%	0.007	0.065
Martinez	2	ROW_7853	ROW Opportunity	7.02	3.11	44%	0.003	0.064
Martinez	2	ROW_15451	ROW Opportunity	4.14	2.09	50%	0.005	0.062
Martinez	2	ROW_19814	ROW Opportunity	0.70	0.24	34%	0.021	0.062
Martinez	2	ROW_629	ROW Opportunity	5.08	1.83	36%	0.004	0.060
Martinez	2	ROW_12109	ROW Opportunity	0.35	0.24	69%	0.039	0.058
Martinez	2	Parcel_259114	Parcel-Based Opportunity	9.40	2.23	24%	0.002	0.056
Martinez	2	ROW_11811	ROW Opportunity	3.12	1.63	52%	0.005	0.054
Martinez	2	Parcel_256442	Regional Opportunity	1.80	1.30	72%	0.008	0.053
Martinez	2	Parcel_251682	Parcel-Based Opportunity	32.13	8.78	27%	0.001	0.045
Martinez	2	Parcel_256990	Regional Opportunity	1.38	0.32	23%	0.008	0.043
Martinez	2	ROW_6892	ROW Opportunity	1.90	1.20	63%	0.006	0.040
Martinez	2	Parcel_232523	Regional Opportunity	1.40	0.76	54%	0.007	0.039
Martinez	2	ROW_15020	ROW Opportunity	9.04	2.92	32%	0.002	0.039
Martinez	2	ROW_8221	ROW Opportunity	6.16	3.05	50%	0.002	0.039
Martinez	2	ROW_3856	ROW Opportunity	20.44	8.96	44%	0.001	0.034
Martinez	2	ROW_610	ROW Opportunity	15.31	6.60	43%	0.001	0.034
Martinez	2	planned_372	Planned Unlined Bioretention	1.66	0.92	55%	0.006	0.033
Martinez	2	Parcel_256108	Regional Opportunity	0.92	0.73	79%	0.010	0.032
Martinez	2	Parcel_258236	Parcel-Based Opportunity	0.33	0.22	67%	0.024	0.032
Martinez	2	Parcel_222314	Regional Opportunity	1.35	0.61	45%	0.006	0.030
Martinez	2	ROW_6905	ROW Opportunity	1.95	0.94	48%	0.005	0.030
Martinez	2	Parcel_255702	Regional Opportunity	0.92	0.66	72%	0.009	0.029
Martinez	2	Parcel_256354	Regional Opportunity	0.89	0.65	73%	0.009	0.029
Martinez	2	ROW_8871	ROW Opportunity	2.44	1.23	50%	0.004	0.028
Martinez	2	Parcel_256320	Regional Opportunity	0.91	0.61	67%	0.008	0.027
Martinez	2	Parcel_256422	Regional Opportunity	0.76	0.50	66%	0.010	0.027
Martinez	2	ROW_6891	ROW Opportunity	7.35	3.61	49%	0.002	0.027
Martinez	2	Parcel_253376	Regional Opportunity	1.62	0.94	58%	0.005	0.026
Martinez	2	Parcel_254721	Regional Opportunity	1.16	0.53	46%	0.006	0.024
Martinez	2	Parcel_224949	Regional Opportunity	0.86	0.49	57%	0.008	0.023
Martinez	2	Parcel_237827	Regional Opportunity	0.71	0.52	73%	0.009	0.023
Martinez	2	Parcel_253818	Parcel-Based Opportunity	13.01	5.66	44%	0.001	0.023
Martinez	2	Parcel_256502	Parcel-Based Opportunity	0.42	0.31	74%	0.014	0.023
Martinez	2	ROW_7604	ROW Opportunity	2.87	1.45	51%	0.003	0.023
Martinez	2	ROW_14857	ROW Opportunity	17.86	8.48	47%	0.000	0.022
Martinez	2	ROW_20289	ROW Opportunity	7.12	3.17	45%	0.001	0.022
Martinez	2	ROW_7211	ROW Opportunity	6.08	2.85	47%	0.002	0.022
Martinez	2	Parcel_258083	Parcel-Based Opportunity	35.65	4.18	12%	0.000	0.021
Martinez	2	Parcel_243866	Parcel-Based Opportunity	14.00	5.43	39%	0.001	0.020
Martinez	2	ROW_2025	ROW Opportunity	9.51	4.84	51%	0.001	0.020
Martinez	2	Parcel_223914	Regional Opportunity	0.85	0.39	46%	0.006	0.019
Martinez	2	Parcel_258983	Regional Opportunity	122.27	7.70	6%	0.000	0.019
Martinez	2	ROW_14205	ROW Opportunity	6.33	3.34	53%	0.001	0.019
Martinez	2	ROW_20345	ROW Opportunity	5.01	2.30	46%	0.002	0.019
Martinez	2	ROW_9574	ROW Opportunity	1.17	0.62	53%	0.005	0.019
Martinez	2	Parcel_255585	Regional Opportunity	0.57	0.42	74%	0.009	0.018
Martinez	2	ROW_16176	ROW Opportunity	9.36	4.21	45%	0.001	0.018
Martinez	2	ROW_631	ROW Opportunity	3.69	1.73	47%	0.002	0.018
Martinez	2	Parcel_225041	Regional Opportunity	0.74	0.35	47%	0.007	0.017
Martinez	2	ROW_6965	ROW Opportunity	3.36	1.76	52%	0.002	0.017
Martinez	2	ROW_9879	ROW Opportunity	0.73	0.41	56%	0.007	0.017
Martinez	2	Parcel_253606	Parcel-Based Opportunity	0.49	0.36	73%	0.009	0.016
Martinez	2	Parcel_255151	Regional Opportunity	0.55	0.35	64%	0.008	0.016
Martinez	2	planned_376	Planned Unlined Bioretention	0.53	0.37	70%	0.009	0.016
Martinez	2	Parcel_225722	Parcel-Based Opportunity	0.34	0.06	18%	0.011	0.015
Martinez	2	ROW_12471	ROW Opportunity	5.06	2.37	47%	0.001	0.015
Martinez	2	ROW_12911	ROW Opportunity	4.33	2.19	51%	0.002	0.015
Martinez	2	ROW_12492	ROW Opportunity	5.90	2.58	44%	0.001	0.014
Martinez	2	ROW_14285	ROW Opportunity	3.17	1.67	53%	0.002	0.014
Martinez	2	ROW_14410	ROW Opportunity	0.55	0.30	55%	0.007	0.014
Martinez	2	ROW_1464	ROW Opportunity	1.92	0.74	39%	0.003	0.014
Martinez	2	ROW_20556	ROW Opportunity	1.78	0.79	44%	0.003	0.014
Martinez	2	ROW_7828	ROW Opportunity	1.92	0.94	49%	0.003	0.014
Martinez	2	ROW_9180	ROW Opportunity	1.23	0.59	48%	0.004	0.014
Martinez	2	Parcel_255587	Parcel-Based Opportunity	0.37	0.29	78%	0.010	0.013
Martinez	2	ROW_12005	ROW Opportunity	1.77	0.96	54%	0.003	0.013
Martinez	2	ROW_4933	ROW Opportunity	2.81	1.45	52%	0.002	0.013
Martinez	2	Parcel_214775	Parcel-Based Opportunity	9.97	2.81	28%	0.001	0.012

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Martinez	2	Parcel_238844	Parcel-Based Opportunity	14.31	3.94	28%	0.000	0.012
Martinez	2	ROW_14540	ROW Opportunity	0.51	0.25	49%	0.007	0.012
Martinez	2	ROW_15897	ROW Opportunity	3.30	1.73	52%	0.002	0.012
Martinez	2	ROW_20804	ROW Opportunity	4.55	2.34	51%	0.001	0.012
Martinez	2	ROW_4230	ROW Opportunity	1.56	0.52	33%	0.003	0.012
Martinez	2	ROW_6703	ROW Opportunity	0.74	0.43	58%	0.005	0.012
Martinez	2	Parcel_240285	Parcel-Based Opportunity	11.54	3.74	32%	0.000	0.011
Martinez	2	Parcel_252998	Parcel-Based Opportunity	8.29	4.83	58%	0.000	0.011
Martinez	2	Parcel_255494	Parcel-Based Opportunity	0.28	0.25	89%	0.011	0.011
Martinez	2	Parcel_256903	Parcel-Based Opportunity	0.23	0.11	48%	0.013	0.011
Martinez	2	planned_373	Planned Unlined Bioretention	1.59	0.50	31%	0.002	0.011
Martinez	2	ROW_12317	ROW Opportunity	0.64	0.34	53%	0.005	0.011
Martinez	2	ROW_16580	ROW Opportunity	1.80	0.75	42%	0.002	0.011
Martinez	2	ROW_20704	ROW Opportunity	5.72	2.55	45%	0.001	0.011
Martinez	2	Parcel_255781	Parcel-Based Opportunity	0.46	0.23	50%	0.006	0.010
Martinez	2	ROW_19347	ROW Opportunity	0.79	0.42	53%	0.004	0.010
Moraga	2	ROW_17250	ROW Opportunity	11.07	3.64	33%	0.016	0.647
Moraga	2	planned_1316	Planned Unlined Bioretention	2.98	1.05	35%	0.026	0.293
Moraga	2	Parcel_10950	Regional Opportunity	1.14	0.34	30%	0.041	0.185
Moraga	2	Parcel_10961	Regional Opportunity	1.15	0.30	26%	0.037	0.170
Moraga	2	ROW_12878	ROW Opportunity	4.53	1.88	42%	0.008	0.111
Moraga	2	Parcel_26092	Parcel-Based Opportunity	38.99	10.31	26%	0.001	0.106
Moraga	2	ROW_12881	ROW Opportunity	11.85	3.71	31%	0.003	0.072
Moraga	2	Parcel_12163	Parcel-Based Opportunity	43.07	7.49	17%	0.001	0.069
Moraga	2	Parcel_13537	Parcel-Based Opportunity	50.27	8.81	18%	0.000	0.067
Moraga	2	Parcel_7723	Parcel-Based Opportunity	24.01	5.65	24%	0.001	0.056
Moraga	2	ROW_3145	ROW Opportunity	19.33	5.50	28%	0.001	0.049
Moraga	2	ROW_10626	ROW Opportunity	13.66	3.97	29%	0.001	0.041
Moraga	2	ROW_4748	ROW Opportunity	14.73	3.93	27%	0.001	0.041
Moraga	2	ROW_3392	ROW Opportunity	10.09	4.09	41%	0.002	0.032
Moraga	2	Parcel_6384	Parcel-Based Opportunity	9.48	3.19	34%	0.002	0.030
Moraga	2	ROW_19295	ROW Opportunity	9.79	2.99	31%	0.001	0.030
Moraga	2	ROW_15965	ROW Opportunity	9.83	3.12	32%	0.001	0.028
Moraga	2	ROW_16744	ROW Opportunity	10.16	2.83	28%	0.001	0.027
Moraga	2	ROW_16992	ROW Opportunity	8.35	2.44	29%	0.001	0.023
Moraga	2	planned_150	Planned Creek/Marsh Restoration	9.22	0.93	10%	0.001	0.015
Moraga	2	Parcel_12154	Parcel-Based Opportunity	7.49	1.19	16%	0.001	0.013
Moraga	2	ROW_3874	ROW Opportunity	4.29	1.72	40%	0.001	0.013
Moraga	2	Parcel_12566	Parcel-Based Opportunity	19.96	2.68	13%	0.000	0.012
Moraga	2	Parcel_13376	Parcel-Based Opportunity	9.49	0.66	7%	0.001	0.012
Moraga	2	Parcel_13461	Parcel-Based Opportunity	4.70	1.31	28%	0.001	0.012
Moraga	2	ROW_20532	ROW Opportunity	3.80	1.22	32%	0.002	0.012
Moraga	2	ROW_5547	ROW Opportunity	4.78	1.26	26%	0.001	0.012
Moraga	2	ROW_5710	ROW Opportunity	4.70	1.16	25%	0.001	0.012
Moraga	2	Parcel_9225	Parcel-Based Opportunity	6.43	1.25	19%	0.001	0.011
Moraga	2	ROW_20599	ROW Opportunity	3.96	1.17	30%	0.001	0.011
Moraga	2	ROW_3147	ROW Opportunity	3.36	1.24	37%	0.002	0.011
Moraga	2	Parcel_3748	Parcel-Based Opportunity	8.12	0.56	7%	0.001	0.010
Moraga	2	ROW_12598	ROW Opportunity	3.52	1.17	33%	0.001	0.010
Orinda	2	ROW_21614	ROW Opportunity	31.32	10.62	34%	0.002	0.104
Orinda	2	Parcel_44823	Parcel-Based Opportunity	16.20	4.76	29%	0.001	0.046
Orinda	2	Parcel_46205	Parcel-Based Opportunity	22.26	2.96	13%	0.001	0.041
Orinda	2	ROW_9556	ROW Opportunity	15.77	2.91	18%	0.001	0.034
Orinda	2	Parcel_13835	Parcel-Based Opportunity	11.63	3.16	27%	0.001	0.030
Orinda	2	Parcel_49552	Parcel-Based Opportunity	28.42	2.67	9%	0.000	0.029
Orinda	2	Parcel_29088	Parcel-Based Opportunity	6.41	1.86	29%	0.001	0.018
Orinda	2	ROW_1107	ROW Opportunity	7.07	1.26	18%	0.001	0.018
Orinda	2	ROW_11198	ROW Opportunity	11.30	1.45	13%	0.001	0.018
Orinda	2	ROW_19957	ROW Opportunity	9.06	1.12	12%	0.001	0.017
Orinda	2	ROW_9077	ROW Opportunity	7.88	1.15	15%	0.001	0.017
Orinda	2	ROW_4721	ROW Opportunity	6.01	1.19	20%	0.001	0.015
Orinda	2	Parcel_47119	Parcel-Based Opportunity	10.58	0.76	7%	0.001	0.014
Orinda	2	Parcel_36062	Parcel-Based Opportunity	3.19	1.35	42%	0.002	0.013
Orinda	2	ROW_7202	ROW Opportunity	5.07	0.93	18%	0.001	0.011
Pinole	2	Parcel_254723	Parcel-Based Opportunity	4.41	2.14	49%	0.030	0.532
Pinole	2	ROW_16912	ROW Opportunity	10.96	5.87	54%	0.008	0.283
Pinole	2	ROW_19218	ROW Opportunity	7.85	3.87	49%	0.006	0.158
Pinole	2	ROW_14911	ROW Opportunity	4.68	2.63	56%	0.009	0.147
Pinole	2	ROW_14916	ROW Opportunity	9.85	4.50	46%	0.005	0.141
Pinole	2	ROW_20585	ROW Opportunity	1.13	0.71	63%	0.027	0.122
Pinole	2	ROW_1018	ROW Opportunity	2.13	1.30	61%	0.008	0.059
Pinole	2	ROW_15540	ROW Opportunity	8.95	3.99	45%	0.003	0.059
Pinole	2	Parcel_230897	Regional Opportunity	2.72	1.22	45%	0.006	0.056
Pinole	2	ROW_15484	ROW Opportunity	0.95	0.39	41%	0.014	0.052
Pinole	2	ROW_18207	ROW Opportunity	0.78	0.47	60%	0.017	0.050
Pinole	2	ROW_14605	ROW Opportunity	2.38	1.39	58%	0.006	0.047
Pinole	2	Parcel_230869	Regional Opportunity	1.51	0.94	62%	0.009	0.044
Pinole	2	Parcel_232274	Parcel-Based Opportunity	22.08	9.87	45%	0.001	0.040
Pinole	2	ROW_6874	ROW Opportunity	9.82	4.43	45%	0.002	0.038
Pinole	2	ROW_7727	ROW Opportunity	0.61	0.33	54%	0.014	0.033
Pinole	2	Parcel_221780	Regional Opportunity	3.09	1.00	32%	0.003	0.032
Pinole	2	ROW_7150	ROW Opportunity	2.17	1.19	55%	0.005	0.030
Pinole	2	Parcel_245647	Regional Opportunity	0.88	0.67	76%	0.010	0.029
Pinole	2	Parcel_247794	Parcel-Based Opportunity	0.30	0.08	27%	0.019	0.023
Pinole	2	Parcel_245383	Regional Opportunity	0.65	0.49	75%	0.010	0.022
Pinole	2	ROW_12194	ROW Opportunity	3.86	1.94	50%	0.002	0.022
Pinole	2	ROW_3363	ROW Opportunity	5.11	2.55	50%	0.002	0.022
Pinole	2	ROW_5887	ROW Opportunity	13.54	5.22	39%	0.001	0.022
Pinole	2	ROW_5599	ROW Opportunity	1.98	1.15	58%	0.004	0.021
Pinole	2	Parcel_243023	Parcel-Based Opportunity	9.49	5.01	53%	0.001	0.020
Pinole	2	ROW_15034	ROW Opportunity	1.70	0.94	55%	0.004	0.020
Pinole	2	ROW_13497	ROW Opportunity	6.04	3.06	51%	0.001	0.019
Pinole	2	ROW_17159	ROW Opportunity	7.51	3.24	43%	0.001	0.019
Pinole	2	Parcel_219618	Parcel-Based Opportunity	13.15	4.37	33%	0.001	0.018

Jurisdiction	Permit	Project ID	Project Type	Area (Acres)	Impervious Area (Acres)	Percent Impervious	PCBs Yield (g/acre)	PCBs Mass reduced (g)
Pinole	2	Parcel_247475	Parcel-Based Opportunity	0.12	0.08	67%	0.038	0.018
Pinole	2	ROW_5886	ROW Opportunity	4.30	2.40	56%	0.002	0.018
Pinole	2	ROW_1742	ROW Opportunity	4.13	1.95	47%	0.002	0.017
Pinole	2	ROW_11596	ROW Opportunity	0.67	0.39	58%	0.007	0.016
Pinole	2	ROW_15440	ROW Opportunity	1.90	0.96	51%	0.003	0.016
Pinole	2	ROW_4012	ROW Opportunity	1.39	0.72	52%	0.004	0.016
Pinole	2	ROW_306	ROW Opportunity	1.68	0.94	56%	0.003	0.015
Pinole	2	ROW_1017	ROW Opportunity	0.97	0.42	43%	0.005	0.014
Pinole	2	ROW_13999	ROW Opportunity	0.44	0.22	50%	0.009	0.014
Pinole	2	ROW_293	ROW Opportunity	2.06	1.13	55%	0.003	0.014
Pinole	2	ROW_15441	ROW Opportunity	0.57	0.38	67%	0.007	0.013
Pinole	2	ROW_15478	ROW Opportunity	1.37	0.77	56%	0.003	0.013
Pinole	2	ROW_16159	ROW Opportunity	1.46	0.86	59%	0.003	0.013
Pinole	2	Parcel_244914	Parcel-Based Opportunity	0.42	0.28	67%	0.009	0.012
Pinole	2	Parcel_249339	Regional Opportunity	0.52	0.26	50%	0.007	0.012
Pinole	2	ROW_14913	ROW Opportunity	3.64	1.88	52%	0.002	0.012
Pinole	2	ROW_16077	ROW Opportunity	1.72	0.80	47%	0.003	0.012
Pinole	2	ROW_7141	ROW Opportunity	1.41	0.78	55%	0.003	0.012
Pinole	2	ROW_1021	ROW Opportunity	1.11	0.49	44%	0.003	0.011
Pinole	2	ROW_14440	ROW Opportunity	1.13	0.42	37%	0.003	0.011
Pinole	2	ROW_4571	ROW Opportunity	5.72	2.53	44%	0.001	0.011
Pinole	2	Parcel_246543	Parcel-Based Opportunity	0.40	0.23	58%	0.008	0.010
Pinole	2	Parcel_249605	Parcel-Based Opportunity	4.61	0.72	16%	0.001	0.010
Pinole	2	ROW_646	ROW Opportunity	4.57	2.48	54%	0.001	0.010
Pittsburg	2	Parcel_352273	Parcel-Based Opportunity	22.24	7.16	32%	0.020	1.973
Pittsburg	2	ROW_6199	ROW Opportunity	17.07	9.41	55%	0.023	1.681
Pittsburg	2	ROW_13238	ROW Opportunity	17.62	9.84	56%	0.016	1.119
Pittsburg	2	ROW_11361	ROW Opportunity	11.26	7.09	63%	0.019	0.890
Pittsburg	2	ROW_7663	ROW Opportunity	8.79	5.55	63%	0.024	0.887
Pittsburg	2	ROW_4315	ROW Opportunity	3.78	2.84	75%	0.040	0.661
Pittsburg	2	ROW_14954	ROW Opportunity	7.36	4.19	57%	0.020	0.642
Pittsburg	2	ROW_2265	ROW Opportunity	3.43	2.47	72%	0.038	0.568
Pittsburg	2	ROW_14958	ROW Opportunity	4.91	3.47	71%	0.026	0.548
Pittsburg	2	Parcel_366531	Parcel-Based Opportunity	6.87	2.53	37%	0.015	0.449
Pittsburg	2	ROW_14798	ROW Opportunity	3.48	2.15	62%	0.028	0.412
Pittsburg	2	ROW_1954	ROW Opportunity	2.50	1.71	68%	0.037	0.401
Pittsburg	2	ROW_11359	ROW Opportunity	13.31	7.75	58%	0.007	0.342
Pittsburg	2	ROW_3090	ROW Opportunity	5.95	3.72	63%	0.014	0.342
Pittsburg	2	Parcel_356238	Parcel-Based Opportunity	10.36	3.44	33%	0.008	0.326
Pittsburg	2	ROW_7525	ROW Opportunity	2.93	1.85	63%	0.026	0.326
Pittsburg	2	Parcel_350839	Parcel-Based Opportunity	14.33	6.63	46%	0.006	0.316
Pittsburg	2	ROW_6215	ROW Opportunity	2.16	1.40	65%	0.033	0.310
Pittsburg	2	ROW_6741	ROW Opportunity	2.05	1.30	63%	0.034	0.304
Pittsburg	2	ROW_9457	ROW Opportunity	1.88	1.26	67%	0.036	0.296
Pittsburg	2	ROW_17711	ROW Opportunity	1.60	1.28	80%	0.042	0.292
Pittsburg	2	ROW_7526	ROW Opportunity	5.46	3.95	72%	0.013	0.279
Pittsburg	2	ROW_8562	ROW Opportunity	2.35	1.45	62%	0.027	0.275
Pittsburg	2	ROW_20368	ROW Opportunity	6.68	4.19	63%	0.010	0.251
Pittsburg	2	Parcel_367743	Regional Opportunity	2.24	1.01	45%	0.025	0.247
Pittsburg	2	ROW_8561	ROW Opportunity	7.93	4.62	58%	0.008	0.236
Pittsburg	2	ROW_1955	ROW Opportunity	1.47	0.99	67%	0.036	0.231
Pittsburg	2	ROW_6257	ROW Opportunity	21.27	11.80	55%	0.003	0.231
Pittsburg	2	ROW_21116	ROW Opportunity	8.88	4.83	54%	0.007	0.228
Pittsburg	2	ROW_6280	ROW Opportunity	5.74	3.46	60%	0.010	0.227
Pittsburg	2	ROW_11974	ROW Opportunity	1.43	0.96	67%	0.036	0.226
Pittsburg	2	ROW_8563	ROW Opportunity	12.59	7.66	61%	0.005	0.220
Pittsburg	2	ROW_9582	ROW Opportunity	2.15	1.25	58%	0.023	0.212
Pittsburg	2	Parcel_349390	Parcel-Based Opportunity	6.79	4.68	69%	0.008	0.207
Pittsburg	2	ROW_6226	ROW Opportunity	4.40	2.71	62%	0.011	0.194
Pittsburg	2	ROW_7859	ROW Opportunity	7.77	4.29	55%	0.007	0.191
Pittsburg	2	ROW_6505	ROW Opportunity	3.76	2.13	57%	0.011	0.170
Pittsburg	2	ROW_15499	ROW Opportunity	1.44	1.06	74%	0.027	0.169
Pittsburg	2	ROW_18481	ROW Opportunity	1.15	0.71	62%	0.033	0.166
Pittsburg	2	ROW_3328	ROW Opportunity	1.31	0.78	60%	0.029	0.165
Pittsburg	2	ROW_3327	ROW Opportunity	1.14	0.65	57%	0.031	0.154
Pittsburg	2	Parcel_363475	Parcel-Based Opportunity	7.77	3.26	42%	0.005	0.150
Pittsburg	2	ROW_8520	ROW Opportunity	3.06	1.75	57%	0.011	0.135
Pittsburg	2	ROW_11360	ROW Opportunity	7.80	4.64	59%	0.005	0.133
Pittsburg	2	ROW_6737	ROW Opportunity	0.93	0.57	61%	0.033	0.133
Pittsburg	2	ROW_20440	ROW Opportunity	1.02	0.53	52%	0.028	0.126
Pittsburg	2	ROW_2855	ROW Opportunity	24.34	12.97	53%	0.002	0.117
Pittsburg	2	ROW_6736	ROW Opportunity	0.84	0.50	60%	0.032	0.117
Pittsburg	2	ROW_6237	ROW Opportunity	2.47	1.38	56%	0.011	0.110
Pittsburg	2	Parcel_362143	Regional Opportunity	0.99	0.41	41%	0.026	0.109
Pittsburg	2	ROW_4561	ROW Opportunity	4.16	2.43	58%	0.007	0.108
Pittsburg	2	ROW_18479	ROW Opportunity	0.76	0.45	59%	0.032	0.106
Pittsburg	2	Parcel_373150	Parcel-Based Opportunity	5.22	2.26	43%	0.005	0.103
Pittsburg	2	ROW_15210	ROW Opportunity	11.75	7.22	61%	0.003	0.093
Pittsburg	2	Parcel_367785	Regional Opportunity	1.98	1.79	90%	0.011	0.078
Pittsburg	2	ROW_21076	ROW Opportunity	0.54	0.34	63%	0.033	0.078
Pittsburg	2	ROW_3879	ROW Opportunity	7.88	4.73	60%	0.003	0.075
Pittsburg	2	ROW_8564	ROW Opportunity	9.90	5.38	54%	0.003	0.074
Pittsburg	2	Parcel_361465	Parcel-Based Opportunity	9.00	2.11	23%	0.002	0.072
Pittsburg	2	ROW_5091	ROW Opportunity	19.64	10.50	53%	0.001	0.072
Pittsburg	2	ROW_20894	ROW Opportunity	1.00	0.63	63%	0.017	0.071
Pittsburg	2	ROW_11324	ROW Opportunity	1.53	1.00	65%	0.012	0.070
Pittsburg	2	ROW_17896	ROW Opportunity	0.57	0.34	60%	0.028	0.070
Pittsburg	2	ROW_9581	ROW Opportunity	1.45	0.88	61%	0.012	0.070
Pittsburg	2	Parcel_362407	Regional Opportunity	2.93	1.49	51%	0.006	0.068
Pittsburg	2	ROW_1336	ROW Opportunity	3.78	2.22	59%	0.005	0.068
Pittsburg	2	Parcel_371128	Parcel-Based Opportunity	14.11	3.86	27%	0.002	0.067
Pittsburg	2	Parcel_362118	Regional Opportunity	2.29	1.41	62%	0.008	0.063
Pittsburg	2	ROW_7571	ROW Opportunity	10.34	5.77	56%	0.002	0.063
Pittsburg	2	ROW_15487	ROW Opportunity	2.36	1.45	61%	0.007	0.062

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Pittsburg	2	ROW_6193	ROW Opportunity	3.97	2.52	63%	0.005	0.060
Pittsburg	2	Parcel_362980	Parcel-Based Opportunity	29.43	14.40	49%	0.001	0.058
Pittsburg	2	ROW_1284	ROW Opportunity	0.36	0.25	69%	0.036	0.057
Pittsburg	2	ROW_5206	ROW Opportunity	3.75	2.42	65%	0.005	0.057
Pittsburg	2	ROW_15053	ROW Opportunity	2.48	1.28	52%	0.006	0.055
Pittsburg	2	Parcel_374906	Parcel-Based Opportunity	6.68	4.37	65%	0.003	0.054
Pittsburg	2	ROW_18482	ROW Opportunity	0.42	0.22	52%	0.029	0.054
Pittsburg	2	Parcel_356104	Regional Opportunity	2.28	1.53	67%	0.007	0.053
Pittsburg	2	Parcel_370086	Regional Opportunity	1.37	1.18	86%	0.010	0.052
Pittsburg	2	ROW_6195	ROW Opportunity	6.47	3.95	61%	0.003	0.052
Pittsburg	2	Parcel_362426	Regional Opportunity	1.89	1.15	61%	0.007	0.051
Pittsburg	2	ROW_434	ROW Opportunity	0.36	0.23	64%	0.033	0.051
Pittsburg	2	ROW_11734	ROW Opportunity	3.49	2.06	59%	0.004	0.050
Pittsburg	2	Parcel_358872	Regional Opportunity	1.52	1.10	72%	0.009	0.048
Pittsburg	2	ROW_17448	ROW Opportunity	2.84	1.45	51%	0.005	0.047
Pittsburg	2	ROW_3086	ROW Opportunity	0.45	0.29	64%	0.023	0.045
Pittsburg	2	Parcel_363463	Regional Opportunity	2.26	0.96	42%	0.005	0.044
Pittsburg	2	ROW_16768	ROW Opportunity	0.36	0.19	53%	0.028	0.044
Pittsburg	2	Parcel_363309	Parcel-Based Opportunity	6.78	2.01	30%	0.002	0.043
Pittsburg	2	ROW_810	ROW Opportunity	0.26	0.18	69%	0.037	0.043
Pittsburg	2	Parcel_371346	Parcel-Based Opportunity	0.24	0.18	75%	0.039	0.041
Pittsburg	2	ROW_5831	ROW Opportunity	3.02	1.89	63%	0.004	0.041
Pittsburg	2	ROW_6214	ROW Opportunity	3.42	2.08	61%	0.004	0.041
Pittsburg	2	ROW_5428	ROW Opportunity	4.76	2.60	55%	0.003	0.037
Pittsburg	2	ROW_6228	ROW Opportunity	4.44	2.89	65%	0.003	0.037
Pittsburg	2	ROW_11833	ROW Opportunity	3.89	2.24	58%	0.003	0.036
Pittsburg	2	ROW_762	ROW Opportunity	6.64	3.55	53%	0.002	0.036
Pittsburg	2	Parcel_372570	Regional Opportunity	1.35	0.77	57%	0.007	0.035
Pittsburg	2	ROW_18594	ROW Opportunity	8.91	5.04	57%	0.002	0.035
Pittsburg	2	Parcel_374691	Parcel-Based Opportunity	11.06	5.22	47%	0.001	0.034
Pittsburg	2	ROW_18048	ROW Opportunity	4.41	2.71	61%	0.003	0.034
Pittsburg	2	Parcel_368250	Parcel-Based Opportunity	0.32	0.18	56%	0.024	0.033
Pittsburg	2	ROW_1733	ROW Opportunity	1.96	0.93	47%	0.005	0.033
Pittsburg	2	Parcel_348794	Parcel-Based Opportunity	20.29	7.64	38%	0.001	0.032
Pittsburg	2	ROW_2115	ROW Opportunity	1.76	0.97	55%	0.005	0.032
Pittsburg	2	ROW_17251	ROW Opportunity	8.95	5.16	58%	0.001	0.031
Pittsburg	2	ROW_394	ROW Opportunity	1.85	1.05	57%	0.005	0.031
Pittsburg	2	ROW_15726	ROW Opportunity	3.11	1.83	59%	0.003	0.030
Pittsburg	2	ROW_21525	ROW Opportunity	5.44	2.94	54%	0.002	0.030
Pittsburg	2	ROW_20465	ROW Opportunity	38.58	20.17	52%	0.000	0.029
Pittsburg	2	Parcel_361545	Parcel-Based Opportunity	18.57	6.68	36%	0.001	0.028
Pittsburg	2	ROW_14014	ROW Opportunity	1.80	0.94	52%	0.005	0.028
Pittsburg	2	ROW_15496	ROW Opportunity	2.11	1.33	63%	0.004	0.028
Pittsburg	2	ROW_3866	ROW Opportunity	1.39	0.66	47%	0.006	0.028
Pittsburg	2	ROW_6218	ROW Opportunity	1.32	0.86	65%	0.006	0.028
Pittsburg	2	Parcel_351544	Parcel-Based Opportunity	13.19	6.68	51%	0.001	0.027
Pittsburg	2	Parcel_358992	Parcel-Based Opportunity	3.66	2.32	63%	0.003	0.027
Pittsburg	2	Parcel_374956	Parcel-Based Opportunity	7.22	2.76	38%	0.002	0.027
Pittsburg	2	ROW_2172	ROW Opportunity	3.63	2.26	62%	0.003	0.027
Pittsburg	2	ROW_1734	ROW Opportunity	4.43	2.52	57%	0.002	0.026
Pittsburg	2	ROW_20003	ROW Opportunity	12.36	6.63	54%	0.001	0.026
Pittsburg	2	Parcel_342146	Parcel-Based Opportunity	12.50	6.01	48%	0.001	0.025
Pittsburg	2	ROW_6217	ROW Opportunity	1.01	0.70	69%	0.007	0.025
Pittsburg	2	Parcel_348459	Parcel-Based Opportunity	12.96	5.96	46%	0.001	0.024
Pittsburg	2	Parcel_372876	Regional Opportunity	1.32	0.53	40%	0.005	0.024
Pittsburg	2	Parcel_373402	Regional Opportunity	1.03	0.53	51%	0.006	0.024
Pittsburg	2	ROW_11064	ROW Opportunity	3.96	2.19	55%	0.002	0.024
Pittsburg	2	ROW_14856	ROW Opportunity	3.11	1.80	58%	0.002	0.024
Pittsburg	2	ROW_16225	ROW Opportunity	4.64	2.66	57%	0.002	0.024
Pittsburg	2	ROW_20398	ROW Opportunity	0.77	0.43	56%	0.008	0.024
Pittsburg	2	Parcel_352244	Parcel-Based Opportunity	10.05	5.65	56%	0.001	0.023
Pittsburg	2	Parcel_362344	Parcel-Based Opportunity	14.44	5.98	41%	0.001	0.023
Pittsburg	2	ROW_11358	ROW Opportunity	1.06	0.49	46%	0.006	0.023
Pittsburg	2	ROW_11872	ROW Opportunity	2.97	1.69	57%	0.003	0.023
Pittsburg	2	ROW_12501	ROW Opportunity	4.54	2.65	58%	0.002	0.023
Pittsburg	2	ROW_20394	ROW Opportunity	1.63	0.97	60%	0.004	0.023
Pittsburg	2	ROW_20627	ROW Opportunity	4.36	2.57	59%	0.002	0.023
Pittsburg	2	ROW_2826	ROW Opportunity	4.45	2.57	58%	0.002	0.023
Pittsburg	2	ROW_4032	ROW Opportunity	2.50	1.16	46%	0.003	0.023
Pittsburg	2	ROW_6219	ROW Opportunity	1.46	0.92	63%	0.005	0.023
Pittsburg	2	Parcel_366285	Parcel-Based Opportunity	26.81	4.81	18%	0.000	0.022
Pittsburg	2	ROW_894	ROW Opportunity	4.26	2.49	58%	0.002	0.022
Pittsburg	2	Parcel_336890	Parcel-Based Opportunity	9.19	5.25	57%	0.001	0.021
Pittsburg	2	Parcel_357792	Regional Opportunity	1.23	1.04	85%	0.006	0.021
Pittsburg	2	ROW_11969	ROW Opportunity	0.49	0.26	53%	0.011	0.021
Pittsburg	2	ROW_14500	ROW Opportunity	0.21	0.12	57%	0.024	0.021
Pittsburg	2	ROW_6695	ROW Opportunity	1.68	0.92	55%	0.004	0.021
Pittsburg	2	Parcel_355971	Parcel-Based Opportunity	0.38	0.12	32%	0.012	0.020
Pittsburg	2	Parcel_364979	Parcel-Based Opportunity	10.21	5.56	54%	0.001	0.020
Pittsburg	2	Parcel_367368	Parcel-Based Opportunity	11.66	4.87	42%	0.001	0.020
Pittsburg	2	Parcel_372224	Regional Opportunity	0.54	0.37	69%	0.010	0.020
Pittsburg	2	ROW_12237	ROW Opportunity	8.69	4.66	54%	0.001	0.020
Pittsburg	2	ROW_1520	ROW Opportunity	2.90	1.59	55%	0.002	0.019
Pittsburg	2	ROW_3686	ROW Opportunity	2.00	0.51	26%	0.003	0.019
Pittsburg	2	ROW_6221	ROW Opportunity	1.24	0.79	64%	0.005	0.019
Pittsburg	2	ROW_8940	ROW Opportunity	6.24	4.08	65%	0.001	0.019
Pittsburg	2	ROW_14011	ROW Opportunity	0.79	0.44	56%	0.006	0.018
Pittsburg	2	ROW_20795	ROW Opportunity	3.72	2.00	54%	0.002	0.018
Pittsburg	2	ROW_5463	ROW Opportunity	0.90	0.54	60%	0.006	0.018
Pittsburg	2	ROW_6045	ROW Opportunity	0.75	0.42	56%	0.007	0.018
Pittsburg	2	ROW_6805	ROW Opportunity	0.65	0.36	55%	0.008	0.018
Pittsburg	2	Parcel_348698	Regional Opportunity	0.48	0.40	83%	0.010	0.017
Pittsburg	2	Parcel_372393	Regional Opportunity	0.60	0.37	62%	0.008	0.017
Pittsburg	2	Parcel_374571	Regional Opportunity	0.54	0.38	70%	0.009	0.017

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Pittsburg	2	ROW_11603	ROW Opportunity	1.42	0.34	24%	0.003	0.017
Pittsburg	2	ROW_14658	ROW Opportunity	5.25	3.04	58%	0.001	0.017
Pittsburg	2	ROW_20383	ROW Opportunity	5.64	3.31	59%	0.001	0.017
Pittsburg	2	ROW_21083	ROW Opportunity	7.55	4.13	55%	0.001	0.017
Pittsburg	2	ROW_4764	ROW Opportunity	1.16	0.71	61%	0.005	0.017
Pittsburg	2	ROW_5824	ROW Opportunity	2.16	1.07	50%	0.003	0.017
Pittsburg	2	Parcel_359451	Parcel-Based Opportunity	11.40	4.60	40%	0.001	0.016
Pittsburg	2	Parcel_364198	Parcel-Based Opportunity	10.22	3.89	38%	0.001	0.016
Pittsburg	2	ROW_11370	ROW Opportunity	0.33	0.21	64%	0.013	0.016
Pittsburg	2	ROW_17388	ROW Opportunity	1.59	0.88	55%	0.003	0.016
Pittsburg	2	ROW_5853	ROW Opportunity	1.28	0.74	58%	0.004	0.016
Pittsburg	2	ROW_6194	ROW Opportunity	2.19	1.29	59%	0.002	0.016
Pittsburg	2	ROW_6238	ROW Opportunity	0.61	0.36	59%	0.007	0.016
Pittsburg	2	Parcel_349343	Regional Opportunity	1.12	0.32	29%	0.004	0.015
Pittsburg	2	ROW_13380	ROW Opportunity	0.48	0.23	48%	0.008	0.015
Pittsburg	2	ROW_17358	ROW Opportunity	6.93	3.73	54%	0.001	0.015
Pittsburg	2	ROW_3583	ROW Opportunity	6.04	3.35	55%	0.001	0.015
Pittsburg	2	ROW_6223	ROW Opportunity	2.68	1.66	62%	0.002	0.015
Pittsburg	2	ROW_9712	ROW Opportunity	6.85	3.87	56%	0.001	0.015
Pittsburg	2	ROW_9726	ROW Opportunity	6.75	3.66	54%	0.001	0.015
Pittsburg	2	Parcel_368854	Parcel-Based Opportunity	0.36	0.31	86%	0.011	0.014
Pittsburg	2	ROW_11832	ROW Opportunity	1.52	0.86	57%	0.003	0.014
Pittsburg	2	ROW_11900	ROW Opportunity	3.22	1.71	53%	0.002	0.014
Pittsburg	2	ROW_17755	ROW Opportunity	3.00	1.60	53%	0.002	0.014
Pittsburg	2	Parcel_351110	Parcel-Based Opportunity	107.94	43.80	41%	0.000	0.013
Pittsburg	2	Parcel_358978	Parcel-Based Opportunity	0.25	0.18	72%	0.013	0.013
Pittsburg	2	Parcel_361603	Parcel-Based Opportunity	0.48	0.31	65%	0.008	0.013
Pittsburg	2	Parcel_371237	Parcel-Based Opportunity	0.43	0.30	70%	0.009	0.013
Pittsburg	2	planned_431	Planned Unlined Bioretention	0.48	0.31	65%	0.008	0.013
Pittsburg	2	ROW_11357	ROW Opportunity	3.17	1.95	62%	0.002	0.013
Pittsburg	2	ROW_12433	ROW Opportunity	6.02	3.27	54%	0.001	0.013
Pittsburg	2	ROW_1329	ROW Opportunity	8.23	4.37	53%	0.001	0.013
Pittsburg	2	Parcel_372099	Parcel-Based Opportunity	0.41	0.26	63%	0.008	0.012
Pittsburg	2	ROW_10175	ROW Opportunity	6.76	3.47	51%	0.001	0.012
Pittsburg	2	ROW_12638	ROW Opportunity	0.12	0.07	58%	0.025	0.012
Pittsburg	2	ROW_15237	ROW Opportunity	2.52	1.28	51%	0.002	0.012
Pittsburg	2	ROW_20371	ROW Opportunity	5.02	3.02	60%	0.001	0.012
Pittsburg	2	ROW_20402	ROW Opportunity	3.81	2.21	58%	0.001	0.012
Pittsburg	2	ROW_20411	ROW Opportunity	4.81	2.95	61%	0.001	0.012
Pittsburg	2	ROW_20801	ROW Opportunity	3.20	1.94	61%	0.002	0.012
Pittsburg	2	ROW_5843	ROW Opportunity	5.08	3.01	59%	0.001	0.012
Pittsburg	2	ROW_6299	ROW Opportunity	5.53	2.99	54%	0.001	0.012
Pittsburg	2	ROW_6474	ROW Opportunity	3.61	1.94	54%	0.001	0.012
Pittsburg	2	Parcel_353346	Parcel-Based Opportunity	7.56	2.47	33%	0.001	0.011
Pittsburg	2	ROW_1196	ROW Opportunity	1.56	0.85	54%	0.002	0.011
Pittsburg	2	ROW_14319	ROW Opportunity	5.30	2.79	53%	0.001	0.011
Pittsburg	2	ROW_15497	ROW Opportunity	0.90	0.77	86%	0.004	0.011
Pittsburg	2	ROW_16028	ROW Opportunity	5.20	2.77	53%	0.001	0.011
Pittsburg	2	ROW_20374	ROW Opportunity	3.94	2.27	58%	0.001	0.011
Pittsburg	2	ROW_2952	ROW Opportunity	5.23	2.80	54%	0.001	0.011
Pittsburg	2	ROW_9735	ROW Opportunity	4.76	2.79	59%	0.001	0.011
Pleasant Hill	2	ROW_19233	ROW Opportunity	2.08	1.67	80%	0.043	0.382
Pleasant Hill	2	ROW_4670	ROW Opportunity	17.32	8.32	48%	0.005	0.280
Pleasant Hill	2	ROW_19166	ROW Opportunity	30.21	13.52	45%	0.003	0.239
Pleasant Hill	2	Parcel_198405	Parcel-Based Opportunity	96.46	48.68	50%	0.001	0.203
Pleasant Hill	2	Parcel_181521	Parcel-Based Opportunity	9.56	4.74	50%	0.006	0.193
Pleasant Hill	2	ROW_2970	ROW Opportunity	9.37	5.99	64%	0.006	0.181
Pleasant Hill	2	ROW_9267	ROW Opportunity	3.51	1.89	54%	0.012	0.170
Pleasant Hill	2	ROW_20243	ROW Opportunity	2.99	1.93	65%	0.013	0.148
Pleasant Hill	2	ROW_8317	ROW Opportunity	12.17	5.45	45%	0.003	0.111
Pleasant Hill	2	ROW_15010	ROW Opportunity	21.53	8.73	41%	0.002	0.110
Pleasant Hill	2	ROW_12076	ROW Opportunity	2.39	1.40	59%	0.012	0.106
Pleasant Hill	2	ROW_4673	ROW Opportunity	4.72	2.27	48%	0.006	0.103
Pleasant Hill	2	Parcel_150985	Regional Opportunity	0.77	0.41	53%	0.030	0.098
Pleasant Hill	2	ROW_4671	ROW Opportunity	5.14	2.67	52%	0.006	0.098
Pleasant Hill	2	Parcel_161733	Parcel-Based Opportunity	3.53	2.11	60%	0.008	0.094
Pleasant Hill	2	Parcel_142700	Parcel-Based Opportunity	3.60	2.10	58%	0.007	0.093
Pleasant Hill	2	ROW_17670	ROW Opportunity	6.18	3.50	57%	0.004	0.084
Pleasant Hill	2	ROW_5047	ROW Opportunity	3.17	1.88	59%	0.007	0.084
Pleasant Hill	2	Parcel_186000	Parcel-Based Opportunity	4.15	1.73	42%	0.005	0.079
Pleasant Hill	2	ROW_13734	ROW Opportunity	8.72	3.90	45%	0.003	0.079
Pleasant Hill	2	Parcel_185324	Parcel-Based Opportunity	4.04	1.69	42%	0.005	0.077
Pleasant Hill	2	ROW_12853	ROW Opportunity	4.72	2.76	58%	0.005	0.072
Pleasant Hill	2	ROW_2494	ROW Opportunity	14.34	6.19	43%	0.002	0.072
Pleasant Hill	2	ROW_6872	ROW Opportunity	1.64	0.99	60%	0.012	0.072
Pleasant Hill	2	ROW_6671	ROW Opportunity	3.95	1.92	49%	0.005	0.067
Pleasant Hill	2	ROW_13220	ROW Opportunity	3.76	2.25	60%	0.005	0.062
Pleasant Hill	2	Parcel_189822	Parcel-Based Opportunity	26.23	15.34	58%	0.001	0.061
Pleasant Hill	2	ROW_4672	ROW Opportunity	2.09	1.06	51%	0.008	0.060
Pleasant Hill	2	Parcel_173214	Regional Opportunity	2.92	1.24	42%	0.006	0.059
Pleasant Hill	2	ROW_4280	ROW Opportunity	2.43	1.23	51%	0.007	0.058
Pleasant Hill	2	ROW_4377	ROW Opportunity	9.02	4.33	48%	0.002	0.056
Pleasant Hill	2	ROW_5054	ROW Opportunity	2.66	1.53	58%	0.006	0.055
Pleasant Hill	2	planned_143	Planned Water Quality Basin	38.26	17.06	45%	0.001	0.054
Pleasant Hill	2	Parcel_146724	Parcel-Based Opportunity	30.26	12.96	43%	0.001	0.053
Pleasant Hill	2	Parcel_155831	Regional Opportunity	1.32	1.23	93%	0.011	0.053
Pleasant Hill	2	ROW_4886	ROW Opportunity	2.01	1.26	63%	0.007	0.048
Pleasant Hill	2	ROW_19602	ROW Opportunity	1.97	1.24	63%	0.007	0.047
Pleasant Hill	2	ROW_8079	ROW Opportunity	14.00	3.93	28%	0.001	0.045
Pleasant Hill	2	ROW_8193	ROW Opportunity	9.91	3.96	40%	0.002	0.045
Pleasant Hill	2	ROW_13735	ROW Opportunity	2.08	1.04	50%	0.006	0.040
Pleasant Hill	2	Parcel_142400	Regional Opportunity	1.85	0.83	45%	0.006	0.039
Pleasant Hill	2	ROW_13554	ROW Opportunity	6.29	2.86	45%	0.002	0.039
Pleasant Hill	2	Parcel_185980	Regional Opportunity	1.25	0.79	63%	0.008	0.035

Jurisdiction	Permit	Project ID	Project Type	Area (Acres)	Impervious Area (Acres)	Percent Impervious	PCBs Yield (g/acre)	PCBs Mass reduced (g)
Pleasant Hill	2	ROW_14564	ROW Opportunity	7.82	3.13	40%	0.002	0.035
Pleasant Hill	2	Parcel_131105	Regional Opportunity	1.45	0.72	50%	0.007	0.034
Pleasant Hill	2	ROW_17048	ROW Opportunity	1.65	0.76	46%	0.006	0.034
Pleasant Hill	2	ROW_7753	ROW Opportunity	3.18	1.28	40%	0.003	0.034
Pleasant Hill	2	ROW_9560	ROW Opportunity	0.50	0.19	38%	0.017	0.034
Pleasant Hill	2	Parcel_185990	Regional Opportunity	1.68	0.71	42%	0.005	0.032
Pleasant Hill	2	ROW_11390	ROW Opportunity	7.82	3.29	42%	0.002	0.031
Pleasant Hill	2	ROW_9880	ROW Opportunity	3.49	1.47	42%	0.003	0.029
Pleasant Hill	2	Parcel_156974	Parcel-Based Opportunity	9.89	3.33	34%	0.001	0.028
Pleasant Hill	2	ROW_13741	ROW Opportunity	1.00	0.63	63%	0.008	0.028
Pleasant Hill	2	ROW_13736	ROW Opportunity	4.01	1.82	45%	0.002	0.027
Pleasant Hill	2	ROW_19478	ROW Opportunity	1.79	0.76	42%	0.004	0.027
Pleasant Hill	2	ROW_6668	ROW Opportunity	4.38	1.90	43%	0.002	0.027
Pleasant Hill	2	Parcel_149937	Regional Opportunity	2.29	1.03	45%	0.004	0.026
Pleasant Hill	2	Parcel_131108	Regional Opportunity	0.82	0.54	66%	0.008	0.024
Pleasant Hill	2	Parcel_187984	Parcel-Based Opportunity	23.59	5.41	23%	0.000	0.024
Pleasant Hill	2	ROW_20206	ROW Opportunity	11.06	5.11	46%	0.001	0.023
Pleasant Hill	2	ROW_2045	ROW Opportunity	2.31	1.12	48%	0.003	0.022
Pleasant Hill	2	ROW_4500	ROW Opportunity	3.13	1.84	59%	0.003	0.022
Pleasant Hill	2	ROW_6670	ROW Opportunity	1.70	0.79	46%	0.004	0.022
Pleasant Hill	2	ROW_11085	ROW Opportunity	3.49	1.68	48%	0.002	0.021
Pleasant Hill	2	ROW_12762	ROW Opportunity	3.17	1.40	44%	0.002	0.021
Pleasant Hill	2	ROW_287	ROW Opportunity	1.37	0.44	32%	0.004	0.021
Pleasant Hill	2	ROW_4178	ROW Opportunity	7.51	3.18	42%	0.001	0.021
Pleasant Hill	2	Parcel_168841	Regional Opportunity	0.97	0.44	45%	0.006	0.020
Pleasant Hill	2	ROW_15029	ROW Opportunity	3.85	1.58	41%	0.002	0.019
Pleasant Hill	2	ROW_17703	ROW Opportunity	4.38	1.92	44%	0.002	0.019
Pleasant Hill	2	ROW_5754	ROW Opportunity	1.34	0.80	60%	0.004	0.019
Pleasant Hill	2	Parcel_167223	Parcel-Based Opportunity	10.92	4.29	39%	0.001	0.018
Pleasant Hill	2	ROW_12009	ROW Opportunity	2.27	1.14	50%	0.003	0.018
Pleasant Hill	2	ROW_17057	ROW Opportunity	2.52	1.13	45%	0.002	0.018
Pleasant Hill	2	ROW_4611	ROW Opportunity	0.64	0.40	63%	0.008	0.018
Pleasant Hill	2	ROW_6669	ROW Opportunity	1.68	0.82	49%	0.003	0.018
Pleasant Hill	2	Parcel_155751	Regional Opportunity	1.57	0.26	17%	0.003	0.017
Pleasant Hill	2	ROW_15355	ROW Opportunity	0.64	0.38	59%	0.008	0.017
Pleasant Hill	2	ROW_15358	ROW Opportunity	3.11	1.40	45%	0.002	0.017
Pleasant Hill	2	ROW_3210	ROW Opportunity	7.85	3.33	42%	0.001	0.017
Pleasant Hill	2	Parcel_155321	Regional Opportunity	0.56	0.36	64%	0.008	0.016
Pleasant Hill	2	ROW_11244	ROW Opportunity	6.29	2.71	43%	0.001	0.016
Pleasant Hill	2	ROW_12046	ROW Opportunity	9.42	3.82	41%	0.001	0.016
Pleasant Hill	2	ROW_1343	ROW Opportunity	1.64	0.72	44%	0.003	0.016
Pleasant Hill	2	ROW_533	ROW Opportunity	2.07	0.90	43%	0.003	0.016
Pleasant Hill	2	Parcel_178916	Parcel-Based Opportunity	3.76	2.58	69%	0.002	0.015
Pleasant Hill	2	ROW_5767	ROW Opportunity	2.66	1.19	45%	0.002	0.015
Pleasant Hill	2	ROW_5966	ROW Opportunity	3.55	1.52	43%	0.002	0.015
Pleasant Hill	2	planned_144	Planned Unlined Swale	13.98	6.95	50%	0.000	0.014
Pleasant Hill	2	planned_145	Planned Unlined Swale	13.97	6.95	50%	0.000	0.014
Pleasant Hill	2	planned_146	Planned Unlined Bioretention	13.97	6.95	50%	0.000	0.014
Pleasant Hill	2	ROW_13223	ROW Opportunity	1.24	0.62	50%	0.004	0.014
Pleasant Hill	2	ROW_1583	ROW Opportunity	0.88	0.41	47%	0.005	0.014
Pleasant Hill	2	ROW_1578	ROW Opportunity	0.11	0.06	55%	0.028	0.013
Pleasant Hill	2	ROW_21619	ROW Opportunity	0.42	0.30	71%	0.009	0.013
Pleasant Hill	2	ROW_9265	ROW Opportunity	3.88	1.63	42%	0.001	0.013
Pleasant Hill	2	ROW_9827	ROW Opportunity	0.83	0.55	66%	0.005	0.013
Pleasant Hill	2	Parcel_160193	Parcel-Based Opportunity	7.87	2.98	38%	0.001	0.012
Pleasant Hill	2	ROW_16415	ROW Opportunity	6.78	2.96	44%	0.001	0.012
Pleasant Hill	2	ROW_19765	ROW Opportunity	5.47	2.26	41%	0.001	0.012
Pleasant Hill	2	ROW_20458	ROW Opportunity	1.53	0.73	48%	0.003	0.012
Pleasant Hill	2	ROW_20779	ROW Opportunity	1.73	0.65	38%	0.002	0.012
Pleasant Hill	2	ROW_6601	ROW Opportunity	2.26	1.12	50%	0.002	0.012
Pleasant Hill	2	Parcel_140820	Parcel-Based Opportunity	6.41	2.61	41%	0.001	0.011
Pleasant Hill	2	Parcel_156885	Regional Opportunity	1.48	0.76	51%	0.003	0.011
Pleasant Hill	2	ROW_20849	ROW Opportunity	6.60	2.63	40%	0.001	0.011
Pleasant Hill	2	ROW_4526	ROW Opportunity	1.86	0.90	48%	0.002	0.011
Pleasant Hill	2	ROW_5980	ROW Opportunity	2.92	1.23	42%	0.002	0.011
Pleasant Hill	2	ROW_6634	ROW Opportunity	6.62	2.81	42%	0.001	0.011
Pleasant Hill	2	Parcel_176573	Parcel-Based Opportunity	4.87	2.62	54%	0.001	0.010
Pleasant Hill	2	Parcel_182562	Parcel-Based Opportunity	5.49	2.50	46%	0.001	0.010
Pleasant Hill	2	ROW_1108	ROW Opportunity	6.39	2.49	39%	0.001	0.010
Richmond	2	ROW_20822	ROW Opportunity	39.83	15.26	38%	0.035	5.536
Richmond	2	Parcel_129049	Parcel-Based Opportunity	22.09	16.69	76%	0.043	3.838
Richmond	2	Parcel_127810	Parcel-Based Opportunity	42.57	8.26	19%	0.018	3.044
Richmond	2	ROW_3504	ROW Opportunity	23.46	15.79	67%	0.030	2.744
Richmond	2	ROW_7696	ROW Opportunity	16.17	10.80	67%	0.034	2.163
Richmond	2	Parcel_123788	Parcel-Based Opportunity	11.85	7.18	61%	0.042	1.971
Richmond	2	Parcel_120807	Parcel-Based Opportunity	9.67	6.99	72%	0.049	1.882
Richmond	2	Parcel_124519	Parcel-Based Opportunity	19.03	5.78	30%	0.024	1.772
Richmond	2	GIP_00181 / ROW_8576	ROW Opportunity (aspirational)	15.12	9.82	65%	0.028	1.643
Richmond	2	GIP_00144 / planned_485	Parcel-Based Opportunity (aspirational)	17.80	11.62	65%	0.022	1.526
Richmond	2	ROW_11830	ROW Opportunity	12.26	7.59	62%	0.029	1.377
Richmond	2	GIP_00128 / planned_175	Parcel-Based Opportunity (aspirational)	12.22	6.77	55%	0.026	1.249
Richmond	2	planned_499	Planned Creek/Marsh Restoration	14.17	5.11	36%	0.022	1.243
Richmond	2	Parcel_128990	Parcel-Based Opportunity	6.86	5.17	75%	0.043	1.191
Richmond	2	Parcel_125155	Parcel-Based Opportunity	6.08	4.04	66%	0.047	1.140
Richmond	2	Parcel_163241	Parcel-Based Opportunity	7.34	4.87	66%	0.038	1.127
Richmond	2	ROW_13188	ROW Opportunity	10.46	6.45	62%	0.024	0.978
Richmond	2	GIP_00136 / planned_469	Parcel-Based Opportunity (aspirational)	7.99	4.10	51%	0.030	0.968
Richmond	2	ROW_7811	ROW Opportunity	7.27	4.20	58%	0.031	0.908
Richmond	2	ROW_21445	ROW Opportunity	6.74	4.73	70%	0.034	0.902
Richmond	2	ROW_20428	ROW Opportunity	8.97	5.45	61%	0.026	0.900
Richmond	2	ROW_16598	ROW Opportunity	5.68	3.88	68%	0.038	0.858
Richmond	2	ROW_13906	ROW Opportunity	10.89	7.33	67%	0.021	0.852
Richmond	2	ROW_20478	ROW Opportunity	5.90	3.53	60%	0.035	0.838
Richmond	2	ROW_15751	ROW Opportunity	5.55	3.33	60%	0.037	0.817

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Richmond	2	ROW_2597	ROW Opportunity	6.82	3.55	52%	0.030	0.815
Richmond	2	ROW_12288	ROW Opportunity	4.84	3.24	67%	0.039	0.758
Richmond	2	Parcel_170010	Parcel-Based Opportunity	4.52	3.14	69%	0.041	0.737
Richmond	2	ROW_10536	ROW Opportunity	4.37	2.57	59%	0.042	0.737
Richmond	2	Parcel_113348	Parcel-Based Opportunity	6.69	1.91	29%	0.028	0.694
Richmond	2	ROW_11839	ROW Opportunity	4.37	2.51	57%	0.039	0.691
Richmond	2	ROW_3732	ROW Opportunity	5.46	4.24	78%	0.032	0.685
Richmond	2	ROW_16560	ROW Opportunity	3.78	2.59	69%	0.044	0.672
Richmond	2	ROW_6855	ROW Opportunity	3.69	2.65	72%	0.041	0.607
Richmond	2	ROW_8567	ROW Opportunity	3.74	2.04	55%	0.040	0.602
Richmond	2	ROW_14144	ROW Opportunity	3.21	2.59	81%	0.046	0.586
Richmond	2	ROW_11498	ROW Opportunity	21.21	14.65	69%	0.008	0.577
Richmond	2	ROW_3742	ROW Opportunity	3.63	2.47	68%	0.039	0.577
Richmond	2	GIP_00180 / ROW_5241	ROW Opportunity (aspirational)	21.59	14.60	68%	0.008	0.574
Richmond	2	ROW_18209	ROW Opportunity	3.51	2.46	70%	0.040	0.567
Richmond	2	ROW_15876	ROW Opportunity	5.16	2.25	44%	0.027	0.566
Richmond	2	ROW_17007	ROW Opportunity	3.15	1.90	60%	0.043	0.546
Richmond	2	ROW_8889	ROW Opportunity	7.45	5.28	71%	0.020	0.542
Richmond	2	Parcel_118976	Parcel-Based Opportunity	7.69	1.60	21%	0.017	0.537
Richmond	2	ROW_20886	ROW Opportunity	2.41	1.89	78%	0.053	0.515
Richmond	2	ROW_16532	ROW Opportunity	3.19	2.11	66%	0.039	0.499
Richmond	2	ROW_15749	ROW Opportunity	4.74	2.94	62%	0.027	0.497
Richmond	2	ROW_7809	ROW Opportunity	11.56	3.25	28%	0.011	0.496
Richmond	2	Parcel_114973	Regional Opportunity	2.84	1.61	57%	0.042	0.471
Richmond	2	ROW_18134	ROW Opportunity	3.07	1.56	51%	0.038	0.469
Richmond	2	ROW_8456	ROW Opportunity	2.87	1.60	56%	0.040	0.459
Richmond	2	ROW_17719	ROW Opportunity	2.63	1.56	59%	0.042	0.446
Richmond	2	ROW_15166	ROW Opportunity	2.88	1.95	68%	0.038	0.445
Richmond	2	ROW_6827	ROW Opportunity	2.89	2.10	73%	0.037	0.429
Richmond	2	ROW_12287	ROW Opportunity	2.82	1.98	70%	0.038	0.424
Richmond	2	ROW_1670	ROW Opportunity	19.48	13.28	68%	0.007	0.422
Richmond	2	ROW_14670	ROW Opportunity	3.12	1.33	43%	0.033	0.410
Richmond	2	Parcel_159148	Regional Opportunity	2.48	1.76	71%	0.041	0.407
Richmond	2	ROW_1342	ROW Opportunity	12.99	5.89	45%	0.009	0.401
Richmond	2	ROW_6275	ROW Opportunity	3.46	1.24	36%	0.029	0.401
Richmond	2	ROW_16455	ROW Opportunity	2.53	1.71	68%	0.038	0.384
Richmond	2	GIP_00122 / Parcel_152787	Regional Opportunity (aspirational)	2.53	1.64	65%	0.037	0.380
Richmond	2	Parcel_171579	Parcel-Based Opportunity	3.65	2.87	79%	0.027	0.380
Richmond	2	ROW_4530	ROW Opportunity	3.12	1.81	58%	0.030	0.380
Richmond	2	ROW_4590	ROW Opportunity	2.11	1.33	63%	0.045	0.376
Richmond	2	ROW_20441	ROW Opportunity	5.49	3.04	55%	0.018	0.374
Richmond	2	GIP_00147 / planned_491	Parcel-Based Opportunity (aspirational)	3.12	1.99	64%	0.030	0.369
Richmond	2	ROW_16485	ROW Opportunity	2.63	1.92	73%	0.035	0.369
Richmond	2	ROW_11379	ROW Opportunity	2.04	1.65	81%	0.045	0.368
Richmond	2	ROW_15485	ROW Opportunity	2.06	1.37	67%	0.044	0.363
Richmond	2	ROW_355	ROW Opportunity	2.64	1.88	71%	0.034	0.354
Richmond	2	ROW_3738	ROW Opportunity	2.58	1.82	71%	0.034	0.346
Richmond	2	Parcel_114963	Parcel-Based Opportunity	4.22	1.02	24%	0.021	0.345
Richmond	2	ROW_1767	ROW Opportunity	1.96	1.18	60%	0.044	0.343
Richmond	2	Parcel_153008	Parcel-Based Opportunity	10.59	7.84	74%	0.010	0.340
Richmond	2	Parcel_126231	Regional Opportunity	1.65	1.47	89%	0.050	0.334
Richmond	2	ROW_14678	ROW Opportunity	6.63	4.45	67%	0.014	0.333
Richmond	2	ROW_15193	ROW Opportunity	6.84	4.72	69%	0.014	0.333
Richmond	2	ROW_15752	ROW Opportunity	2.85	1.93	68%	0.029	0.328
Richmond	2	ROW_16472	ROW Opportunity	2.17	1.54	71%	0.037	0.324
Richmond	2	ROW_15877	ROW Opportunity	4.92	2.81	57%	0.017	0.323
Richmond	2	ROW_9595	ROW Opportunity	2.77	2.08	75%	0.029	0.312
Richmond	2	ROW_3292	ROW Opportunity	2.05	1.67	81%	0.038	0.306
Richmond	2	ROW_3744	ROW Opportunity	3.85	2.44	63%	0.020	0.299
Richmond	2	planned_487	Planned Unlined Bioretention	22.60	15.02	66%	0.005	0.296
Richmond	2	ROW_17305	ROW Opportunity	1.92	0.98	51%	0.038	0.295
Richmond	2	planned_496	Planned Creek/Marsh Restoration	3.90	2.25	58%	0.020	0.294
Richmond	2	GIP_00140 / planned_479	Parcel-Based Opportunity (aspirational)	12.83	8.77	68%	0.007	0.291
Richmond	2	ROW_333	ROW Opportunity	9.12	6.07	67%	0.009	0.290
Richmond	2	ROW_3883	ROW Opportunity	8.72	5.79	66%	0.010	0.282
Richmond	2	ROW_6859	ROW Opportunity	2.12	0.59	28%	0.033	0.279
Richmond	2	ROW_9722	ROW Opportunity	1.69	1.17	69%	0.041	0.276
Richmond	2	ROW_16528	ROW Opportunity	2.22	1.27	57%	0.031	0.273
Richmond	2	Parcel_115416	Regional Opportunity	1.53	0.93	61%	0.044	0.270
Richmond	2	ROW_17316	ROW Opportunity	1.73	0.90	52%	0.039	0.268
Richmond	2	ROW_12193	ROW Opportunity	5.91	4.11	70%	0.013	0.264
Richmond	2	ROW_7332	ROW Opportunity	1.62	1.25	77%	0.041	0.263
Richmond	2	ROW_11831	ROW Opportunity	1.49	1.14	77%	0.044	0.262
Richmond	2	Parcel_167791	Parcel-Based Opportunity	3.42	2.71	79%	0.020	0.261
Richmond	2	ROW_6828	ROW Opportunity	1.71	1.18	69%	0.038	0.261
Richmond	2	ROW_12952	ROW Opportunity	3.16	1.44	46%	0.021	0.259
Richmond	2	ROW_12328	ROW Opportunity	2.62	0.81	31%	0.024	0.258
Richmond	2	ROW_14807	ROW Opportunity	2.63	1.88	71%	0.026	0.255
Richmond	2	ROW_156	ROW Opportunity	4.72	3.23	68%	0.015	0.255
Richmond	2	ROW_13420	ROW Opportunity	5.29	3.71	70%	0.013	0.252
Richmond	2	ROW_6274	ROW Opportunity	4.20	2.48	59%	0.016	0.252
Richmond	2	ROW_16487	ROW Opportunity	1.47	1.09	74%	0.042	0.249
Richmond	2	ROW_9163	ROW Opportunity	3.60	2.25	63%	0.018	0.245
Richmond	2	planned_495	Planned Water Quality Basin	1.91	1.10	58%	0.032	0.242
Richmond	2	ROW_15892	ROW Opportunity	14.20	7.48	53%	0.005	0.239
Richmond	2	ROW_1795	ROW Opportunity	1.37	1.03	75%	0.043	0.239
Richmond	2	ROW_18184	ROW Opportunity	1.61	0.80	50%	0.037	0.238
Richmond	2	Parcel_116238	Parcel-Based Opportunity	1.29	0.82	64%	0.045	0.234
Richmond	2	ROW_11883	ROW Opportunity	1.42	0.98	69%	0.041	0.231
Richmond	2	planned_497	Planned Creek/Marsh Restoration	1.59	0.97	61%	0.036	0.230
Richmond	2	ROW_1792	ROW Opportunity	1.33	0.97	73%	0.042	0.227
Richmond	2	ROW_6971	ROW Opportunity	1.62	1.15	71%	0.035	0.224
Richmond	2	ROW_18110	ROW Opportunity	2.22	1.56	70%	0.026	0.223
Richmond	2	ROW_16442	ROW Opportunity	3.16	0.67	21%	0.017	0.220

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Richmond	2	ROW_18395	ROW Opportunity	2.05	0.89	43%	0.026	0.213
Richmond	2	ROW_15167	ROW Opportunity	1.76	1.21	69%	0.030	0.211
Richmond	2	ROW_16436	ROW Opportunity	1.97	1.36	69%	0.027	0.211
Richmond	2	ROW_16535	ROW Opportunity	2.13	1.38	65%	0.025	0.211
Richmond	2	ROW_16488	ROW Opportunity	1.32	0.96	73%	0.039	0.209
Richmond	2	Parcel_110613	Regional Opportunity	1.25	0.72	58%	0.042	0.208
Richmond	2	ROW_17259	ROW Opportunity	1.63	0.69	42%	0.032	0.207
Richmond	2	ROW_15285	ROW Opportunity	1.06	0.71	67%	0.048	0.205
Richmond	2	ROW_1765	ROW Opportunity	1.21	0.71	59%	0.042	0.204
Richmond	2	ROW_863	ROW Opportunity	1.39	0.86	62%	0.036	0.204
Richmond	2	planned_531	Planned Water Quality Basin	75.78	38.92	51%	0.001	0.202
Richmond	2	ROW_16441	ROW Opportunity	2.29	1.59	69%	0.023	0.202
Richmond	2	ROW_5443	ROW Opportunity	1.01	0.88	87%	0.049	0.200
Richmond	2	Parcel_111210	Regional Opportunity	1.27	0.90	71%	0.040	0.197
Richmond	2	ROW_4125	ROW Opportunity	2.29	1.49	65%	0.022	0.197
Richmond	2	ROW_13349	ROW Opportunity	1.13	0.84	74%	0.043	0.196
Richmond	2	ROW_1468	ROW Opportunity	2.21	1.56	71%	0.023	0.196
Richmond	2	ROW_6857	ROW Opportunity	1.59	0.64	40%	0.031	0.196
Richmond	2	ROW_14518	ROW Opportunity	1.76	1.15	65%	0.028	0.195
Richmond	2	ROW_1731	ROW Opportunity	1.11	0.83	75%	0.044	0.193
Richmond	2	ROW_3731	ROW Opportunity	1.22	0.82	67%	0.040	0.191
Richmond	2	Parcel_162407	Regional Opportunity	1.21	0.82	68%	0.039	0.190
Richmond	2	ROW_289	ROW Opportunity	1.43	0.78	55%	0.033	0.188
Richmond	2	ROW_1770	ROW Opportunity	8.43	5.33	63%	0.007	0.187
Richmond	2	ROW_15757	ROW Opportunity	1.18	0.64	54%	0.039	0.186
Richmond	2	GIP_00165 / planned_534	Parcel-Based Opportunity (aspirational)	2.20	1.33	60%	0.022	0.183
Richmond	2	ROW_318	ROW Opportunity	2.13	1.41	66%	0.022	0.183
Richmond	2	Parcel_134412	Parcel-Based Opportunity	4.34	3.50	81%	0.012	0.181
Richmond	2	ROW_11890	ROW Opportunity	0.99	0.79	80%	0.046	0.181
Richmond	2	Parcel_198059	Parcel-Based Opportunity	6.65	3.60	54%	0.008	0.180
Richmond	2	ROW_17324	ROW Opportunity	1.23	0.80	65%	0.036	0.178
Richmond	2	Parcel_166327	Regional Opportunity	2.29	1.75	76%	0.020	0.174
Richmond	2	ROW_2766	ROW Opportunity	1.36	0.86	63%	0.032	0.174
Richmond	2	ROW_15468	ROW Opportunity	1.02	0.75	74%	0.042	0.171
Richmond	2	ROW_16520	ROW Opportunity	1.38	0.79	57%	0.031	0.171
Richmond	2	ROW_16913	ROW Opportunity	16.07	8.93	56%	0.004	0.171
Richmond	2	Parcel_169252	Regional Opportunity	1.01	0.72	71%	0.042	0.169
Richmond	2	ROW_161	ROW Opportunity	1.86	1.31	70%	0.024	0.169
Richmond	2	ROW_17298	ROW Opportunity	0.91	0.59	65%	0.046	0.168
Richmond	2	ROW_1749	ROW Opportunity	0.97	0.72	74%	0.043	0.168
Richmond	2	ROW_16840	ROW Opportunity	6.87	4.81	70%	0.008	0.166
Richmond	2	ROW_14810	ROW Opportunity	0.89	0.58	65%	0.046	0.165
Richmond	2	ROW_70	ROW Opportunity	3.96	2.77	70%	0.012	0.165
Richmond	2	ROW_20040	ROW Opportunity	2.45	1.53	62%	0.018	0.164
Richmond	2	ROW_21242	ROW Opportunity	1.27	0.83	65%	0.032	0.160
Richmond	2	Parcel_169551	Parcel-Based Opportunity	3.47	2.76	80%	0.013	0.157
Richmond	2	Parcel_238663	Parcel-Based Opportunity	50.69	7.21	14%	0.001	0.156
Richmond	2	ROW_3740	ROW Opportunity	1.92	1.15	60%	0.021	0.156
Richmond	2	Parcel_120883	Regional Opportunity	0.95	0.54	57%	0.040	0.154
Richmond	2	ROW_16482	ROW Opportunity	1.10	0.73	66%	0.035	0.154
Richmond	2	ROW_9124	ROW Opportunity	8.76	4.50	51%	0.006	0.154
Richmond	2	ROW_16456	ROW Opportunity	1.03	0.65	63%	0.037	0.151
Richmond	2	ROW_7328	ROW Opportunity	7.44	4.86	65%	0.006	0.149
Richmond	2	Parcel_112907	Regional Opportunity	2.04	0.43	21%	0.018	0.147
Richmond	2	ROW_176	ROW Opportunity	0.99	0.68	69%	0.037	0.147
Richmond	2	ROW_16976	ROW Opportunity	0.83	0.62	75%	0.043	0.146
Richmond	2	Parcel_193343	Parcel-Based Opportunity	0.62	0.27	44%	0.058	0.145
Richmond	2	planned_527	Planned Unlined Bioretention	4.44	3.26	73%	0.010	0.143
Richmond	2	ROW_20689	ROW Opportunity	0.90	0.49	54%	0.040	0.143
Richmond	2	ROW_16452	ROW Opportunity	0.92	0.62	67%	0.038	0.142
Richmond	2	ROW_1766	ROW Opportunity	0.85	0.49	58%	0.041	0.141
Richmond	2	ROW_3022	ROW Opportunity	1.28	0.85	66%	0.028	0.141
Richmond	2	ROW_173	ROW Opportunity	2.06	1.39	67%	0.018	0.140
Richmond	2	ROW_233	ROW Opportunity	4.88	3.24	66%	0.009	0.139
Richmond	2	ROW_344	ROW Opportunity	3.21	2.36	74%	0.012	0.139
Richmond	2	ROW_6305	ROW Opportunity	0.95	0.58	61%	0.036	0.138
Richmond	2	Parcel_144553	Parcel-Based Opportunity	4.24	3.16	75%	0.010	0.137
Richmond	2	ROW_2543	ROW Opportunity	0.87	0.46	53%	0.039	0.137
Richmond	2	planned_484	Planned Unlined Bioretention	3.36	2.28	68%	0.011	0.136
Richmond	2	ROW_20415	ROW Opportunity	1.09	0.78	72%	0.031	0.135
Richmond	2	ROW_11849	ROW Opportunity	4.83	3.30	68%	0.008	0.134
Richmond	2	GIP_00166 / planned_535	Parcel-Based Opportunity (aspirational)	4.59	3.21	70%	0.009	0.133
Richmond	2	Parcel_225180	Parcel-Based Opportunity	4.05	3.00	74%	0.010	0.133
Richmond	2	ROW_10967	ROW Opportunity	0.87	0.44	51%	0.038	0.133
Richmond	2	ROW_17276	ROW Opportunity	0.72	0.47	65%	0.046	0.133
Richmond	2	ROW_3965	ROW Opportunity	0.72	0.47	65%	0.046	0.133
Richmond	2	Parcel_172178	Parcel-Based Opportunity	3.68	2.88	78%	0.010	0.129
Richmond	2	ROW_16559	ROW Opportunity	0.85	0.56	66%	0.038	0.129
Richmond	2	ROW_7673	ROW Opportunity	1.89	0.92	49%	0.018	0.128
Richmond	2	ROW_9823	ROW Opportunity	0.70	0.54	77%	0.045	0.126
Richmond	2	ROW_16531	ROW Opportunity	3.40	2.29	67%	0.011	0.125
Richmond	2	ROW_17258	ROW Opportunity	0.77	0.43	56%	0.040	0.125
Richmond	2	ROW_20486	ROW Opportunity	4.18	2.56	61%	0.009	0.124
Richmond	2	Parcel_155701	Regional Opportunity	0.77	0.53	69%	0.039	0.123
Richmond	2	ROW_17037	ROW Opportunity	4.87	3.10	64%	0.008	0.123
Richmond	2	ROW_3505	ROW Opportunity	0.88	0.62	70%	0.035	0.123
Richmond	2	ROW_12830	ROW Opportunity	1.15	0.73	63%	0.027	0.121
Richmond	2	ROW_74	ROW Opportunity	2.79	1.80	65%	0.012	0.120
Richmond	2	ROW_16434	ROW Opportunity	1.25	0.88	70%	0.025	0.119
Richmond	2	ROW_6803	ROW Opportunity	1.00	0.69	69%	0.030	0.119
Richmond	2	ROW_226	ROW Opportunity	3.03	2.02	67%	0.011	0.117
Richmond	2	ROW_15830	ROW Opportunity	8.70	6.19	71%	0.005	0.115
Richmond	2	ROW_15989	ROW Opportunity	4.07	2.72	67%	0.008	0.112
Richmond	2	ROW_17301	ROW Opportunity	0.65	0.48	74%	0.043	0.112

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Richmond	2	ROW_168	ROW Opportunity	5.27	3.69	70%	0.007	0.110
Richmond	2	ROW_291	ROW Opportunity	0.71	0.46	65%	0.038	0.110
Richmond	2	ROW_11622	ROW Opportunity	7.40	4.72	64%	0.005	0.109
Richmond	2	Parcel_125476	Regional Opportunity	0.74	0.37	50%	0.036	0.108
Richmond	2	ROW_11840	ROW Opportunity	0.65	0.37	57%	0.041	0.107
Richmond	2	ROW_15750	ROW Opportunity	1.48	0.80	54%	0.019	0.107
Richmond	2	ROW_4528	ROW Opportunity	1.18	0.55	47%	0.023	0.107
Richmond	2	ROW_4784	ROW Opportunity	0.68	0.50	74%	0.039	0.107
Richmond	2	ROW_16464	ROW Opportunity	3.55	2.42	68%	0.009	0.106
Richmond	2	Parcel_196459	Parcel-Based Opportunity	0.43	0.19	44%	0.058	0.101
Richmond	2	ROW_10962	ROW Opportunity	0.54	0.35	65%	0.045	0.100
Richmond	2	ROW_17311	ROW Opportunity	0.62	0.43	69%	0.040	0.100
Richmond	2	ROW_6267	ROW Opportunity	0.66	0.42	64%	0.037	0.100
Richmond	2	ROW_15881	ROW Opportunity	11.64	6.16	53%	0.003	0.097
Richmond	2	ROW_11062	ROW Opportunity	2.50	1.26	50%	0.011	0.096
Richmond	2	ROW_1732	ROW Opportunity	0.52	0.33	63%	0.046	0.096
Richmond	2	Parcel_129221	Regional Opportunity	0.56	0.33	59%	0.042	0.095
Richmond	2	Parcel_163884	Regional Opportunity	0.60	0.41	68%	0.039	0.095
Richmond	2	Parcel_212172	Parcel-Based Opportunity	3.35	2.09	62%	0.009	0.095
Richmond	2	planned_463	Planned Unlined Bioretention	3.35	2.09	62%	0.008	0.095
Richmond	2	ROW_15232	ROW Opportunity	0.63	0.46	73%	0.038	0.095
Richmond	2	ROW_8095	ROW Opportunity	5.10	2.61	51%	0.006	0.095
Richmond	2	ROW_3104	ROW Opportunity	0.60	0.46	77%	0.039	0.094
Richmond	2	ROW_5507	ROW Opportunity	0.52	0.32	62%	0.045	0.094
Richmond	2	GIP_00121 / Parcel_144341	Regional Opportunity (aspirational)	2.87	2.15	75%	0.010	0.093
Richmond	2	ROW_9164	ROW Opportunity	0.62	0.40	65%	0.037	0.093
Richmond	2	ROW_17006	ROW Opportunity	1.13	0.60	53%	0.022	0.092
Richmond	2	ROW_73	ROW Opportunity	0.59	0.40	68%	0.039	0.092
Richmond	2	planned_199	Planned Creek/Marsh Restoration	3.43	1.93	56%	0.008	0.091
Richmond	2	ROW_11378	ROW Opportunity	3.08	1.99	65%	0.009	0.091
Richmond	2	ROW_16846	ROW Opportunity	0.61	0.44	72%	0.037	0.091
Richmond	2	ROW_187	ROW Opportunity	1.62	1.06	65%	0.015	0.091
Richmond	2	ROW_17720	ROW Opportunity	0.53	0.32	60%	0.043	0.090
Richmond	2	ROW_5467	ROW Opportunity	0.76	0.29	38%	0.030	0.090
Richmond	2	ROW_254	ROW Opportunity	7.15	4.85	68%	0.004	0.088
Richmond	2	ROW_3103	ROW Opportunity	0.47	0.38	81%	0.047	0.088
Richmond	2	Parcel_119238	Parcel-Based Opportunity	3.39	1.91	56%	0.008	0.087
Richmond	2	ROW_16465	ROW Opportunity	0.60	0.44	73%	0.036	0.087
Richmond	2	Parcel_110802	Regional Opportunity	0.82	0.25	30%	0.026	0.085
Richmond	2	Parcel_170769	Regional Opportunity	2.46	1.96	80%	0.010	0.085
Richmond	2	ROW_2596	ROW Opportunity	1.62	1.11	69%	0.015	0.085
Richmond	2	ROW_5180	ROW Opportunity	0.47	0.29	62%	0.045	0.085
Richmond	2	ROW_16552	ROW Opportunity	3.51	2.33	66%	0.007	0.084
Richmond	2	Parcel_155487	Regional Opportunity	3.02	1.80	60%	0.008	0.083
Richmond	2	ROW_16445	ROW Opportunity	1.04	0.70	67%	0.021	0.083
Richmond	2	ROW_6721	ROW Opportunity	0.50	0.36	72%	0.041	0.083
Richmond	2	Parcel_116278	Regional Opportunity	0.91	0.24	26%	0.022	0.082
Richmond	2	Parcel_117353	Regional Opportunity	2.33	0.81	35%	0.010	0.082
Richmond	2	ROW_21198	ROW Opportunity	0.41	0.29	71%	0.050	0.082
Richmond	2	ROW_15197	ROW Opportunity	0.50	0.35	70%	0.040	0.081
Richmond	2	Parcel_119884	Regional Opportunity	0.64	0.27	42%	0.032	0.080
Richmond	2	ROW_116	ROW Opportunity	2.56	1.74	68%	0.009	0.080
Richmond	2	ROW_200	ROW Opportunity	5.74	3.95	69%	0.005	0.080
Richmond	2	ROW_9162	ROW Opportunity	4.57	3.10	68%	0.006	0.080
Richmond	2	Parcel_124307	Regional Opportunity	0.46	0.28	61%	0.043	0.079
Richmond	2	Parcel_165219	Regional Opportunity	1.77	1.40	79%	0.013	0.078
Richmond	2	ROW_21073	ROW Opportunity	3.56	2.16	61%	0.007	0.078
Richmond	2	ROW_2162	ROW Opportunity	9.38	6.41	68%	0.003	0.078
Richmond	2	ROW_9937	ROW Opportunity	2.83	1.11	39%	0.008	0.078
Richmond	2	GIP_00153 / planned_512	Parcel-Based Opportunity (aspirational)	4.34	2.92	67%	0.006	0.077
Richmond	2	ROW_16538	ROW Opportunity	1.07	0.58	54%	0.019	0.077
Richmond	2	ROW_20633	ROW Opportunity	4.94	2.89	59%	0.005	0.077
Richmond	2	ROW_16467	ROW Opportunity	2.66	1.79	67%	0.009	0.076
Richmond	2	ROW_16496	ROW Opportunity	4.37	2.90	66%	0.006	0.076
Richmond	2	Parcel_375479	Parcel-Based Opportunity	68.51	8.98	13%	0.000	0.075
Richmond	2	ROW_13581	ROW Opportunity	0.59	0.26	44%	0.032	0.075
Richmond	2	ROW_10098	ROW Opportunity	6.38	4.15	65%	0.004	0.074
Richmond	2	ROW_1830	ROW Opportunity	1.38	0.93	67%	0.015	0.074
Richmond	2	ROW_82	ROW Opportunity	0.80	0.60	75%	0.024	0.074
Richmond	2	ROW_92	ROW Opportunity	4.38	3.00	68%	0.006	0.073
Richmond	2	ROW_12125	ROW Opportunity	5.50	3.66	67%	0.005	0.072
Richmond	2	Parcel_115970	Regional Opportunity	0.55	0.12	22%	0.032	0.070
Richmond	2	Parcel_144098	Regional Opportunity	1.08	0.98	91%	0.018	0.070
Richmond	2	ROW_2164	ROW Opportunity	1.27	0.90	71%	0.015	0.070
Richmond	2	ROW_16394	ROW Opportunity	0.51	0.23	45%	0.034	0.069
Richmond	2	ROW_16563	ROW Opportunity	4.10	2.78	68%	0.006	0.069
Richmond	2	ROW_16866	ROW Opportunity	3.52	2.37	67%	0.006	0.069
Richmond	2	ROW_7810	ROW Opportunity	0.59	0.27	46%	0.029	0.069
Richmond	2	Parcel_115590	Regional Opportunity	0.98	0.21	21%	0.017	0.068
Richmond	2	Parcel_116661	Regional Opportunity	0.52	0.13	25%	0.033	0.068
Richmond	2	ROW_16544	ROW Opportunity	4.83	3.31	69%	0.005	0.068
Richmond	2	ROW_16480	ROW Opportunity	1.96	1.32	67%	0.010	0.067
Richmond	2	ROW_195	ROW Opportunity	5.26	3.67	70%	0.005	0.067
Richmond	2	ROW_11623	ROW Opportunity	5.63	3.78	67%	0.004	0.066
Richmond	2	ROW_5903	ROW Opportunity	0.39	0.28	72%	0.042	0.066
Richmond	2	ROW_9784	ROW Opportunity	0.50	0.22	44%	0.033	0.066
Richmond	2	Parcel_129781	Parcel-Based Opportunity	0.46	0.22	48%	0.036	0.065
Richmond	2	Parcel_174262	Parcel-Based Opportunity	2.11	1.19	56%	0.009	0.065
Richmond	2	ROW_17728	ROW Opportunity	0.42	0.22	52%	0.039	0.065
Richmond	2	ROW_2163	ROW Opportunity	3.02	2.13	71%	0.007	0.065
Richmond	2	ROW_16504	ROW Opportunity	0.99	0.61	62%	0.017	0.064
Richmond	2	ROW_17527	ROW Opportunity	9.09	4.79	53%	0.003	0.064
Richmond	2	ROW_20751	ROW Opportunity	0.72	0.52	72%	0.023	0.064
Richmond	2	ROW_8571	ROW Opportunity	3.24	2.28	70%	0.006	0.064

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Richmond	2	GIP_00171 / ROW_16561	ROW Opportunity (aspirational)	4.64	3.09	67%	0.005	0.063
Richmond	2	Parcel_117968	Regional Opportunity	0.56	0.24	43%	0.028	0.063
Richmond	2	ROW_147	ROW Opportunity	0.82	0.56	68%	0.020	0.062
Richmond	2	ROW_21231	ROW Opportunity	0.41	0.21	51%	0.037	0.062
Richmond	2	GIP_00125 / planned_138	Parcel-Based Opportunity (aspirational)	39.35	14.16	36%	0.001	0.061
Richmond	2	Parcel_154186	Parcel-Based Opportunity	0.39	0.26	67%	0.039	0.061
Richmond	2	ROW_105	ROW Opportunity	2.41	1.61	67%	0.008	0.061
Richmond	2	ROW_1763	ROW Opportunity	0.34	0.21	62%	0.044	0.061
Richmond	2	ROW_3733	ROW Opportunity	0.47	0.25	53%	0.032	0.061
Richmond	2	ROW_6864	ROW Opportunity	0.36	0.26	72%	0.042	0.061
Richmond	2	ROW_15878	ROW Opportunity	3.44	1.96	57%	0.006	0.060
Richmond	2	ROW_19023	ROW Opportunity	1.43	0.96	67%	0.012	0.060
Richmond	2	ROW_9166	ROW Opportunity	0.45	0.28	62%	0.033	0.060
Richmond	2	Parcel_118569	Parcel-Based Opportunity	0.46	0.19	41%	0.031	0.059
Richmond	2	ROW_15195	ROW Opportunity	6.51	4.28	66%	0.003	0.059
Richmond	2	ROW_18037	ROW Opportunity	4.29	2.74	64%	0.005	0.059
Richmond	2	ROW_2697	ROW Opportunity	2.39	1.65	69%	0.008	0.059
Richmond	2	ROW_1794	ROW Opportunity	0.32	0.25	78%	0.046	0.058
Richmond	2	ROW_19952	ROW Opportunity	0.87	0.59	68%	0.018	0.058
Richmond	2	ROW_20453	ROW Opportunity	0.55	0.39	71%	0.027	0.058
Richmond	2	Parcel_116468	Parcel-Based Opportunity	0.74	0.29	39%	0.019	0.057
Richmond	2	Parcel_133667	Parcel-Based Opportunity	25.54	14.75	58%	0.001	0.057
Richmond	2	ROW_16116	ROW Opportunity	0.32	0.20	63%	0.044	0.057
Richmond	2	ROW_16539	ROW Opportunity	1.03	0.59	57%	0.015	0.057
Richmond	2	ROW_886	ROW Opportunity	9.50	6.34	67%	0.003	0.057
Richmond	2	ROW_16475	ROW Opportunity	2.52	1.67	66%	0.007	0.056
Richmond	2	ROW_4147	ROW Opportunity	0.75	0.48	64%	0.020	0.056
Richmond	2	ROW_9755	ROW Opportunity	0.36	0.24	67%	0.038	0.056
Richmond	2	ROW_17721	ROW Opportunity	0.32	0.19	59%	0.044	0.055
Richmond	2	ROW_3294	ROW Opportunity	0.50	0.34	68%	0.028	0.055
Richmond	2	ROW_16486	ROW Opportunity	0.67	0.40	60%	0.021	0.054
Richmond	2	ROW_18476	ROW Opportunity	1.55	1.08	70%	0.010	0.054
Richmond	2	Parcel_150073	Regional Opportunity	1.80	1.20	67%	0.009	0.053
Richmond	2	ROW_13891	ROW Opportunity	0.41	0.18	44%	0.032	0.053
Richmond	2	Parcel_176154	Parcel-Based Opportunity	27.12	13.35	49%	0.001	0.052
Richmond	2	ROW_18074	ROW Opportunity	3.67	2.41	66%	0.005	0.052
Richmond	2	Parcel_236849	Parcel-Based Opportunity	260.54	3.37	1%	0.000	0.051
Richmond	2	ROW_18477	ROW Opportunity	2.41	1.65	68%	0.007	0.051
Richmond	2	ROW_9129	ROW Opportunity	3.29	1.38	42%	0.005	0.051
Richmond	2	Parcel_118639	Parcel-Based Opportunity	0.45	0.10	22%	0.028	0.050
Richmond	2	Parcel_150614	Regional Opportunity	2.05	1.74	85%	0.008	0.049
Richmond	2	ROW_13905	ROW Opportunity	3.58	2.15	60%	0.005	0.049
Richmond	2	ROW_21154	ROW Opportunity	2.44	1.79	73%	0.007	0.049
Richmond	2	ROW_11838	ROW Opportunity	0.29	0.17	59%	0.041	0.048
Richmond	2	ROW_3859	ROW Opportunity	7.00	4.53	65%	0.003	0.048
Richmond	2	Parcel_255238	Parcel-Based Opportunity	611.35	20.49	3%	0.000	0.047
Richmond	2	ROW_20475	ROW Opportunity	1.12	0.76	68%	0.012	0.047
Richmond	2	ROW_9125	ROW Opportunity	2.59	0.93	36%	0.005	0.047
Richmond	2	ROW_98	ROW Opportunity	2.55	1.75	69%	0.006	0.047
Richmond	2	ROW_15754	ROW Opportunity	0.35	0.22	63%	0.033	0.046
Richmond	2	ROW_16440	ROW Opportunity	0.58	0.41	71%	0.021	0.046
Richmond	2	ROW_16512	ROW Opportunity	1.89	1.24	66%	0.008	0.046
Richmond	2	ROW_3979	ROW Opportunity	11.15	7.70	69%	0.002	0.046
Richmond	2	ROW_3728	ROW Opportunity	0.28	0.19	68%	0.040	0.045
Richmond	2	ROW_7216	ROW Opportunity	2.32	1.56	67%	0.006	0.045
Richmond	2	Parcel_132474	Regional Opportunity	1.13	0.87	77%	0.011	0.044
Richmond	2	Parcel_149687	Regional Opportunity	1.43	1.00	70%	0.009	0.044
Richmond	2	planned_326	Planned Creek/Marsh Restoration	2.22	0.57	26%	0.006	0.044
Richmond	2	ROW_14433	ROW Opportunity	1.36	0.88	65%	0.010	0.044
Richmond	2	ROW_247	ROW Opportunity	13.62	8.74	64%	0.002	0.044
Richmond	2	ROW_5190	ROW Opportunity	0.35	0.14	40%	0.031	0.044
Richmond	2	ROW_785	ROW Opportunity	6.19	3.83	62%	0.003	0.044
Richmond	2	ROW_9939	ROW Opportunity	0.37	0.14	38%	0.029	0.044
Richmond	2	GIP_00112 / Parcel_133196	Regional Opportunity (aspirational)	1.20	1.00	83%	0.011	0.043
Richmond	2	planned_296	Planned Creek/Marsh Restoration	83.80	11.53	14%	0.000	0.043
Richmond	2	ROW_17312	ROW Opportunity	0.27	0.14	52%	0.040	0.043
Richmond	2	ROW_8642	ROW Opportunity	3.74	2.42	65%	0.004	0.043
Richmond	2	GIP_00120 / Parcel_143826	Regional Opportunity (aspirational)	1.04	0.89	86%	0.012	0.042
Richmond	2	GIP_00179 / ROW_3507	ROW Opportunity (aspirational)	9.06	5.66	62%	0.002	0.042
Richmond	2	Parcel_188482	Parcel-Based Opportunity	7.05	3.25	46%	0.002	0.042
Richmond	2	ROW_13417	ROW Opportunity	5.44	3.72	68%	0.003	0.042
Richmond	2	ROW_16211	ROW Opportunity	8.14	5.41	66%	0.002	0.042
Richmond	2	ROW_175	ROW Opportunity	3.50	2.49	71%	0.004	0.042
Richmond	2	Parcel_113228	Parcel-Based Opportunity	0.23	0.14	61%	0.044	0.041
Richmond	2	Parcel_149904	Regional Opportunity	1.45	0.91	63%	0.008	0.041
Richmond	2	Parcel_211565	Regional Opportunity	1.57	0.88	56%	0.008	0.041
Richmond	2	ROW_16555	ROW Opportunity	3.26	2.17	67%	0.004	0.041
Richmond	2	GIP_00123 / Parcel_152927	Regional Opportunity (aspirational)	3.09	1.99	64%	0.005	0.040
Richmond	2	Parcel_139167	Regional Opportunity	0.87	0.70	80%	0.013	0.040
Richmond	2	ROW_100	ROW Opportunity	3.68	2.57	70%	0.004	0.040
Richmond	2	ROW_10892	ROW Opportunity	0.90	0.53	59%	0.012	0.040
Richmond	2	ROW_14676	ROW Opportunity	1.05	0.73	70%	0.011	0.040
Richmond	2	ROW_2159	ROW Opportunity	3.17	2.21	70%	0.004	0.040
Richmond	2	ROW_245	ROW Opportunity	12.24	7.96	65%	0.002	0.040
Richmond	2	ROW_273	ROW Opportunity	9.08	6.04	67%	0.002	0.040
Richmond	2	ROW_66	ROW Opportunity	1.53	1.13	74%	0.008	0.040
Richmond	2	Parcel_116652	Parcel-Based Opportunity	0.23	0.13	57%	0.042	0.039
Richmond	2	ROW_16507	ROW Opportunity	1.11	0.73	66%	0.010	0.039
Richmond	2	ROW_248	ROW Opportunity	6.87	4.50	66%	0.002	0.039
Richmond	2	ROW_11363	ROW Opportunity	9.37	6.08	65%	0.002	0.038
Richmond	2	ROW_126	ROW Opportunity	1.73	1.12	65%	0.007	0.038
Richmond	2	ROW_15753	ROW Opportunity	0.77	0.46	60%	0.014	0.038
Richmond	2	ROW_16503	ROW Opportunity	2.40	1.57	65%	0.005	0.038
Richmond	2	ROW_16557	ROW Opportunity	3.91	2.61	67%	0.004	0.038

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Richmond	2	ROW_212	ROW Opportunity	7.21	4.69	65%	0.002	0.038
Richmond	2	ROW_257	ROW Opportunity	9.16	6.03	66%	0.002	0.038
Richmond	2	ROW_69	ROW Opportunity	1.85	1.26	68%	0.007	0.038
Richmond	2	GIP_00145 / planned_486	Parcel-Based Opportunity (aspirational)	5.73	3.84	67%	0.003	0.037
Richmond	2	Parcel_375480	Parcel-Based Opportunity	39.00	23.68	61%	0.000	0.037
Richmond	2	ROW_16208	ROW Opportunity	2.13	1.44	68%	0.006	0.037
Richmond	2	ROW_16518	ROW Opportunity	2.48	1.62	65%	0.005	0.037
Richmond	2	ROW_211	ROW Opportunity	4.70	3.08	66%	0.003	0.037
Richmond	2	Parcel_126574	Regional Opportunity	0.58	0.15	26%	0.016	0.036
Richmond	2	ROW_11885	ROW Opportunity	0.22	0.15	68%	0.041	0.036
Richmond	2	ROW_19949	ROW Opportunity	0.81	0.55	68%	0.013	0.036
Richmond	2	Parcel_133977	Regional Opportunity	1.28	0.66	52%	0.008	0.035
Richmond	2	Parcel_137626	Regional Opportunity	1.25	0.75	60%	0.008	0.035
Richmond	2	Parcel_146294	Parcel-Based Opportunity	14.14	9.02	64%	0.001	0.035
Richmond	2	Parcel_195923	Parcel-Based Opportunity	0.15	0.06	40%	0.059	0.035
Richmond	2	ROW_16433	ROW Opportunity	1.10	0.75	68%	0.009	0.035
Richmond	2	ROW_16437	ROW Opportunity	3.09	2.10	68%	0.004	0.035
Richmond	2	ROW_16443	ROW Opportunity	3.11	2.01	65%	0.004	0.035
Richmond	2	ROW_246	ROW Opportunity	0.43	0.31	72%	0.022	0.035
Richmond	2	ROW_3755	ROW Opportunity	0.29	0.11	38%	0.030	0.035
Richmond	2	Parcel_234570	Parcel-Based Opportunity	21.31	2.72	13%	0.001	0.034
Richmond	2	ROW_11014	ROW Opportunity	5.98	3.95	66%	0.002	0.034
Richmond	2	ROW_15831	ROW Opportunity	9.53	6.34	67%	0.002	0.034
Richmond	2	ROW_17021	ROW Opportunity	0.48	0.20	42%	0.019	0.034
Richmond	2	ROW_283	ROW Opportunity	6.12	4.23	69%	0.002	0.034
Richmond	2	ROW_56	ROW Opportunity	1.53	1.09	71%	0.007	0.034
Richmond	2	Parcel_111332	Parcel-Based Opportunity	0.26	0.11	42%	0.032	0.033
Richmond	2	Parcel_120275	Regional Opportunity	1.53	0.52	34%	0.006	0.033
Richmond	2	Parcel_154534	Parcel-Based Opportunity	0.21	0.14	67%	0.039	0.033
Richmond	2	ROW_191	ROW Opportunity	1.46	1.08	74%	0.007	0.033
Richmond	2	ROW_21542	ROW Opportunity	8.21	5.22	64%	0.002	0.033
Richmond	2	ROW_239	ROW Opportunity	10.01	6.58	66%	0.002	0.033
Richmond	2	ROW_6159	ROW Opportunity	6.69	4.35	65%	0.002	0.033
Richmond	2	ROW_85	ROW Opportunity	0.84	0.56	67%	0.011	0.033
Richmond	2	GIP_00148 / planned_492	Parcel-Based Opportunity (aspirational)	2.50	1.76	70%	0.005	0.032
Richmond	2	ROW_243	ROW Opportunity	9.52	6.21	65%	0.002	0.032
Richmond	2	ROW_282	ROW Opportunity	5.99	4.14	69%	0.002	0.032
Richmond	2	GIP_00146 / planned_488	Parcel-Based Opportunity (aspirational)	2.69	1.81	67%	0.004	0.031
Richmond	2	Parcel_119762	Regional Opportunity	1.08	0.35	32%	0.008	0.031
Richmond	2	Parcel_125511	Parcel-Based Opportunity	0.17	0.11	65%	0.047	0.031
Richmond	2	Parcel_142243	Regional Opportunity	0.79	0.65	82%	0.012	0.031
Richmond	2	Parcel_207080	Parcel-Based Opportunity	11.36	4.54	40%	0.001	0.031
Richmond	2	ROW_19630	ROW Opportunity	2.57	0.92	36%	0.004	0.031
Richmond	2	ROW_259	ROW Opportunity	7.70	5.06	66%	0.002	0.031
Richmond	2	ROW_298	ROW Opportunity	5.20	3.55	68%	0.003	0.031
Richmond	2	ROW_323	ROW Opportunity	5.79	3.97	69%	0.002	0.031
Richmond	2	ROW_16432	ROW Opportunity	0.17	0.13	76%	0.042	0.030
Richmond	2	ROW_16444	ROW Opportunity	1.83	1.25	68%	0.005	0.030
Richmond	2	ROW_16533	ROW Opportunity	0.59	0.36	61%	0.014	0.030
Richmond	2	ROW_5978	ROW Opportunity	1.46	0.86	59%	0.007	0.030
Richmond	2	ROW_80	ROW Opportunity	0.96	0.68	71%	0.009	0.030
Richmond	2	Parcel_198527	Parcel-Based Opportunity	7.70	0.55	7%	0.002	0.029
Richmond	2	ROW_11807	ROW Opportunity	9.05	5.81	64%	0.001	0.029
Richmond	2	ROW_12123	ROW Opportunity	8.06	5.15	64%	0.002	0.029
Richmond	2	ROW_12145	ROW Opportunity	8.39	5.45	65%	0.002	0.029
Richmond	2	ROW_21089	ROW Opportunity	2.88	1.39	48%	0.003	0.029
Richmond	2	GIP_00159 / planned_519	Parcel-Based Opportunity (aspirational)	7.69	5.20	68%	0.002	0.028
Richmond	2	Parcel_120253	Parcel-Based Opportunity	0.33	0.14	42%	0.021	0.028
Richmond	2	Parcel_150301	Regional Opportunity	0.90	0.66	73%	0.009	0.028
Richmond	2	ROW_10074	ROW Opportunity	9.03	5.68	63%	0.001	0.028
Richmond	2	ROW_10718	ROW Opportunity	7.91	4.98	63%	0.002	0.028
Richmond	2	ROW_16439	ROW Opportunity	1.16	0.76	66%	0.008	0.028
Richmond	2	ROW_16546	ROW Opportunity	2.59	1.81	70%	0.004	0.028
Richmond	2	ROW_7714	ROW Opportunity	6.37	4.16	65%	0.002	0.028
Richmond	2	GIP_00157 / planned_517	Parcel-Based Opportunity (aspirational)	6.85	4.64	68%	0.002	0.027
Richmond	2	ROW_13419	ROW Opportunity	1.62	1.06	65%	0.006	0.027
Richmond	2	ROW_16451	ROW Opportunity	5.28	3.42	65%	0.002	0.027
Richmond	2	ROW_16525	ROW Opportunity	1.21	0.69	57%	0.007	0.027
Richmond	2	ROW_20279	ROW Opportunity	6.17	4.13	67%	0.002	0.027
Richmond	2	ROW_241	ROW Opportunity	7.41	4.90	66%	0.002	0.027
Richmond	2	ROW_280	ROW Opportunity	6.70	4.42	66%	0.002	0.027
Richmond	2	ROW_7716	ROW Opportunity	5.73	3.73	65%	0.002	0.027
Richmond	2	Parcel_150205	Regional Opportunity	0.89	0.61	69%	0.009	0.026
Richmond	2	Parcel_375468	Parcel-Based Opportunity	0.97	0.09	9%	0.009	0.026
Richmond	2	ROW_11626	ROW Opportunity	0.14	0.09	64%	0.044	0.026
Richmond	2	ROW_16463	ROW Opportunity	6.46	4.31	67%	0.002	0.026
Richmond	2	ROW_238	ROW Opportunity	0.20	0.14	70%	0.033	0.026
Richmond	2	ROW_7717	ROW Opportunity	2.09	1.39	67%	0.004	0.026
Richmond	2	ROW_8365	ROW Opportunity	9.43	5.05	54%	0.001	0.026
Richmond	2	ROW_8849	ROW Opportunity	6.28	4.11	65%	0.002	0.026
Richmond	2	ROW_9165	ROW Opportunity	0.31	0.19	61%	0.021	0.026
Richmond	2	ROW_9347	ROW Opportunity	8.44	5.50	65%	0.001	0.026
Richmond	2	Parcel_227484	Parcel-Based Opportunity	150.23	0.93	1%	0.000	0.025
Richmond	2	ROW_12098	ROW Opportunity	3.92	2.44	62%	0.003	0.025
Richmond	2	ROW_13064	ROW Opportunity	12.19	6.07	50%	0.001	0.025
Richmond	2	ROW_169	ROW Opportunity	0.64	0.50	78%	0.011	0.025
Richmond	2	ROW_190	ROW Opportunity	1.00	0.73	73%	0.008	0.025
Richmond	2	ROW_207	ROW Opportunity	0.87	0.60	69%	0.009	0.025
Richmond	2	ROW_252	ROW Opportunity	5.36	3.50	65%	0.002	0.025
Richmond	2	ROW_16476	ROW Opportunity	0.55	0.32	58%	0.012	0.024
Richmond	2	ROW_16495	ROW Opportunity	2.25	1.50	67%	0.004	0.024
Richmond	2	ROW_188	ROW Opportunity	1.08	0.78	72%	0.007	0.024
Richmond	2	ROW_9992	ROW Opportunity	2.54	1.65	65%	0.003	0.024
Richmond	2	GIP_00111 / Parcel_132965	Regional Opportunity (aspirational)	0.59	0.46	78%	0.011	0.023

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Richmond	2	GIP_00114 / Parcel_133558	Regional Opportunity (aspirational)	0.63	0.52	83%	0.011	0.023
Richmond	2	GIP_00131 / planned_186	Parcel-Based Opportunity (aspirational)	18.01	5.20	29%	0.001	0.023
Richmond	2	GIP_00135 / planned_468	Parcel-Based Opportunity (aspirational)	18.01	5.20	29%	0.001	0.023
Richmond	2	GIP_00161 / planned_521	Parcel-Based Opportunity (aspirational)	5.57	3.75	67%	0.002	0.023
Richmond	2	planned_174	Planned Unlined Swale	0.69	0.47	68%	0.010	0.023
Richmond	2	ROW_11010	ROW Opportunity	5.64	3.65	65%	0.002	0.023
Richmond	2	ROW_11852	ROW Opportunity	0.88	0.58	66%	0.008	0.023
Richmond	2	ROW_128	ROW Opportunity	3.64	2.51	69%	0.003	0.023
Richmond	2	ROW_14749	ROW Opportunity	1.79	0.86	48%	0.004	0.023
Richmond	2	ROW_16490	ROW Opportunity	2.47	1.59	64%	0.003	0.023
Richmond	2	ROW_216	ROW Opportunity	5.26	3.39	64%	0.002	0.023
Richmond	2	ROW_284	ROW Opportunity	4.68	3.14	67%	0.002	0.023
Richmond	2	ROW_345	ROW Opportunity	7.17	4.37	61%	0.001	0.023
Richmond	2	ROW_4274	ROW Opportunity	0.75	0.51	68%	0.009	0.023
Richmond	2	ROW_59	ROW Opportunity	1.06	0.68	64%	0.007	0.023
Richmond	2	ROW_7798	ROW Opportunity	3.24	2.02	62%	0.003	0.023
Richmond	2	ROW_862	ROW Opportunity	0.62	0.49	79%	0.011	0.023
Richmond	2	GIP_00113 / Parcel_133528	Regional Opportunity (aspirational)	0.61	0.50	82%	0.011	0.022
Richmond	2	GIP_00164 / planned_529	Parcel-Based Opportunity (aspirational)	8.35	3.96	47%	0.001	0.022
Richmond	2	Parcel_177214	Parcel-Based Opportunity	11.57	5.65	49%	0.001	0.022
Richmond	2	Parcel_197712	Parcel-Based Opportunity	0.34	0.05	15%	0.017	0.022
Richmond	2	Parcel_231444	Parcel-Based Opportunity	9.82	5.16	53%	0.001	0.022
Richmond	2	planned_514	Planned Unlined Swale	0.26	0.17	65%	0.022	0.022
Richmond	2	ROW_14348	ROW Opportunity	4.73	2.85	60%	0.002	0.022
Richmond	2	ROW_16540	ROW Opportunity	3.11	1.96	63%	0.003	0.022
Richmond	2	ROW_16547	ROW Opportunity	3.20	2.06	64%	0.003	0.022
Richmond	2	ROW_4556	ROW Opportunity	4.85	2.97	61%	0.002	0.022
Richmond	2	ROW_6276	ROW Opportunity	0.11	0.08	73%	0.051	0.022
Richmond	2	ROW_6850	ROW Opportunity	5.70	3.79	66%	0.002	0.022
Richmond	2	ROW_7554	ROW Opportunity	4.93	2.93	59%	0.002	0.022
Richmond	2	ROW_8344	ROW Opportunity	2.79	1.43	51%	0.003	0.022
Richmond	2	ROW_9354	ROW Opportunity	4.61	2.81	61%	0.002	0.022
Richmond	2	Parcel_136865	Regional Opportunity	0.56	0.40	71%	0.011	0.021
Richmond	2	Parcel_142495	Regional Opportunity	1.67	1.01	60%	0.004	0.021
Richmond	2	Parcel_150789	Regional Opportunity	0.68	0.49	72%	0.009	0.021
Richmond	2	ROW_16459	ROW Opportunity	3.83	2.58	67%	0.002	0.021
Richmond	2	ROW_20540	ROW Opportunity	1.86	1.20	65%	0.004	0.021
Richmond	2	ROW_4128	ROW Opportunity	0.53	0.40	75%	0.011	0.021
Richmond	2	ROW_4276	ROW Opportunity	1.18	0.85	72%	0.006	0.021
Richmond	2	ROW_4470	ROW Opportunity	5.90	3.81	65%	0.002	0.021
Richmond	2	ROW_68	ROW Opportunity	3.20	2.16	68%	0.003	0.021
Richmond	2	Parcel_164500	Regional Opportunity	1.15	0.45	39%	0.005	0.020
Richmond	2	planned_187	Planned Unlined Bioretention	0.48	0.29	60%	0.012	0.020
Richmond	2	ROW_12816	ROW Opportunity	5.38	3.23	60%	0.002	0.020
Richmond	2	ROW_13418	ROW Opportunity	2.49	1.71	69%	0.003	0.020
Richmond	2	ROW_16450	ROW Opportunity	5.38	3.61	67%	0.002	0.020
Richmond	2	ROW_16677	ROW Opportunity	4.69	2.78	59%	0.002	0.020
Richmond	2	ROW_18208	ROW Opportunity	1.75	1.14	65%	0.004	0.020
Richmond	2	ROW_1991	ROW Opportunity	7.58	4.72	62%	0.001	0.020
Richmond	2	ROW_20007	ROW Opportunity	6.72	4.21	63%	0.001	0.020
Richmond	2	ROW_501	ROW Opportunity	5.00	3.06	61%	0.002	0.020
Richmond	2	ROW_6847	ROW Opportunity	5.45	3.61	66%	0.002	0.020
Richmond	2	ROW_7333	ROW Opportunity	3.29	2.13	65%	0.003	0.020
Richmond	2	ROW_7747	ROW Opportunity	4.04	2.68	66%	0.002	0.020
Richmond	2	ROW_9126	ROW Opportunity	1.07	0.38	36%	0.005	0.020
Richmond	2	GIP_00126 / planned_141	Parcel-Based Opportunity (aspirational)	18.40	3.20	17%	0.000	0.019
Richmond	2	Parcel_196851	Parcel-Based Opportunity	4.96	0.08	2%	0.002	0.019
Richmond	2	ROW_12536	ROW Opportunity	2.88	1.31	45%	0.003	0.019
Richmond	2	ROW_16534	ROW Opportunity	1.86	1.27	68%	0.004	0.019
Richmond	2	ROW_17129	ROW Opportunity	10.19	4.51	44%	0.001	0.019
Richmond	2	ROW_3972	ROW Opportunity	0.65	0.40	62%	0.009	0.019
Richmond	2	ROW_6954	ROW Opportunity	0.73	0.55	75%	0.008	0.019
Richmond	2	GIP_00118 / Parcel_140096	Parcel-Based Opportunity (aspirational)	6.62	4.81	73%	0.001	0.018
Richmond	2	GIP_00152 / planned_511	Parcel-Based Opportunity (aspirational)	2.00	1.36	68%	0.003	0.018
Richmond	2	GIP_00162 / planned_522	Parcel-Based Opportunity (aspirational)	5.90	4.00	68%	0.001	0.018
Richmond	2	Parcel_126885	Regional Opportunity	1.12	0.39	35%	0.005	0.018
Richmond	2	Parcel_151124	Parcel-Based Opportunity	0.47	0.35	74%	0.011	0.018
Richmond	2	Parcel_151604	Regional Opportunity	0.50	0.42	84%	0.011	0.018
Richmond	2	Parcel_152942	Regional Opportunity	0.52	0.42	81%	0.010	0.018
Richmond	2	ROW_160	ROW Opportunity	4.58	3.15	69%	0.002	0.018
Richmond	2	ROW_16470	ROW Opportunity	2.55	1.66	65%	0.003	0.018
Richmond	2	ROW_20777	ROW Opportunity	1.92	1.28	67%	0.003	0.018
Richmond	2	ROW_213	ROW Opportunity	5.91	3.79	64%	0.001	0.018
Richmond	2	ROW_2915	ROW Opportunity	4.41	2.90	66%	0.002	0.018
Richmond	2	ROW_2928	ROW Opportunity	3.99	2.40	60%	0.002	0.018
Richmond	2	ROW_3295	ROW Opportunity	0.13	0.06	46%	0.035	0.018
Richmond	2	ROW_4531	ROW Opportunity	0.29	0.15	52%	0.016	0.018
Richmond	2	ROW_6066	ROW Opportunity	0.37	0.11	30%	0.013	0.018
Richmond	2	ROW_67	ROW Opportunity	1.78	1.28	72%	0.004	0.018
Richmond	2	Parcel_209985	Parcel-Based Opportunity	7.78	4.24	54%	0.001	0.017
Richmond	2	planned_489	Planned Unlined Bioretention	1.91	1.34	70%	0.003	0.017
Richmond	2	ROW_16453	ROW Opportunity	4.49	2.90	65%	0.002	0.017
Richmond	2	ROW_16524	ROW Opportunity	0.17	0.12	71%	0.027	0.017
Richmond	2	ROW_16920	ROW Opportunity	0.89	0.46	52%	0.006	0.017
Richmond	2	ROW_17076	ROW Opportunity	4.77	2.85	60%	0.002	0.017
Richmond	2	ROW_290	ROW Opportunity	1.30	0.94	72%	0.005	0.017
Richmond	2	ROW_4396	ROW Opportunity	2.92	1.91	65%	0.002	0.017
Richmond	2	GIP_00141 / planned_480	Parcel-Based Opportunity (aspirational)	3.92	2.68	68%	0.002	0.016
Richmond	2	Parcel_150106	Parcel-Based Opportunity	0.47	0.36	77%	0.010	0.016
Richmond	2	Parcel_50787	Parcel-Based Opportunity	0.13	0.09	69%	0.032	0.016
Richmond	2	planned_94	Planned Creek/Marsh Restoration	4.16	2.12	51%	0.002	0.016
Richmond	2	ROW_115	ROW Opportunity	3.74	2.52	67%	0.002	0.016
Richmond	2	ROW_1385	ROW Opportunity	0.62	0.34	55%	0.008	0.016
Richmond	2	ROW_250	ROW Opportunity	2.22	1.47	66%	0.003	0.016

Jurisdiction	Permit	Project ID	Project Type	Area (Acres)	Impervious Area (Acres)	Percent Impervious	PCBs Yield (g/acre)	PCBs Mass reduced (g)
Richmond	2	ROW_314	ROW Opportunity	4.06	2.72	67%	0.002	0.016
Richmond	2	ROW_3741	ROW Opportunity	0.59	0.40	68%	0.008	0.016
Richmond	2	ROW_4398	ROW Opportunity	3.21	2.08	65%	0.002	0.016
Richmond	2	ROW_4866	ROW Opportunity	5.85	3.86	66%	0.001	0.016
Richmond	2	GIP_00124 / planned_137	Parcel-Based Opportunity (aspirational)	9.66	3.71	38%	0.001	0.015
Richmond	2	Parcel_160376	Parcel-Based Opportunity	4.81	4.00	83%	0.001	0.015
Richmond	2	ROW_12101	ROW Opportunity	1.93	1.31	68%	0.003	0.015
Richmond	2	ROW_16447	ROW Opportunity	3.16	2.13	67%	0.002	0.015
Richmond	2	ROW_16479	ROW Opportunity	0.89	0.59	66%	0.006	0.015
Richmond	2	ROW_17605	ROW Opportunity	7.60	3.45	45%	0.001	0.015
Richmond	2	ROW_18926	ROW Opportunity	4.43	2.72	61%	0.002	0.015
Richmond	2	ROW_20542	ROW Opportunity	0.72	0.51	71%	0.007	0.015
Richmond	2	ROW_20895	ROW Opportunity	0.46	0.22	48%	0.009	0.015
Richmond	2	ROW_21152	ROW Opportunity	4.90	3.36	69%	0.002	0.015
Richmond	2	ROW_258	ROW Opportunity	0.55	0.39	71%	0.008	0.015
Richmond	2	ROW_6047	ROW Opportunity	4.81	3.21	67%	0.001	0.015
Richmond	2	ROW_78	ROW Opportunity	0.84	0.63	75%	0.006	0.015
Richmond	2	ROW_81	ROW Opportunity	1.73	1.19	69%	0.003	0.015
Richmond	2	ROW_93	ROW Opportunity	5.91	3.85	65%	0.001	0.015
Richmond	2	Parcel_136418	Regional Opportunity	0.51	0.31	61%	0.008	0.014
Richmond	2	Parcel_139156	Regional Opportunity	2.90	1.37	47%	0.002	0.014
Richmond	2	Parcel_139599	Parcel-Based Opportunity	5.30	3.53	67%	0.001	0.014
Richmond	2	Parcel_143456	Parcel-Based Opportunity	0.42	0.32	76%	0.010	0.014
Richmond	2	Parcel_143637	Regional Opportunity	0.71	0.32	45%	0.006	0.014
Richmond	2	Parcel_191941	Parcel-Based Opportunity	7.01	0.25	4%	0.000	0.014
Richmond	2	Parcel_375481	Parcel-Based Opportunity	4.63	2.18	47%	0.002	0.014
Richmond	2	Parcel_47763	Parcel-Based Opportunity	4.66	2.90	62%	0.001	0.014
Richmond	2	ROW_11012	ROW Opportunity	2.36	1.46	62%	0.002	0.014
Richmond	2	ROW_129	ROW Opportunity	0.42	0.29	69%	0.010	0.014
Richmond	2	ROW_14437	ROW Opportunity	13.77	3.20	23%	0.000	0.014
Richmond	2	ROW_16491	ROW Opportunity	1.26	0.81	64%	0.004	0.014
Richmond	2	ROW_16494	ROW Opportunity	2.27	1.51	67%	0.003	0.014
Richmond	2	ROW_16611	ROW Opportunity	1.02	0.78	76%	0.005	0.014
Richmond	2	ROW_19951	ROW Opportunity	4.44	2.66	60%	0.002	0.014
Richmond	2	ROW_20316	ROW Opportunity	2.88	1.90	66%	0.002	0.014
Richmond	2	ROW_286	ROW Opportunity	2.29	1.57	69%	0.003	0.014
Richmond	2	ROW_89	ROW Opportunity	1.38	0.90	65%	0.004	0.014
Richmond	2	ROW_9417	ROW Opportunity	2.08	1.34	64%	0.003	0.014
Richmond	2	GIP_00127 / planned_171	Parcel-Based Opportunity (aspirational)	16.16	2.93	18%	0.000	0.013
Richmond	2	GIP_00138 / planned_475	Parcel-Based Opportunity (aspirational)	16.16	2.93	18%	0.000	0.013
Richmond	2	GIP_00149 / planned_508	Parcel-Based Opportunity (aspirational)	3.47	2.33	67%	0.002	0.013
Richmond	2	GIP_00175 / ROW_17569	ROW Opportunity (aspirational)	2.96	1.75	59%	0.002	0.013
Richmond	2	Parcel_112290	Regional Opportunity	1.12	0.16	14%	0.005	0.013
Richmond	2	Parcel_155750	Parcel-Based Opportunity	0.43	0.30	70%	0.009	0.013
Richmond	2	ROW_12140	ROW Opportunity	0.81	0.58	72%	0.006	0.013
Richmond	2	ROW_163	ROW Opportunity	5.21	3.41	65%	0.001	0.013
Richmond	2	ROW_194	ROW Opportunity	4.22	2.78	66%	0.001	0.013
Richmond	2	ROW_2595	ROW Opportunity	1.07	0.42	39%	0.004	0.013
Richmond	2	ROW_6848	ROW Opportunity	2.21	1.46	66%	0.002	0.013
Richmond	2	ROW_7330	ROW Opportunity	5.35	3.48	65%	0.001	0.013
Richmond	2	ROW_8151	ROW Opportunity	4.36	2.94	67%	0.001	0.013
Richmond	2	GIP_00160 / planned_520	Parcel-Based Opportunity (aspirational)	2.35	1.60	68%	0.002	0.012
Richmond	2	Parcel_147723	Parcel-Based Opportunity	0.34	0.27	79%	0.010	0.012
Richmond	2	Parcel_150072	Parcel-Based Opportunity	0.36	0.27	75%	0.010	0.012
Richmond	2	Parcel_211418	Parcel-Based Opportunity	9.02	2.38	26%	0.001	0.012
Richmond	2	Parcel_225370	Parcel-Based Opportunity	25.07	3.05	12%	0.000	0.012
Richmond	2	Parcel_375470	Parcel-Based Opportunity	57.79	1.88	3%	0.000	0.012
Richmond	2	ROW_132	ROW Opportunity	1.65	1.13	68%	0.003	0.012
Richmond	2	ROW_13338	ROW Opportunity	1.01	0.70	69%	0.004	0.012
Richmond	2	ROW_14167	ROW Opportunity	4.84	3.18	66%	0.001	0.012
Richmond	2	ROW_14369	ROW Opportunity	0.27	0.09	33%	0.012	0.012
Richmond	2	ROW_16466	ROW Opportunity	3.17	2.13	67%	0.002	0.012
Richmond	2	ROW_16474	ROW Opportunity	2.85	1.84	65%	0.002	0.012
Richmond	2	ROW_16502	ROW Opportunity	2.06	1.33	65%	0.002	0.012
Richmond	2	ROW_204	ROW Opportunity	4.79	3.07	64%	0.001	0.012
Richmond	2	ROW_253	ROW Opportunity	4.86	3.10	64%	0.001	0.012
Richmond	2	ROW_281	ROW Opportunity	0.38	0.28	74%	0.010	0.012
Richmond	2	ROW_4277	ROW Opportunity	0.43	0.27	63%	0.008	0.012
Richmond	2	ROW_5573	ROW Opportunity	1.06	0.63	59%	0.004	0.012
Richmond	2	ROW_6101	ROW Opportunity	4.34	2.67	62%	0.001	0.012
Richmond	2	ROW_6558	ROW Opportunity	1.87	1.00	53%	0.002	0.012
Richmond	2	ROW_7748	ROW Opportunity	4.34	2.86	66%	0.001	0.012
Richmond	2	ROW_913	ROW Opportunity	0.22	0.10	45%	0.015	0.012
Richmond	2	ROW_9680	ROW Opportunity	2.49	1.58	63%	0.002	0.012
Richmond	2	GIP_00133 / planned_193	Parcel-Based Opportunity (aspirational)	0.97	0.27	28%	0.004	0.011
Richmond	2	GIP_00150 / planned_509	Parcel-Based Opportunity (aspirational)	3.02	2.04	68%	0.002	0.011
Richmond	2	GIP_00151 / planned_510	Parcel-Based Opportunity (aspirational)	2.11	1.43	68%	0.002	0.011
Richmond	2	Parcel_112193	Parcel-Based Opportunity	0.18	0.07	39%	0.016	0.011
Richmond	2	Parcel_116931	Parcel-Based Opportunity	11.22	0.40	4%	0.000	0.011
Richmond	2	Parcel_121594	Parcel-Based Opportunity	3.20	1.53	48%	0.002	0.011
Richmond	2	Parcel_128233	Parcel-Based Opportunity	3.85	2.80	73%	0.001	0.011
Richmond	2	Parcel_145759	Parcel-Based Opportunity	0.34	0.25	74%	0.010	0.011
Richmond	2	Parcel_149557	Parcel-Based Opportunity	0.35	0.25	71%	0.009	0.011
Richmond	2	Parcel_150416	Parcel-Based Opportunity	0.32	0.27	84%	0.011	0.011
Richmond	2	Parcel_152538	Parcel-Based Opportunity	0.37	0.26	70%	0.009	0.011
Richmond	2	Parcel_167393	Parcel-Based Opportunity	4.98	2.79	56%	0.001	0.011
Richmond	2	Parcel_243861	Parcel-Based Opportunity	33.58	2.75	8%	0.000	0.011
Richmond	2	ROW_111	ROW Opportunity	3.22	2.10	65%	0.002	0.011
Richmond	2	ROW_11660	ROW Opportunity	0.34	0.18	53%	0.010	0.011
Richmond	2	ROW_13123	ROW Opportunity	1.20	0.83	69%	0.003	0.011
Richmond	2	ROW_14811	ROW Opportunity	0.29	0.19	66%	0.011	0.011
Richmond	2	ROW_16446	ROW Opportunity	1.36	0.89	65%	0.003	0.011
Richmond	2	ROW_16468	ROW Opportunity	3.10	2.04	66%	0.002	0.011
Richmond	2	ROW_16483	ROW Opportunity	2.83	1.77	63%	0.002	0.011

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Richmond	2	ROW_19203	ROW Opportunity	3.74	2.18	58%	0.001	0.011
Richmond	2	ROW_19688	ROW Opportunity	4.52	2.76	61%	0.001	0.011
Richmond	2	ROW_20469	ROW Opportunity	2.29	1.56	68%	0.002	0.011
Richmond	2	ROW_249	ROW Opportunity	4.36	2.85	65%	0.001	0.011
Richmond	2	ROW_322	ROW Opportunity	4.52	3.02	67%	0.001	0.011
Richmond	2	ROW_3981	ROW Opportunity	2.93	1.87	64%	0.002	0.011
Richmond	2	ROW_4397	ROW Opportunity	3.99	2.39	60%	0.001	0.011
Richmond	2	ROW_9967	ROW Opportunity	5.27	2.53	48%	0.001	0.011
Richmond	2	GIP_00115 / Parcel_135904	Parcel-Based Opportunity (aspirational)	8.78	2.30	26%	0.001	0.010
Richmond	2	planned_490	Planned Unlined Bioretention	3.29	2.20	67%	0.001	0.010
Richmond	2	ROW_106	ROW Opportunity	2.85	1.90	67%	0.002	0.010
Richmond	2	ROW_12330	ROW Opportunity	0.08	0.04	50%	0.032	0.010
Richmond	2	ROW_14072	ROW Opportunity	1.98	1.16	59%	0.002	0.010
Richmond	2	ROW_16841	ROW Opportunity	3.01	1.97	65%	0.002	0.010
Richmond	2	ROW_17073	ROW Opportunity	3.30	2.03	62%	0.002	0.010
Richmond	2	ROW_17322	ROW Opportunity	0.62	0.22	35%	0.005	0.010
Richmond	2	ROW_3014	ROW Opportunity	0.11	0.07	64%	0.025	0.010
Richmond	2	GIP_00110 / Parcel_109368	Parcel-Based Opportunity (aspirational)	3.40	2.17	64%	0.001	0.009
Richmond	2	GIP_00169 / ROW_15040	ROW Opportunity (aspirational)	1.55	0.99	64%	0.003	0.009
Richmond	2	GIP_00172 / ROW_16800	ROW Opportunity (aspirational)	3.21	1.91	60%	0.001	0.008
Richmond	2	GIP_00130 / planned_185	Parcel-Based Opportunity (aspirational)	6.84	1.74	25%	0.001	0.007
Richmond	2	GIP_00134 / planned_467	Parcel-Based Opportunity (aspirational)	6.84	1.74	25%	0.001	0.007
Richmond	2	GIP_00143 / planned_482	Parcel-Based Opportunity (aspirational)	2.83	1.88	66%	0.001	0.007
Richmond	2	GIP_00168 / ROW_12341	ROW Opportunity (aspirational)	2.99	1.76	59%	0.001	0.007
Richmond	2	GIP_00156 / planned_516	Parcel-Based Opportunity (aspirational)	2.16	1.44	67%	0.001	0.006
Richmond	2	GIP_00176 / ROW_2981	ROW Opportunity (aspirational)	2.42	1.41	58%	0.001	0.006
Richmond	2	GIP_00117 / Parcel_137234	Regional Opportunity (aspirational)	2.25	0.99	44%	0.001	0.004
Richmond	2	GIP_00119 / Parcel_140108	Regional Opportunity (aspirational)	1.53	1.06	69%	0.001	0.004
Richmond	2	GIP_00154 / planned_513	Parcel-Based Opportunity (aspirational)	1.69	1.13	67%	0.001	0.004
Richmond	2	GIP_00132 / planned_192	Parcel-Based Opportunity (aspirational)	2.19	0.73	33%	0.001	0.003
Richmond	2	GIP_00137 / planned_474	Parcel-Based Opportunity (aspirational)	2.19	0.73	33%	0.001	0.003
Richmond	2	GIP_00155 / planned_515	Parcel-Based Opportunity (aspirational)	1.39	0.94	68%	0.001	0.003
Richmond	2	GIP_00158 / planned_518	Parcel-Based Opportunity (aspirational)	1.02	0.69	68%	0.001	0.003
Richmond	2	GIP_00163 / planned_525	Parcel-Based Opportunity (aspirational)	1.23	0.77	63%	0.001	0.003
Richmond	2	GIP_00116 / Parcel_136910	Regional Opportunity (aspirational)	0.65	0.27	42%	0.001	0.001
Richmond	2	GIP_00129 / planned_184	Parcel-Based Opportunity (aspirational)	0.01	0.01	100%	0.002	0.000
San Pablo	2	GIP_10057 / ROW_7812	ROW Opportunity (aspirational)	7.18	4.82	67%	0.038	1.114
San Pablo	2	ROW_16921	ROW Opportunity	12.99	7.46	57%	0.008	0.353
San Pablo	2	planned_36	Planned Flood Control Basin	38.92	17.91	46%	0.002	0.256
San Pablo	2	planned_162	Planned Unlined Bioretention	53.22	35.34	66%	0.002	0.246
San Pablo	2	ROW_16388	ROW Opportunity	7.27	5.13	71%	0.010	0.245
San Pablo	2	planned_302	Planned Creek/Marsh Restoration	3.18	1.46	46%	0.019	0.235
San Pablo	2	ROW_20797	ROW Opportunity	1.05	0.93	89%	0.051	0.214
San Pablo	2	ROW_7812	ROW Opportunity	1.06	0.70	66%	0.038	0.162
San Pablo	2	ROW_16905	ROW Opportunity	5.86	3.97	68%	0.007	0.138
San Pablo	2	ROW_16907	ROW Opportunity	7.77	5.24	67%	0.005	0.126
San Pablo	2	ROW_16903	ROW Opportunity	4.25	2.88	68%	0.008	0.119
San Pablo	2	ROW_6559	ROW Opportunity	12.76	7.53	59%	0.003	0.114
San Pablo	2	planned_304	Planned Creek/Marsh Restoration	28.94	14.49	50%	0.002	0.105
San Pablo	2	GIP_10065 / SD_MasterPlan	ROW Opportunity (aspirational)	29.73	19.48	66%	0.001	0.094
San Pablo	2	ROW_4126	ROW Opportunity	0.60	0.43	72%	0.038	0.092
San Pablo	2	ROW_19846	ROW Opportunity	6.35	3.77	59%	0.004	0.076
San Pablo	2	ROW_2698	ROW Opportunity	8.13	5.52	68%	0.003	0.074
San Pablo	2	ROW_2767	ROW Opportunity	1.26	0.75	60%	0.015	0.070
San Pablo	2	GIP_10055 / ROW_11891	ROW Opportunity (aspirational)	7.98	5.43	68%	0.003	0.068
San Pablo	2	ROW_189	ROW Opportunity	3.45	2.35	68%	0.006	0.068
San Pablo	2	ROW_2769	ROW Opportunity	5.25	2.83	54%	0.004	0.063
San Pablo	2	ROW_7219	ROW Opportunity	1.16	0.79	68%	0.014	0.061
San Pablo	2	ROW_9756	ROW Opportunity	3.58	2.30	64%	0.006	0.060
San Pablo	2	ROW_6033	ROW Opportunity	7.68	5.03	65%	0.003	0.055
San Pablo	2	ROW_77	ROW Opportunity	0.39	0.30	77%	0.034	0.052
San Pablo	2	ROW_4227	ROW Opportunity	4.63	2.97	64%	0.004	0.047
San Pablo	2	ROW_192	ROW Opportunity	3.68	2.55	69%	0.004	0.045
San Pablo	2	ROW_18421	ROW Opportunity	9.68	6.08	63%	0.002	0.039
San Pablo	2	ROW_786	ROW Opportunity	5.66	3.27	58%	0.003	0.039
San Pablo	2	ROW_16914	ROW Opportunity	2.49	1.66	67%	0.005	0.037
San Pablo	2	ROW_16014	ROW Opportunity	5.29	3.53	67%	0.003	0.036
San Pablo	2	ROW_18397	ROW Opportunity	2.76	1.78	64%	0.004	0.035
San Pablo	2	ROW_4228	ROW Opportunity	2.60	1.68	65%	0.005	0.035
San Pablo	2	GIP_10056 / ROW_18927	ROW Opportunity (aspirational)	6.33	4.23	67%	0.002	0.033
San Pablo	2	ROW_18924	ROW Opportunity	0.25	0.19	76%	0.033	0.032
San Pablo	2	ROW_16015	ROW Opportunity	1.34	0.88	66%	0.007	0.031
San Pablo	2	ROW_15641	ROW Opportunity	4.30	2.76	64%	0.003	0.030
San Pablo	2	ROW_4668	ROW Opportunity	2.52	1.68	67%	0.004	0.030
San Pablo	2	ROW_12843	ROW Opportunity	2.13	1.52	71%	0.005	0.029
San Pablo	2	ROW_167	ROW Opportunity	6.95	4.63	67%	0.002	0.028
San Pablo	2	ROW_6930	ROW Opportunity	0.90	0.64	71%	0.009	0.028
San Pablo	2	ROW_15350	ROW Opportunity	1.12	0.66	59%	0.007	0.027
San Pablo	2	ROW_19954	ROW Opportunity	3.17	2.07	65%	0.003	0.027
San Pablo	2	ROW_20000	ROW Opportunity	1.97	1.36	69%	0.005	0.027
San Pablo	2	ROW_165	ROW Opportunity	5.88	3.79	64%	0.002	0.026
San Pablo	2	ROW_17042	ROW Opportunity	5.45	3.63	67%	0.002	0.025
San Pablo	2	ROW_11891	ROW Opportunity	1.83	1.26	69%	0.005	0.024
San Pablo	2	ROW_12558	ROW Opportunity	8.04	4.68	58%	0.001	0.023
San Pablo	2	ROW_16390	ROW Opportunity	1.74	1.08	62%	0.005	0.023
San Pablo	2	ROW_4473	ROW Opportunity	1.50	0.88	59%	0.005	0.022
San Pablo	2	Parcel_177888	Regional Opportunity	0.72	0.48	67%	0.009	0.021
San Pablo	2	ROW_12611	ROW Opportunity	2.08	1.46	70%	0.004	0.021
San Pablo	2	ROW_4651	ROW Opportunity	1.36	0.86	63%	0.005	0.021
San Pablo	2	ROW_21121	ROW Opportunity	4.48	2.81	63%	0.002	0.020
San Pablo	2	ROW_52	ROW Opportunity	3.36	1.97	59%	0.002	0.020
San Pablo	2	Parcel_174149	Regional Opportunity	1.30	0.40	31%	0.004	0.019
San Pablo	2	planned_155	Planned Creek/Marsh Restoration	0.31	0.18	58%	0.016	0.019
San Pablo	2	ROW_10495	ROW Opportunity	2.74	1.83	67%	0.003	0.019

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San Pablo	2	ROW_4471	ROW Opportunity	1.20	0.64	53%	0.005	0.019
San Pablo	2	planned_325	Planned Unlined Bioretention	5.36	1.64	31%	0.001	0.018
San Pablo	2	ROW_11364	ROW Opportunity	0.57	0.40	70%	0.009	0.018
San Pablo	2	ROW_11808	ROW Opportunity	0.75	0.49	65%	0.008	0.018
San Pablo	2	ROW_125	ROW Opportunity	4.82	3.00	62%	0.002	0.018
San Pablo	2	ROW_12612	ROW Opportunity	2.24	1.38	62%	0.003	0.018
San Pablo	2	ROW_171	ROW Opportunity	3.11	1.99	64%	0.002	0.018
San Pablo	2	ROW_18927	ROW Opportunity	0.12	0.08	67%	0.039	0.018
San Pablo	2	ROW_65	ROW Opportunity	6.84	4.46	65%	0.001	0.018
San Pablo	2	ROW_13089	ROW Opportunity	1.15	0.81	70%	0.005	0.016
San Pablo	2	ROW_16916	ROW Opportunity	0.68	0.48	71%	0.007	0.016
San Pablo	2	ROW_2963	ROW Opportunity	3.78	2.51	66%	0.002	0.016
San Pablo	2	Parcel_190737	Parcel-Based Opportunity	11.43	3.64	32%	0.001	0.015
San Pablo	2	ROW_108	ROW Opportunity	3.27	2.07	63%	0.002	0.015
San Pablo	2	ROW_14830	ROW Opportunity	3.59	2.40	67%	0.002	0.015
San Pablo	2	ROW_170	ROW Opportunity	4.03	2.63	65%	0.002	0.015
San Pablo	2	ROW_19776	ROW Opportunity	2.43	1.55	64%	0.002	0.014
San Pablo	2	planned_172	Planned Unlined Swale	2.97	1.38	46%	0.002	0.013
San Pablo	2	planned_303	Planned Creek/Marsh Restoration	2.48	1.06	43%	0.002	0.013
San Pablo	2	planned_342	Planned Creek/Marsh Restoration	3.00	1.41	47%	0.002	0.013
San Pablo	2	planned_343	Planned Habitat Restoration	3.01	1.41	47%	0.002	0.013
San Pablo	2	planned_413	Planned Unlined Bioretention	2.97	1.38	46%	0.002	0.013
San Pablo	2	ROW_16389	ROW Opportunity	1.15	0.78	68%	0.004	0.013
San Pablo	2	ROW_3087	ROW Opportunity	3.36	2.28	68%	0.002	0.013
San Pablo	2	ROW_2765	ROW Opportunity	0.45	0.32	71%	0.008	0.012
San Pablo	2	ROW_7319	ROW Opportunity	0.65	0.48	74%	0.006	0.012
San Pablo	2	planned_159	Planned Flood Control	0.94	0.44	47%	0.004	0.011
San Pablo	2	planned_160	Planned Flood Control	0.94	0.44	47%	0.004	0.011
San Pablo	2	ROW_114	ROW Opportunity	2.62	1.66	63%	0.002	0.011
San Pablo	2	ROW_14301	ROW Opportunity	3.39	2.13	63%	0.002	0.011
San Pablo	2	ROW_15832	ROW Opportunity	0.35	0.24	69%	0.009	0.011
San Pablo	2	ROW_20998	ROW Opportunity	2.84	1.84	65%	0.002	0.011
San Pablo	2	ROW_11348	ROW Opportunity	1.55	1.05	68%	0.003	0.010
San Pablo	2	ROW_18545	ROW Opportunity	1.13	0.78	69%	0.003	0.010
San Pablo	2	ROW_604	ROW Opportunity	2.68	1.72	64%	0.002	0.010
San Ramon	2	ROW_16937	ROW Opportunity	14.91	8.01	54%	0.008	0.404
San Ramon	2	ROW_5150	ROW Opportunity	17.26	9.38	54%	0.006	0.361
San Ramon	2	Parcel_1429	Parcel-Based Opportunity	7.08	3.05	43%	0.012	0.288
San Ramon	2	ROW_16938	ROW Opportunity	44.75	26.81	60%	0.002	0.202
San Ramon	2	Parcel_1424	Parcel-Based Opportunity	3.25	2.00	62%	0.016	0.177
San Ramon	2	ROW_13922	ROW Opportunity	5.32	2.95	55%	0.010	0.166
San Ramon	2	ROW_5023	ROW Opportunity	5.42	2.58	48%	0.009	0.161
San Ramon	2	Parcel_74168	Parcel-Based Opportunity	4.28	3.30	77%	0.010	0.154
San Ramon	2	ROW_19140	ROW Opportunity	13.00	6.76	52%	0.003	0.112
San Ramon	2	ROW_560	ROW Opportunity	48.47	23.77	49%	0.001	0.102
San Ramon	2	ROW_14434	ROW Opportunity	2.77	1.52	55%	0.011	0.095
San Ramon	2	ROW_16426	ROW Opportunity	1.39	0.84	60%	0.016	0.077
San Ramon	2	ROW_13536	ROW Opportunity	15.98	8.39	53%	0.002	0.068
San Ramon	2	Parcel_59728	Parcel-Based Opportunity	40.01	15.74	39%	0.001	0.066
San Ramon	2	ROW_9268	ROW Opportunity	1.38	0.82	59%	0.013	0.060
San Ramon	2	ROW_19361	ROW Opportunity	0.95	0.61	64%	0.015	0.052
San Ramon	2	ROW_5451	ROW Opportunity	24.69	12.16	49%	0.001	0.049
San Ramon	2	Parcel_74549	Regional Opportunity	0.89	0.57	64%	0.015	0.048
San Ramon	2	ROW_7238	ROW Opportunity	5.09	2.65	52%	0.003	0.047
San Ramon	2	ROW_2693	ROW Opportunity	27.57	13.61	49%	0.001	0.046
San Ramon	2	ROW_14869	ROW Opportunity	14.80	6.94	47%	0.001	0.043
San Ramon	2	ROW_19759	ROW Opportunity	3.77	1.87	50%	0.004	0.043
San Ramon	2	Parcel_1440	Regional Opportunity	2.20	0.24	11%	0.005	0.039
San Ramon	2	ROW_14030	ROW Opportunity	3.62	2.17	60%	0.004	0.039
San Ramon	2	ROW_20234	ROW Opportunity	3.27	1.89	58%	0.004	0.037
San Ramon	2	ROW_2149	ROW Opportunity	14.02	7.03	50%	0.001	0.036
San Ramon	2	Parcel_54308	Regional Opportunity	1.18	0.65	55%	0.008	0.032
San Ramon	2	Parcel_73130	Regional Opportunity	1.30	0.32	25%	0.007	0.030
San Ramon	2	ROW_2328	ROW Opportunity	0.92	0.30	33%	0.009	0.030
San Ramon	2	ROW_5995	ROW Opportunity	8.73	3.50	40%	0.002	0.030
San Ramon	2	Parcel_1133	Parcel-Based Opportunity	9.50	2.66	28%	0.001	0.025
San Ramon	2	Parcel_56107	Parcel-Based Opportunity	16.67	5.24	31%	0.001	0.024
San Ramon	2	Parcel_56619	Parcel-Based Opportunity	11.96	4.45	37%	0.001	0.021
San Ramon	2	ROW_7425	ROW Opportunity	5.04	2.86	57%	0.002	0.020
San Ramon	2	Parcel_54147	Parcel-Based Opportunity	11.94	4.08	34%	0.001	0.019
San Ramon	2	ROW_11940	ROW Opportunity	5.68	2.26	40%	0.002	0.019
San Ramon	2	ROW_12822	ROW Opportunity	14.95	7.56	51%	0.000	0.019
San Ramon	2	ROW_3355	ROW Opportunity	4.30	1.88	44%	0.002	0.019
San Ramon	2	Parcel_56925	Parcel-Based Opportunity	10.03	3.99	40%	0.001	0.018
San Ramon	2	ROW_5148	ROW Opportunity	0.88	0.42	48%	0.007	0.018
San Ramon	2	ROW_17356	ROW Opportunity	7.97	3.72	47%	0.001	0.016
San Ramon	2	ROW_558	ROW Opportunity	2.14	1.25	58%	0.003	0.016
San Ramon	2	ROW_10130	ROW Opportunity	0.82	0.51	62%	0.005	0.014
San Ramon	2	ROW_10239	ROW Opportunity	6.36	3.22	51%	0.001	0.014
San Ramon	2	ROW_14016	ROW Opportunity	5.41	2.19	40%	0.001	0.014
San Ramon	2	ROW_17472	ROW Opportunity	3.74	1.78	48%	0.002	0.014
San Ramon	2	ROW_19366	ROW Opportunity	7.37	3.52	48%	0.001	0.014
San Ramon	2	ROW_6768	ROW Opportunity	2.05	1.31	64%	0.003	0.013
San Ramon	2	ROW_7432	ROW Opportunity	4.06	1.64	40%	0.001	0.013
San Ramon	2	ROW_18224	ROW Opportunity	5.30	2.56	48%	0.001	0.012
San Ramon	2	ROW_3115	ROW Opportunity	3.26	1.35	41%	0.002	0.012
San Ramon	2	ROW_14638	ROW Opportunity	5.32	2.59	49%	0.001	0.011
San Ramon	2	ROW_20860	ROW Opportunity	3.04	1.64	54%	0.002	0.011
San Ramon	2	ROW_6884	ROW Opportunity	4.99	2.61	52%	0.001	0.011
San Ramon	2	ROW_3070	ROW Opportunity	4.82	2.40	50%	0.001	0.010
San Ramon	2	ROW_3632	ROW Opportunity	4.57	2.38	52%	0.001	0.010
Unincorporated	2	planned_32	Planned Unlined Bioretention	460.01	217.16	47%	0.005	8.311
Unincorporated	2	Parcel_234358	Regional Opportunity	437.95	212.62	49%	0.005	8.269
Unincorporated	2	planned_426	Planned Creek/Marsh Restoration	11.44	3.32	29%	0.012	0.573

Jurisdiction	Permit	Project ID	Project Type	Area (Acres)	Impervious Area (Acres)	Percent Impervious	PCBs Yield (g/acre)	PCBs Mass reduced (g)
Unincorporated	2	Parcel_253891	Parcel-Based Opportunity	31.99	2.26	7%	0.005	0.466
Unincorporated	2	ROW_18993	ROW Opportunity	4.03	1.35	33%	0.019	0.330
Unincorporated	2	Parcel_257160	Regional Opportunity	27.71	15.65	56%	0.004	0.312
Unincorporated	2	planned_928	Planned Unlined Bioretention	12.72	5.77	45%	0.006	0.285
Unincorporated	2	ROW_326	ROW Opportunity	5.29	3.11	59%	0.012	0.232
Unincorporated	2	planned_845	Planned Unlined Bioretention	9.56	4.74	50%	0.006	0.193
Unincorporated	2	planned_1251	Planned Unlined Bioretention	6.65	3.60	54%	0.008	0.180
Unincorporated	2	ROW_4127	ROW Opportunity	4.13	2.65	64%	0.012	0.180
Unincorporated	2	planned_134	Planned Unlined Bioretention	7.12	4.36	61%	0.007	0.172
Unincorporated	2	planned_1128	Planned Unlined Bioretention	18.84	6.19	33%	0.003	0.171
Unincorporated	2	planned_813	Planned Unlined Bioretention	6.43	3.65	57%	0.007	0.166
Unincorporated	2	ROW_336	ROW Opportunity	1.33	0.82	62%	0.031	0.166
Unincorporated	2	ROW_18095	ROW Opportunity	1.02	0.74	73%	0.040	0.164
Unincorporated	2	planned_834	Planned Unlined Bioretention	6.15	3.59	58%	0.007	0.160
Unincorporated	2	planned_1158	Planned Unlined Bioretention	4.47	2.62	59%	0.008	0.127
Unincorporated	2	Parcel_231873	Regional Opportunity	4.42	2.78	63%	0.008	0.126
Unincorporated	2	planned_922	Planned Unlined Bioretention	4.80	2.79	58%	0.007	0.124
Unincorporated	2	ROW_7003	ROW Opportunity	3.09	0.99	32%	0.009	0.116
Unincorporated	2	planned_910	Planned Unlined Bioretention	0.77	0.41	53%	0.030	0.098
Unincorporated	2	ROW_3884	ROW Opportunity	4.07	2.27	56%	0.007	0.098
Unincorporated	2	planned_921	Planned Unlined Bioretention	3.60	2.10	58%	0.007	0.093
Unincorporated	2	planned_944	Planned Unlined Bioretention	7.39	1.26	17%	0.003	0.091
Unincorporated	2	ROW_15893	ROW Opportunity	2.97	1.65	56%	0.008	0.078
Unincorporated	2	ROW_18461	ROW Opportunity	1.29	0.56	43%	0.015	0.077
Unincorporated	2	ROW_7816	ROW Opportunity	1.63	0.34	21%	0.011	0.074
Unincorporated	2	planned_948	Planned Unlined Bioretention	2.32	1.60	69%	0.009	0.072
Unincorporated	2	planned_951	Planned Unlined Bioretention	2.22	1.53	69%	0.008	0.068
Unincorporated	2	planned_715	Planned Unlined Bioretention	4.86	2.45	50%	0.004	0.067
Unincorporated	2	Parcel_373409	Regional Opportunity	46.53	17.47	38%	0.001	0.061
Unincorporated	2	ROW_9938	ROW Opportunity	0.86	0.53	62%	0.019	0.061
Unincorporated	2	Parcel_212559	Regional Opportunity	2.98	1.31	44%	0.005	0.057
Unincorporated	2	planned_1159	Planned Unlined Bioretention	2.41	1.29	54%	0.007	0.057
Unincorporated	2	planned_824	Planned Unlined Bioretention	2.98	1.31	44%	0.005	0.057
Unincorporated	2	Parcel_234658	Regional Opportunity	1.95	1.27	65%	0.008	0.056
Unincorporated	2	planned_1120	Planned Unlined Bioretention	2.72	1.22	45%	0.006	0.056
Unincorporated	2	planned_932	Planned Unlined Bioretention	1.95	1.27	65%	0.008	0.056
Unincorporated	2	ROW_14235	ROW Opportunity	1.05	0.63	60%	0.013	0.055
Unincorporated	2	planned_1145	Planned Unlined Bioretention	1.80	1.30	72%	0.008	0.053
Unincorporated	2	Parcel_238562	Regional Opportunity	12.03	6.43	53%	0.002	0.052
Unincorporated	2	planned_950	Planned Unlined Bioretention	1.69	1.17	69%	0.008	0.052
Unincorporated	2	Parcel_233114	Regional Opportunity	1.76	1.09	62%	0.008	0.050
Unincorporated	2	Parcel_227066	Regional Opportunity	1.84	0.99	54%	0.007	0.047
Unincorporated	2	Parcel_183600	Regional Opportunity	2.16	1.04	48%	0.006	0.046
Unincorporated	2	planned_1234	Planned Unlined Bioretention	2.16	1.04	48%	0.006	0.046
Unincorporated	2	planned_965	Planned Unlined Bioretention	6.89	2.96	43%	0.002	0.042
Unincorporated	2	ROW_8370	ROW Opportunity	3.43	2.12	62%	0.004	0.042
Unincorporated	2	Parcel_227359	Regional Opportunity	1.61	0.86	53%	0.007	0.041
Unincorporated	2	planned_949	Planned Unlined Bioretention	1.37	0.93	68%	0.008	0.041
Unincorporated	2	planned_1160	Planned Unlined Bioretention	1.68	0.89	53%	0.007	0.040
Unincorporated	2	ROW_17780	ROW Opportunity	2.96	1.24	42%	0.004	0.040
Unincorporated	2	planned_18	Planned Lined Bioretention	1.52	0.87	57%	0.007	0.038
Unincorporated	2	ROW_10003	ROW Opportunity	1.69	0.37	22%	0.006	0.036
Unincorporated	2	planned_1295	Planned Unlined Bioretention	1.25	0.75	60%	0.008	0.035
Unincorporated	2	planned_13	Planned Lined Bioretention	2.14	0.72	34%	0.005	0.035
Unincorporated	2	planned_1161	Planned Unlined Bioretention	1.41	0.66	47%	0.006	0.032
Unincorporated	2	Parcel_218901	Regional Opportunity	1.82	1.15	63%	0.005	0.030
Unincorporated	2	planned_829	Planned Unlined Bioretention	1.82	1.15	63%	0.005	0.030
Unincorporated	2	planned_927	Planned Unlined Bioretention	1.35	0.61	45%	0.006	0.030
Unincorporated	2	Parcel_251699	Regional Opportunity	1.25	0.63	50%	0.007	0.029
Unincorporated	2	Parcel_40021	Regional Opportunity	17.61	7.00	40%	0.001	0.029
Unincorporated	2	planned_1138	Planned Unlined Bioretention	0.92	0.66	72%	0.009	0.029
Unincorporated	2	planned_1144	Planned Unlined Bioretention	0.89	0.65	73%	0.009	0.029
Unincorporated	2	planned_890	Planned Unlined Bioretention	1.14	0.66	58%	0.007	0.029
Unincorporated	2	planned_714	Planned Unlined Bioretention	18.57	6.68	36%	0.001	0.028
Unincorporated	2	planned_818	Planned Unlined Bioretention	1.37	0.61	45%	0.006	0.028
Unincorporated	2	ROW_302	ROW Opportunity	4.48	2.58	58%	0.002	0.027
Unincorporated	2	planned_1132	Planned Unlined Bioretention	1.16	0.53	46%	0.006	0.024
Unincorporated	2	planned_955	Planned Unlined Bioretention	0.82	0.54	66%	0.008	0.024
Unincorporated	2	Parcel_11752	Regional Opportunity	10.67	2.59	24%	0.001	0.023
Unincorporated	2	Parcel_225283	Regional Opportunity	10.44	5.50	53%	0.001	0.023
Unincorporated	2	planned_1249	Planned Unlined Bioretention	8.27	3.84	46%	0.001	0.023
Unincorporated	2	planned_947	Planned Unlined Bioretention	0.86	0.49	57%	0.008	0.023
Unincorporated	2	planned_1297	Planned Unlined Bioretention	0.62	0.12	19%	0.010	0.021
Unincorporated	2	planned_1188	Planned Unlined Bioretention	2.05	0.21	10%	0.003	0.020
Unincorporated	2	planned_843	Planned Unlined Bioretention	0.97	0.44	45%	0.006	0.020
Unincorporated	2	planned_1056	Planned Unlined Bioretention	2.73	1.12	41%	0.003	0.019
Unincorporated	2	planned_19	Planned Lined Bioretention	0.94	0.40	43%	0.006	0.019
Unincorporated	2	planned_926	Planned Unlined Bioretention	0.85	0.39	46%	0.006	0.019
Unincorporated	2	Parcel_190589	Regional Opportunity	7.24	4.65	64%	0.001	0.018
Unincorporated	2	Parcel_190676	Regional Opportunity	2.81	1.39	49%	0.002	0.018
Unincorporated	2	planned_1148	Planned Unlined Bioretention	0.57	0.42	74%	0.009	0.018
Unincorporated	2	planned_1248	Planned Unlined Bioretention	2.81	1.39	49%	0.002	0.018
Unincorporated	2	Parcel_134621	Regional Opportunity	5.52	4.38	79%	0.001	0.017
Unincorporated	2	Parcel_18653	Regional Opportunity	10.01	4.18	42%	0.001	0.017
Unincorporated	2	Parcel_211551	Regional Opportunity	0.70	0.38	54%	0.007	0.017
Unincorporated	2	Parcel_248771	Regional Opportunity	8.72	4.17	48%	0.001	0.017
Unincorporated	2	Parcel_260347	Regional Opportunity	13.69	3.71	27%	0.001	0.017
Unincorporated	2	planned_825	Planned Unlined Bioretention	0.70	0.38	54%	0.007	0.017
Unincorporated	2	planned_854	Planned Unlined Bioretention	0.73	0.37	51%	0.006	0.017
Unincorporated	2	Parcel_185725	Regional Opportunity	0.67	0.37	55%	0.007	0.016
Unincorporated	2	Parcel_204352	Regional Opportunity	0.50	0.37	74%	0.010	0.016
Unincorporated	2	Parcel_214683	Regional Opportunity	0.82	0.32	39%	0.005	0.016
Unincorporated	2	Parcel_234760	Regional Opportunity	10.17	3.71	36%	0.001	0.016
Unincorporated	2	Parcel_261278	Regional Opportunity	7.47	4.01	54%	0.001	0.016

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Unincorporated	2	Parcel_363962	Regional Opportunity	8.03	3.75	47%	0.001	0.016
Unincorporated	2	planned_1099	Planned Unlined Bioretention	7.47	4.01	54%	0.001	0.016
Unincorporated	2	planned_1232	Planned Unlined Bioretention	0.67	0.37	55%	0.007	0.016
Unincorporated	2	planned_817	Planned Unlined Bioretention	9.30	3.93	42%	0.001	0.016
Unincorporated	2	planned_827	Planned Unlined Bioretention	0.82	0.32	39%	0.005	0.016
Unincorporated	2	Parcel_221126	Regional Opportunity	7.83	3.50	45%	0.001	0.015
Unincorporated	2	Parcel_259820	Regional Opportunity	8.72	3.46	40%	0.001	0.015
Unincorporated	2	Parcel_373937	Regional Opportunity	9.10	4.03	44%	0.001	0.015
Unincorporated	2	planned_1047	Planned Unlined Bioretention	4.54	1.79	39%	0.002	0.015
Unincorporated	2	planned_820	Planned Unlined Bioretention	0.59	0.34	58%	0.007	0.015
Unincorporated	2	Parcel_236835	Regional Opportunity	11.70	2.62	22%	0.001	0.014
Unincorporated	2	Parcel_25124	Regional Opportunity	10.84	2.77	26%	0.001	0.014
Unincorporated	2	Parcel_260232	Regional Opportunity	0.64	0.31	48%	0.006	0.014
Unincorporated	2	Parcel_262723	Regional Opportunity	10.53	3.23	31%	0.001	0.014
Unincorporated	2	planned_838	Planned Unlined Bioretention	0.51	0.35	69%	0.008	0.014
Unincorporated	2	Parcel_180679	Regional Opportunity	0.58	0.29	50%	0.007	0.013
Unincorporated	2	Parcel_368650	Regional Opportunity	7.51	3.18	42%	0.001	0.013
Unincorporated	2	planned_1065	Planned Unlined Bioretention	7.95	2.46	31%	0.001	0.013
Unincorporated	2	planned_837	Planned Unlined Bioretention	0.44	0.28	64%	0.008	0.013
Unincorporated	2	planned_905	Planned Unlined Bioretention	0.92	0.52	57%	0.004	0.013
Unincorporated	2	ROW_19675	ROW Opportunity	4.36	2.48	57%	0.001	0.013
Unincorporated	2	Parcel_186716	Regional Opportunity	0.53	0.28	53%	0.007	0.012
Unincorporated	2	Parcel_373408	Regional Opportunity	12.02	4.26	35%	0.000	0.012
Unincorporated	2	planned_1231	Planned Unlined Bioretention	0.53	0.28	53%	0.007	0.012
Unincorporated	2	Parcel_20770	Regional Opportunity	7.74	2.72	35%	0.001	0.011
Unincorporated	2	Parcel_234439	Parcel-Based Opportunity	0.38	0.25	66%	0.009	0.011
Unincorporated	2	planned_1026	Planned Unlined Bioretention	7.74	2.72	35%	0.001	0.011
Unincorporated	2	planned_1134	Planned Unlined Bioretention	0.23	0.11	48%	0.013	0.011
Unincorporated	2	planned_1281	Planned Unlined Bioretention	0.34	0.25	74%	0.010	0.011
Unincorporated	2	planned_839	Planned Unlined Bioretention	0.41	0.29	71%	0.008	0.011
Unincorporated	2	planned_909	Planned Unlined Bioretention	1.48	0.76	51%	0.003	0.011
Unincorporated	2	planned_953	Planned Unlined Bioretention	0.38	0.06	16%	0.008	0.011
Unincorporated	2	ROW_10414	ROW Opportunity	5.41	0.94	17%	0.001	0.011
Unincorporated	2	Parcel_244216	Regional Opportunity	2.77	1.14	41%	0.002	0.010
Unincorporated	2	planned_1029	Planned Unlined Bioretention	0.89	0.19	21%	0.003	0.010
Unincorporated	2	planned_1055	Planned Unlined Bioretention	2.12	1.35	64%	0.002	0.010
Unincorporated	2	planned_1176	Planned Unlined Bioretention	0.40	0.23	58%	0.008	0.010
Walnut Creek	2	GIP_10032 / planned_213	Parcel-Based Opportunity (planned)	8.96	6.84	76%	0.010	0.302
Walnut Creek	2	GIP_10042 / ROW_12633	ROW Opportunity (planned)	5.92	2.96	50%	0.009	0.209
Walnut Creek	2	GIP_10049 / Parcel_120162	Parcel-Based Opportunity (planned)	4.71	3.32	70%	0.009	0.160
Walnut Creek	2	GIP_10044 / ROW_17453	ROW Opportunity (planned)	8.19	4.13	50%	0.006	0.156
Walnut Creek	2	GIP_10047 / ROW_1225	ROW Opportunity (planned)	4.45	3.00	67%	0.010	0.149
Walnut Creek	2	GIP_10024	Regional Opportunity (planned)	15.64	4.86	31%	0.003	0.123
Walnut Creek	2	ROW_13263	ROW Opportunity	1.31	0.40	31%	0.019	0.104
Walnut Creek	2	GIP_10052	Regional Opportunity (planned)	180.53	56.43	31%	0.000	0.073
Walnut Creek	2	GIP_10048 / Parcel_113464	Regional Opportunity (planned)	1.99	1.41	71%	0.010	0.072
Walnut Creek	2	GIP_10051	Regional Opportunity (planned)	68.22	18.26	27%	0.000	0.051
Walnut Creek	2	GIP_10040 / Parcel_49020	Regional Opportunity (planned)	1.77	1.13	64%	0.008	0.049
Walnut Creek	2	GIP_10038 / Parcel_128594	Regional Opportunity (planned)	2.40	0.93	39%	0.005	0.043
Walnut Creek	2	GIP_10041 / Parcel_129611	Regional Opportunity (planned)	2.32	0.89	38%	0.005	0.041
Walnut Creek	2	GIP_10037 / Parcel_136845	Regional Opportunity (planned)	1.46	0.72	49%	0.007	0.036
Walnut Creek	2	GIP_10053	Regional Opportunity (planned)	21.50	7.65	36%	0.001	0.034
Walnut Creek	2	GIP_10025	Regional Opportunity (planned)	10.70	3.02	28%	0.001	0.015
Walnut Creek	2	GIP_10045 / Parcel_45368	Parcel-Based Opportunity (planned)	0.42	0.33	79%	0.010	0.014
Walnut Creek	2	GIP_10050	Regional Opportunity (planned)	6.92	2.68	39%	0.001	0.011
Walnut Creek	2	GIP_10046 / Parcel_111176	Parcel-Based Opportunity (planned)	0.28	0.19	68%	0.010	0.010
Walnut Creek	2	GIP_10028	Regional Opportunity (planned)	6.82	1.76	26%	0.001	0.008
Walnut Creek	2	GIP_10022 / ROW_13709	ROW Opportunity (planned)	6.59	2.78	42%	0.000	0.007
Walnut Creek	2	GIP_10029	Regional Opportunity (planned)	6.59	1.71	26%	0.000	0.007
Walnut Creek	2	GIP_10021 / ROW_13708	ROW Opportunity (planned)	6.65	2.50	38%	0.000	0.006
Walnut Creek	2	GIP_10023	Regional Opportunity (planned)	25.68	4.00	16%	0.000	0.004
Walnut Creek	2	GIP_10026	Regional Opportunity (planned)	159.56	6.60	4%	0.000	0.003
Walnut Creek	2	GIP_10027	Regional Opportunity (planned)	3.45	0.46	13%	0.000	0.002
Walnut Creek	2	GIP_10039 / Parcel_125621	Regional Opportunity (planned)	1.73	0.48	28%	0.001	0.002
Walnut Creek	2	GIP_10043 / Parcel_135339	Regional Opportunity (planned)	1.32	0.02	2%	0.000	0.000

Appendix 6

Sutter Avenue Green Street Draft Concept Design

The following draft Sutter Avenue Green Street Concept Design for a retrofit of the public right of way was created by Geosyntec Consultants as part of the Contra Costa Watersheds Stormwater Resource Plan (CCW SWRP).

SUTTER AVENUE GREEN STREET

SITE DESCRIPTION

Jurisdiction:	**San Pablo**
Location:	Sutter Avenue from Rumrill Boulevard to 23rd Street
APN(s):	N/A
Land Owner:	City of San Pablo
Planning Unit/Watershed:	West Planning Unit, Wildcat Creek Watershed
ROW Length:	2,750 feet
Soil Type:	HSG C and HSG D

PROJECT CONCEPT

Sutter Avenue is a 0.5-mile-long road located in the southwestern portion of the City of San Pablo, and is currently impacted by unsafe traffic speeds, lack of pedestrian facilities, and lack of stormwater infrastructure (Figure D-41). Surface water flows from east to west along Sutter Avenue, where there are no storm drains or inlets from 23rd Street (the easternmost cross street) to 14th Street and Rumrill Boulevard (the westernmost cross streets). This lack of infrastructure may contribute to flooding at the 14th Street intersection, exacerbated by backwater conditions in the storm drain system.

The proposed green street retrofits would incorporate a variety of types of green infrastructure along Sutter Avenue that will provide multiple benefits, including reducing flooding, calming traffic, improving pedestrian safety, providing street trees, and improving stormwater quality. The types of green infrastructure facilities include bioretention, installed variously as bulbouts at intersections and as mid-block chicanes (replacing existing speed bumps) and Silva Cell modular suspended pavement systems, which treat stormwater and promote street tree growth by retaining or detaining stormwater in a soil matrix below the ground surface (Figures D-42 and D- 43). Figure D-44 presents a schematic cross-section and examples of bioretention facilities. Figure D-45 presents a schematic cross-section and example Silva Cell facilities.

A total of 43 drainage areas (SPO-1 – SPO-42; SPO-Bush St.) were identified along Sutter Avenue from Rumrill Boulevard to 23rd Street. These drainage areas and the green infrastructure proposed for each drainage area are displayed on Figure D-42 and Figure D-43. Placement and selection of green infrastructure was completed using review of aerial imagery; plan review and field confirmation of drainage and utility conflicts will be required.

DESIGN INFORMATION

Utilizing a 2.2% sizing factor, there is insufficient room within the Sutter ROW to completely treat additional surface drainage from Bush St and 17th St. Alternatively, more BMPs could be installed along Bush Street as part of a later design phase if feasible.

<table>
<tr><td>Drainage Catchment Size:</td><td colspan="2">12.1 ac</td></tr>
<tr><td>Drainage Catchment Imperviousness:</td><td colspan="2">79%</td></tr>
<tr><td>Land Use Yield Category:</td><td>Category</td><td>Percent of Total Area</td></tr>
<tr><td></td><td>New Urban</td><td>1%</td></tr>
<tr><td></td><td>Old Urban</td><td>97%</td></tr>
<tr><td></td><td>Open Space</td><td>2%</td></tr>
<tr><td>Precipitation Depth:</td><td colspan="2">22 inches</td></tr>
<tr><td>Facility Type:</td><td colspan="2">Bioretention without underdrains, one bioretention cell with underdrain, and Silva Cells.</td></tr>
<tr><td>Facility Footprint:</td><td colspan="2">0.21 acres</td></tr>
<tr><td>Assumed Infiltration Rate:</td><td colspan="2">Type D soils with 0.024 in/hr saturated hydraulic conductivity</td></tr>
</table>

Location	Facility Type	Total Drainage Areas (acres)	BMP Footprint (sq-ft)
SPO-01	Silva Cell	0.20	171
SPO-02	Bioretention Without Underdrain	0.07	52
SPO-03	Bioretention With Underdrain	0.21	179
SPO-04	Silva Cell	0.27	208
SPO-05	Silva Cell	0.70	499
SPO-06	Silva Cell	0.45	361
SPO-07	Silva Cell	0.16	121
SPO-08	Silva Cell	0.28	212
SPO-09	Bioretention Without Underdrain	0.30	234
SPO-10	Silva Cell	0.32	238
SPO-11	Bioretention Without Underdrain	0.26	210
SPO-12	Silva Cell	0.20	166
SPO-13	Bioretention Without Underdrain	0.28	218
SPO-14	Silva Cell	0.19	144
SPO-15	Silva Cell	0.33	253
SPO-16	Silva Cell	0.29	219
SPO-17	Silva Cell	0.39	294
SPO-18	Silva Cell	0.20	150
SPO-19	Bioretention Without Underdrain	0.29	227
SPO-20	Silva Cell	0.23	174
SPO-21	Silva Cell	0.36	276
SPO-22	Silva Cell	0.32	242
SPO-23	Silva Cell	0.30	231
SPO-24	Bioretention Without Underdrain	0.23	181
SPO-25	Silva Cell	0.20	157
SPO-26	Bioretention Without Underdrain	0.37	280
SPO-27	Silva Cell	0.27	201
SPO-28	Silva Cell	0.38	291
SPO-29	Silva Cell	0.29	224
SPO-30	Bioretention Without Underdrain	0.32	244
SPO-31	Silva Cell	0.11	83
SPO-32	Silva Cell	0.22	171
SPO-33	Silva Cell	0.32	241
SPO-34	Bioretention Without Underdrain	0.44	351
SPO-35	Silva Cell	0.35	273
SPO-36	Silva Cell	0.22	183
SPO-37	Bioretention Without Underdrain	0.33	265
SPO-38	Bioretention Without Underdrain	0.31	233
SPO-39	Bioretention Without Underdrain	0.39	291
SPO-40	Bioretention Without Underdrain	0.25	196
SPO-41	Bioretention Without Underdrain	0.21	170
SPO-42	Bioretention Without Underdrain	0.23	191
TOTAL		12.1	9,305

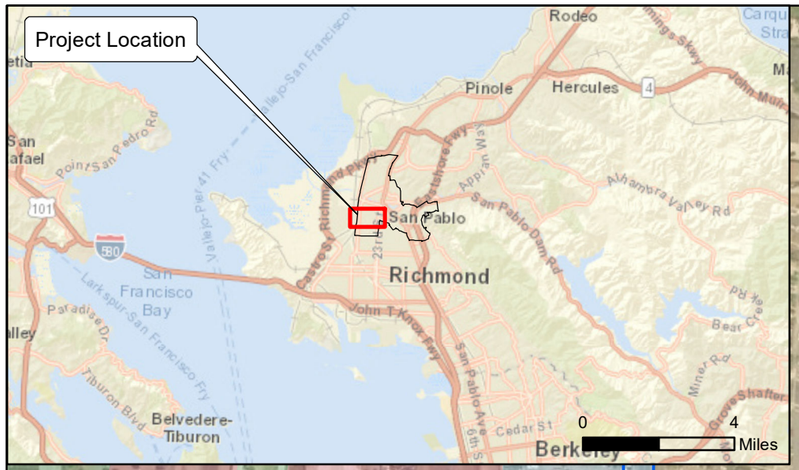
PROJECT BENEFITS

PCBs Loads Reduced:	TBD
Mercury Loads Reduced:	TBD
Water Supply Benefits:	N/A
Flood Management Benefits:	The project will provide flood management benefit through detention and infiltration benefits.
Natural Drainage System Benefits:	The project will provide hydrologic benefit to natural drainage system by allowing for infiltration.
Habitat or Open Space Benefits:	The project will provide 0.21 acres of green space in an urban area.
Community Benefits:	The project will calm traffic, improve pedestrian facilities, and potentially install street trees.

COST ESTIMATE

DESCRIPTION	TREATED AREA (AC)	UNIT COST	TOTAL COST
Green Street	12.1	$114,687 x acres + $36,927	$1,400,000
		DESIGN AND CONSTRUCTION COST	**$1,400,000**

Draft



SPO-01 SPO-02 SPO-03 SPO-04 SPO-05 SPO-06 SPO-07 SPO-08 SPO-09 SPO-10 SPO-11 SPO-12 SPO-13 SPO-14 SPO-15 SPO-16 SPO-17 SPO-18 SPO-19 SPO-20 SPO-21 SPO-22 SPO-23 SPO-24 SPO-25 SPO-26 SPO-27 SPO-28 SPO-29 SPO-30 SPO-31 SPO-32 SPO-33 SPO-34 SPO-35 SPO-36 SPO-37 SPO-38 SPO-39 SPO-40 SPO-41 SPO-42 SPO-Bush St*

*Insufficient room within the Sutter St. ROW to completely treat additional surface drainage from Bush St. and 17th St. It is allowable to undersize facilities due to space constraints in dense urban areas. Alternatively, more BMPs could be installed along Bush St. as part of a later phase if feasible.

Legend

- Project Area

Existing Stormwater Infrastructure

- Inlet
- Storm Drain

Land Use Yield Category

- New Urban
- Old Industrial
- Old Urban
- Open Space

Control Measure Drainage Areas

SPO-01, SPO-02, SPO-03, SPO-04, SPO-05, SPO-06, SPO-07, SPO-08, SPO-09, SPO-10, SPO-11, SPO-12, SPO-13, SPO-14, SPO-15, SPO-16, SPO-17, SPO-18, SPO-19, SPO-20, SPO-21, SPO-22, SPO-23, SPO-24, SPO-25, SPO-26, SPO-27, SPO-28, SPO-29, SPO-30, SPO-31, SPO-32, SPO-33, SPO-34, SPO-35, SPO-36, SPO-37, SPO-38, SPO-39, SPO-40, SPO-41, SPO-42, Bush St*

N

0 300 Feet

Contra Costa Watersheds Stormwater Resource Plan
Sutter Avenue Green Street Retrofit
10% Conceptual Design
San Pablo, CA

Geosyntec consultants | Contra Costa Clean Water Program

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Figure D - 41

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Draft

SPO-07
SPO-03
SPO-02
SPO-13
SPO-06
SPO-39
SPO-41
SPO-12
SPO-42
SPO-38
SPO-01
SPO-09
SPO-40
SPO-19
SPO-04
15th St
16th St
SPO-17
SPO-20
SPO-22
SPO-15
14th St
SPO-08
SPO-16
SPO-21
SPO-18
SPO-05
SPO-14
SPO-Bush St*

Note: Control measure placement locations were identified using ArcGIS and Google Earth, and represent the approximate size of the footprint needed per drainage area. Further investigation is needed to verify the locations of underground utilities and control measure implementation feasibility.

Legend

Existing Stormwater Infrastructure

- Inlet
- Surface Flow Direction
- Storm Drain

Control Measure Drainage Areas

SPO-01, SPO-02, SPO-03, SPO-04, SPO-05, SPO-06, SPO-07, SPO-08, SPO-09, SPO-12, SPO-13, SPO-14, SPO-15, SPO-16, SPO-17, SPO-18, SPO-19, SPO-20, SPO-21, SPO-22, SPO-38, SPO-39, SPO-40, SPO-41, SPO-42, Bush St

Proposed Control Measures

- Silva Cells Under Permeable Paving
- Bioretention Without Underdrain
- Bioretention With Underdrain

N

0 80 Feet

Contra Costa Watersheds Stormwater Resource Plan
Sutter Avenue Green Street Retrofits
10% Conceptual Design
Detail Panel 1
San Pablo, CA

Geosyntec consultants

CONTRA COSTA CLEAN WATER PROGRAM

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Figure D - 42

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Draft

SPO-41
SPO-19
SPO-39
SPO-23
SPO-38
SPO-10
SPO-11
19th St
SPO-25
SPO-26
SPO-24
SPO-27
SPO-28
SPO-29
SPO-32
SPO-33
21st St
SPO-30
SPO-31
SPO-36
SPO-37
SPO-35
SPO-34
SPO-Bush St*

*Insufficient room within the Sutter St. ROW to completely treat additional surface drainage from Bush St. and 17th St. It is allowable to undersize facilities due to space constraints in dense urban areas. Alternatively, more BMPs could be installed along Bush St. as part of a later phase if feasible.

Note: Control measure placement locations were identified using ArcGIS and Google Earth, and represent the approximate size of the footprint needed per drainage area. Further investigation is needed to verify the locations of underground utilities and control measure implementation feasibility.

Legend

Existing Stormwater Infrastructure
- Inlet
- Surface Flow Direction
- Storm Drain

Control Measure Drainage Areas
- SPO-10
- SPO-11
- SPO-19
- SPO-23
- SPO-24
- SPO-25
- SPO-26
- SPO-27
- SPO-28
- SPO-29
- SPO-30
- SPO-31
- SPO-32
- SPO-33
- SPO-34
- SPO-35
- SPO-36
- SPO-37
- SPO-38
- SPO-39
- SPO-41
- Bush St*

Proposed Control Measures
- Silva Cells Under Permeable Paving
- Bioretention Without Underdrain

N

0 110 Feet

Contra Costa Watersheds Stormwater Resource Plan
Sutter Avenue Green Street Retrofits
10% Conceptual Design
Detail Panel 2
San Pablo, CA

Geosyntec consultants

CONTRA COSTA CLEAN WATER PROGRAM

Figure D - 43

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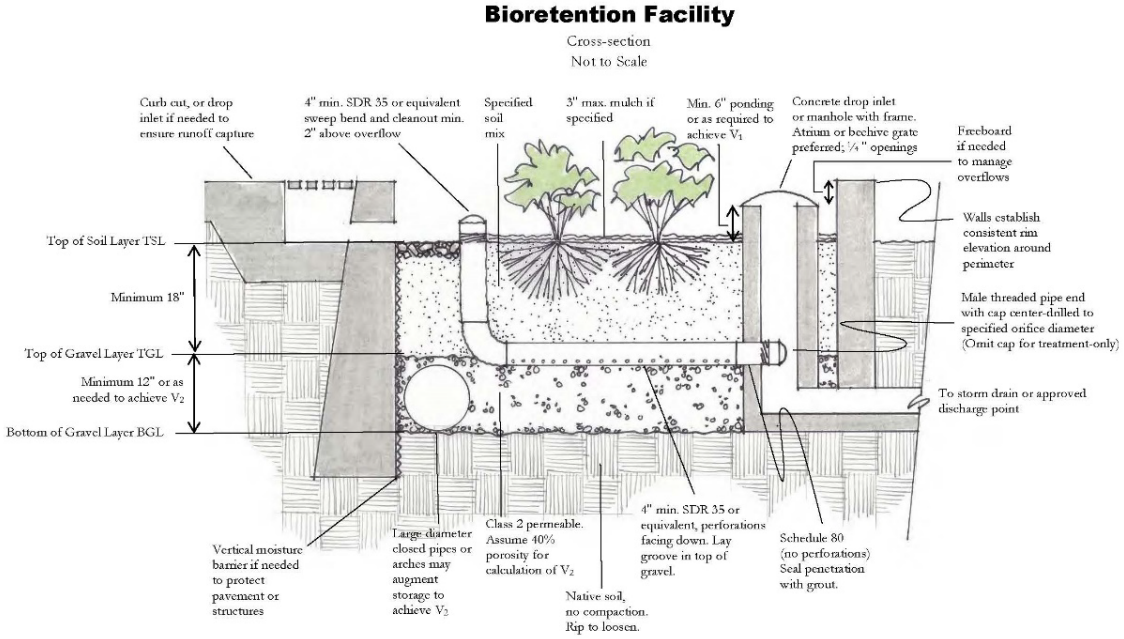
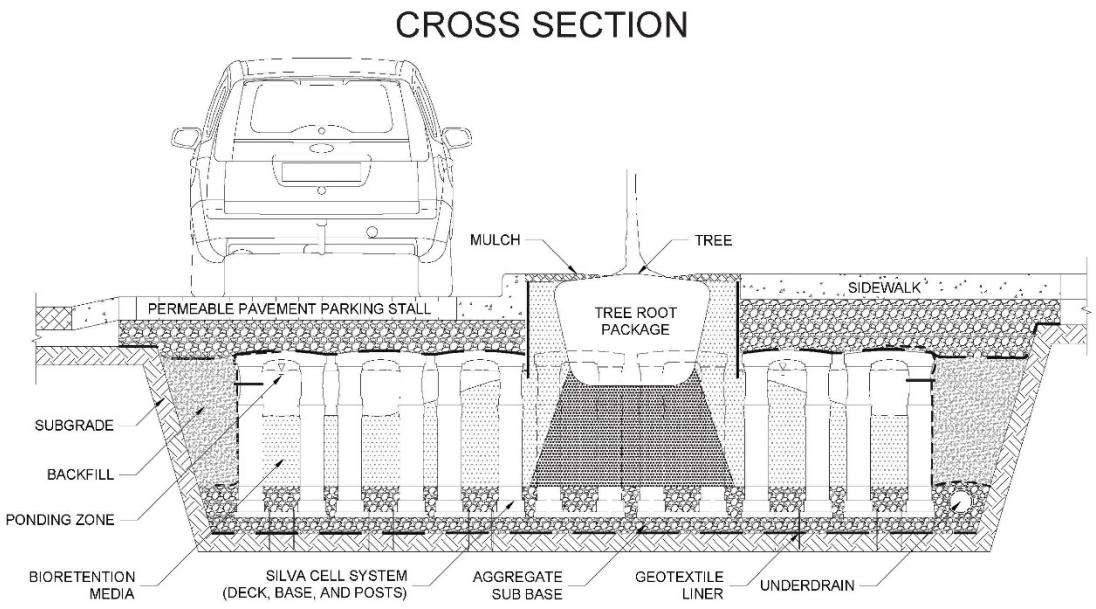


Figure D-44
Bioretention Profile Schematic and Examples



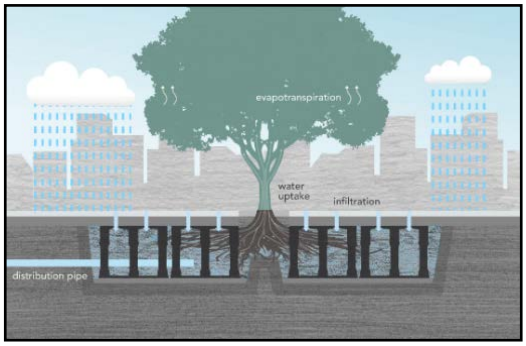


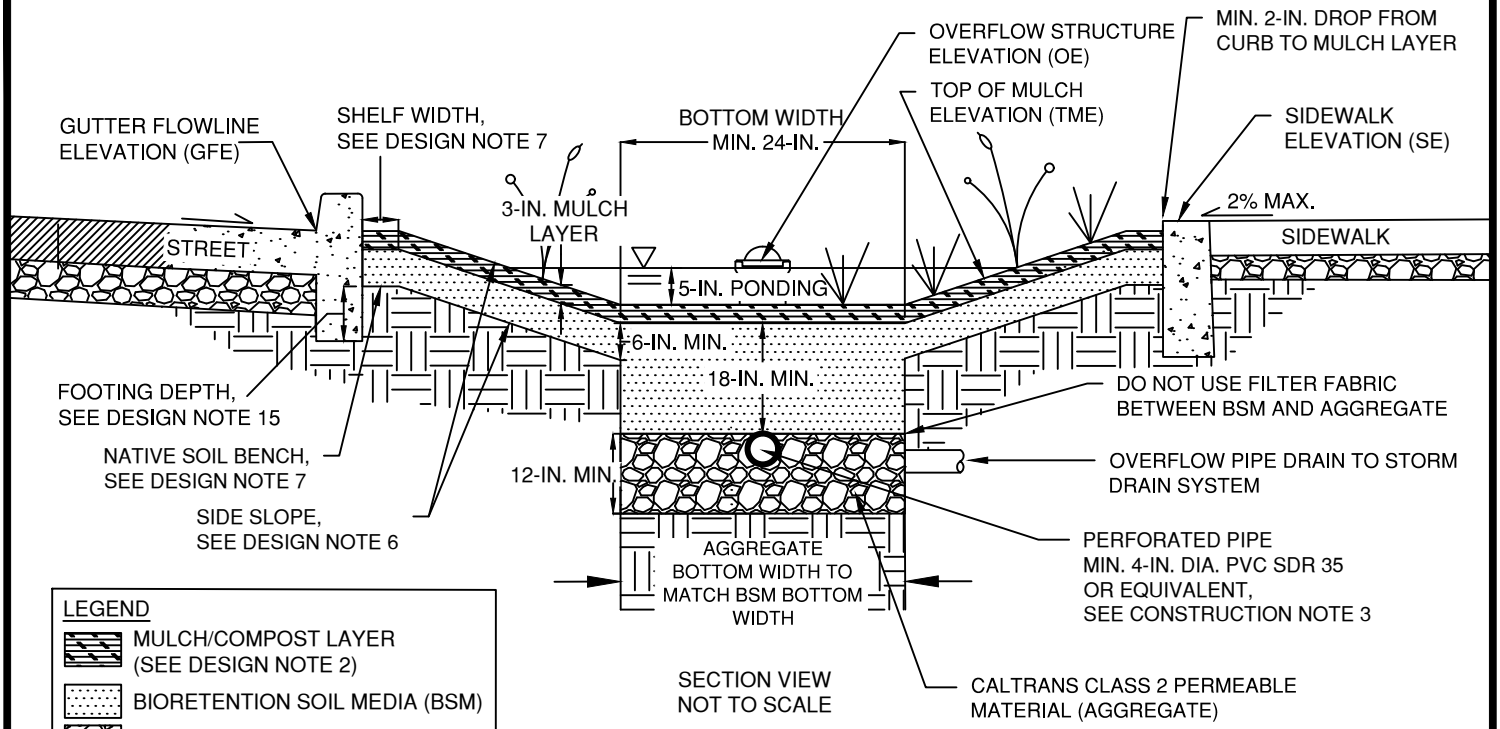
Figure D-45
Silva Cell Profile Schematic and Examples

Appendix 7

City of San Pablo
Typical Details and Specifications

STREET SIDE WITH CURB AND GUTTER
TYPICAL SECTION VIEW

SIDEWALK SIDE
TYPICAL SECTION VIEW



LEGEND

- MULCH/COMPOST LAYER (SEE DESIGN NOTE 2)
- BIORETENTION SOIL MEDIA (BSM)
- AGGREGATE
- NATIVE SOIL
- ASPHALT PAVEMENT
- CONCRETE

CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK AND STREET. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE A MINIMUM OF 6-IN. WITHIN BIORETENTION FACILITY BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM. DO NOT COMPACT SUBGRADE, AGGREGATE OR BSM.
3. INSTALL PERFORATED PIPE WITH HOLES FACING DOWN. SLOPE TO DRAIN TOWARD OVERFLOW STRUCTURE/PIPE.
4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
5. KEEP HEAVY MACHINERY AND CONSTRUCTION MATERIALS OUTSIDE BIORETENTION AREA LIMITS.
6. STORMWATER SHALL BE DIRECTED AWAY FROM BIORETENTION AREA UNTIL CONSTRUCTION IS COMPLETE.
7. AN APPROVED PRE-MIXED BSM SHALL BE INSTALLED. BSM MAY BE SUBJECT TO TESTING.
8. CITY INSPECTOR WRITTEN APPROVAL REQUIRED AT ALL KEY STAGES IDENTIFIED ON CITY STORMWATER TREATMENT FACILITIES INSPECTION CHECKLIST.
9. DRIP IRRIGATION RECOMMENDED. SPRAY HEAD IRRIGATION SYSTEM SHALL BE POSITIONED TO AVOID DIRECT SPRAY INTO OUTLET STRUCTURES OR CURB CUT INLETS.
10. NO FERTILIZER SHALL BE ADDED.

CITY OF SAN PABLO
City of New Directions

San Pablo All-America City 2014

GREEN INFRASTRUCTURE STANDARD DETAILS
ADAPTED FROM LIDI CASQA PROPOSITION 84 GRANT

SLOPE-SIDED BIORETENTION FACILITY

CITY OF SAN PABLO
PUBLIC WORKS DEPT.
13831 SAN PABLO AVE
BUILDING 3
SAN PABLO, CA 94806
TEL: (510) 215-3030

PREPARED BY:	VERSION:	APPROVED BY:	
JIMMY ZHOU	5/20/2019	PUBLIC WORKS DIRECTOR / CITY ENGINEER	DATE

GI-1

DESIGN NOTES

1. BIORETENTION FACILITIES TO MEET CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.3 GUIDEBOOK GUIDELINES.

2. BIORETENTION SOIL MEDIA (BSM), MULCH AND PLANT SELECTION TO FOLLOW CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.3 GUIDEBOOK. NO TREES SHALL BE PLANTED IN BIORETENTION FACILITIES.

3. PROVIDE SPOT ELEVATIONS AT CURB CUT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (TME, OE, GFE, SE).

4. LONGITUDINAL ELEVATION SHALL BE SLOPED AT A MAXIMUM OF 4% OR WITH WRITTEN EXCEPTION FROM CITY ENGINEER.

5. CONCRETE CHECK DAMS SHALL BE PLACED FOR EVERY 4-IN. TO 6-IN. OF LONGITUDINAL ELEVATION CHANGE (DETAIL GI-5).

6. SIDE SLOPE 4:1 (H:V) PREFERRED, 3:1 MINIMUM WITH SHELF OR WITH WRITTEN EXCEPTION FROM CITY ENGINEER.

7. SHELF WIDTH SHOULD BE SAME WIDTH AS NATIVE SOIL BENCH BELOW. FOR INSTALLATIONS IN NEW STREETS, MINIMUM SHELF WIDTH IS 12-IN. OR WITH EXCEPTION FROM CITY ENGINEER. FOR INSTALLATIONS IN EXISTING STREETS, SHELF WIDTH MAY BE DECREASED WITH AN INCREASED FOOTING DEPTH OF THE BIORETENTION CURB AND GUTTER.

8. BIORETENTION FACILITY DESIGN SHALL OPTIMIZE THE FLAT BOTTOM DIMENSIONS TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY. MINIMUM 2-FT. WIDE FLAT BOTTOM OR WITH WRITTEN EXCEPTION FROM CITY ENGINEER.

9. DEPTH OF AGGREGATE DETERMINED BY SITE SPECIFIC REQUIREMENTS. MINIMUM DEPTH OF 12-IN. UNLESS HYDROMODIFICATION IS REQUIRED. HYDROMODIFICATION DEPTH PER WRITTEN APPROVAL BY CITY ENGINEER.

10. SLOPE PERFORATED PIPES AND OTHER UNDERDRAIN PIPES TOWARD THE OVERFLOW STRUCTURE OR CLEANOUT. OVERFLOW STRUCTURE AND CLEANOUT SHALL DRAIN TO STORM DRAIN SYSTEM.

11. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.

12. PROVIDE A MINIMUM OF ONE CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY.

13. CURB CUT INLET PER DETAIL GI-3.

14. CURB AND GUTTER PER DETAIL GI-4.

15. FOR BIORETENTION FACILITIES ADJACENT TO PARKING LOTS, CURB STOPS (BUMPERS) ARE REQUIRED. PARKING LOT BIORETENTION FACILITIES WITHOUT CURB STOPS ARE REQUIRED TO FOLLOW "STREET SIDE WITH CURB AND GUTTER TYPICAL SECTION VIEW" STANDARD.

16. LOCATE CURB CUTS AND GUTTER MODIFICATIONS TO AVOID ACCESSIBILITY CONFLICTS (E.G. LOCATE OUTSIDE OF CROSSWALKS). PROVIDE PEDESTRIAN CROSSINGS THROUGH BIORETENTION FACILITIES AS APPROPRIATE.

17. BIORETENTION FACILITIES TO AVOID UTILITY CONFLICTS. CONSULT WITH CITY ENGINEER TO ADDRESS UTILITY CONFLICTS IF NEEDED.

CITY OF SAN PABLO
City of New Directions

San Pablo
All-America City
NATIONAL CIVIC LEAGUE
2014

GREEN INFRASTRUCTURE STANDARD DETAILS
ADAPTED FROM LIDI CASQA PROPOSITION 84 GRANT

SLOPE-SIDED BIORETENTION FACILITY

CITY OF SAN PABLO
PUBLIC WORKS DEPT.
13831 SAN PABLO AVE
BUILDING 3
SAN PABLO, CA 94806
TEL: (510) 215-3030

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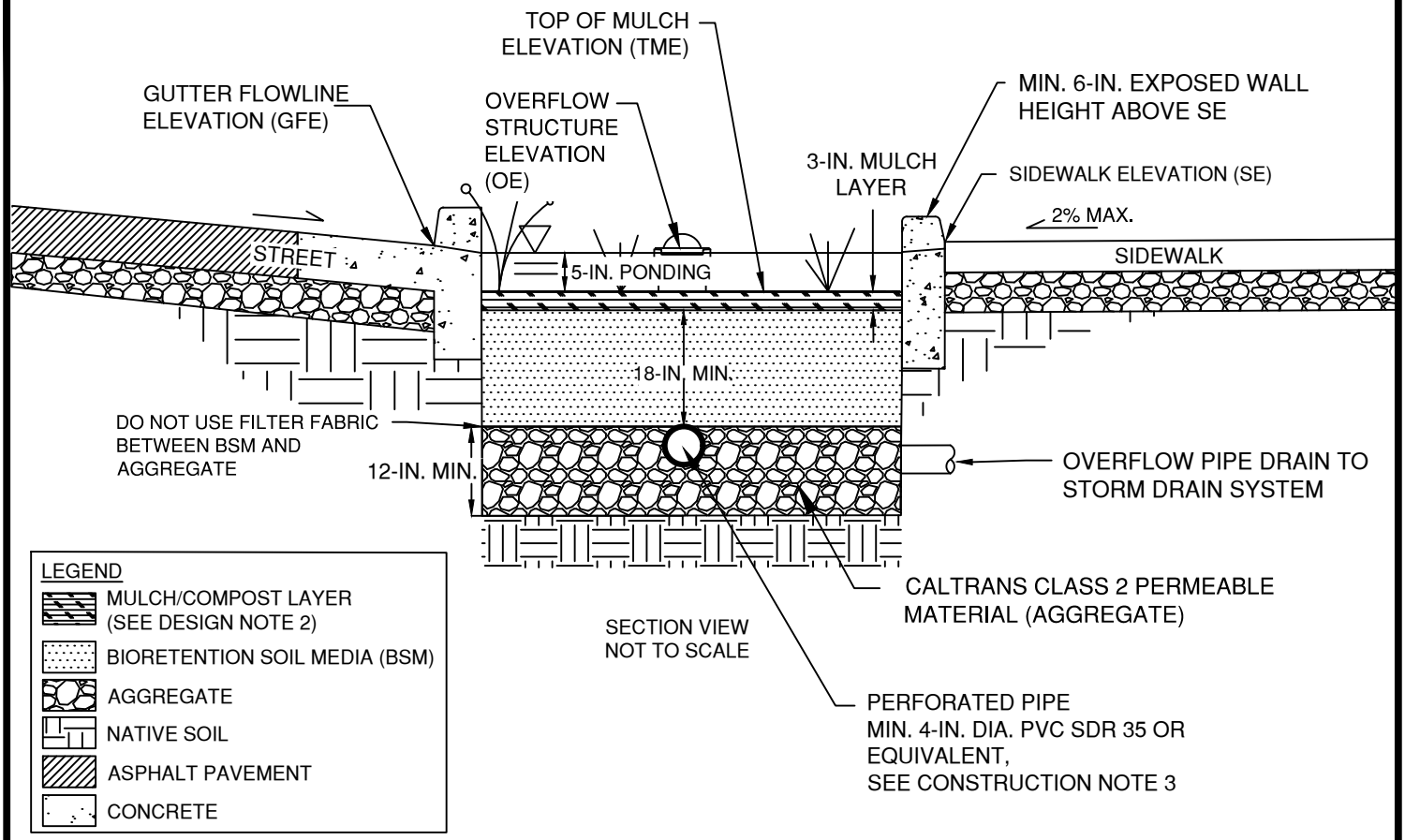
JIMMY ZHOU	5/20/2019	PUBLIC WORKS DIRECTOR / CITY ENGINEER	DATE

GI-1

STREET SIDE WITH CURB AND GUTTER
TYPICAL SECTION VIEW

SIDEWALK SIDE
TYPICAL SECTION VIEW



CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK AND STREET. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE A MINIMUM OF 6-IN. WITHIN BIORETENTION FACILITY BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM. DO NOT COMPACT SUBGRADE, AGGREGATE OR BSM.
3. INSTALL PERFORATED PIPE WITH HOLES FACING DOWN. SLOPE TO DRAIN TOWARD OVERFLOW STRUCTURE/PIPE.
4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
5. KEEP HEAVY MACHINERY AND CONSTRUCTION MATERIALS OUTSIDE BIORETENTION AREA LIMITS.
6. STORMWATER SHALL BE DIRECTED AWAY FROM BIORETENTION AREA UNTIL CONSTRUCTION IS COMPLETE.
7. AN APPROVED PRE-MIXED BSM SHALL BE INSTALLED. BSM MAY BE SUBJECT TO TESTING.
8. CITY INSPECTOR WRITTEN APPROVAL REQUIRED AT ALL KEY STAGES IDENTIFIED ON CITY STORMWATER TREATMENT FACILITIES INSPECTION CHECKLIST.
9. DRIP IRRIGATION RECOMMENDED. SPRAY HEAD IRRIGATION SYSTEM SHALL BE POSITIONED TO AVOID DIRECT SPRAY INTO OUTLET STRUCTURES OR CURB CUT INLETS.
10. NO FERTILIZER SHALL BE ADDED.

CITY OF SAN PABLO
City of New Directions

San Pablo All-America City 2014

GREEN INFRASTRUCTURE STANDARD DETAILS
ADAPTED FROM LIDI CASQA PROPOSITION 84 GRANT

PLANTER BOX BIORETENTION FACILITY

CITY OF SAN PABLO
PUBLIC WORKS DEPT.
13831 SAN PABLO AVE
BUILDING 3
SAN PABLO, CA 94806
TEL: (510) 215-3030

PREPARED BY:	VERSION:	APPROVED BY:	
JIMMY ZHOU	5/20/2019	PUBLIC WORKS DIRECTOR / CITY ENGINEER	DATE

GI-2

DESIGN NOTES

1. BIORETENTION FACILITIES TO MEET CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.3 GUIDEBOOK GUIDELINES.

2. BIORETENTION SOIL MEDIA (BSM), MULCH AND PLANT SELECTION TO FOLLOW CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.3 GUIDEBOOK. NO TREES SHALL BE PLANTED IN BIORETENTION FACILITIES.

3. PROVIDE SPOT ELEVATIONS AT CURB CUT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (TME, OE, GFE, SE).

4. LONGITUDINAL ELEVATION SHALL BE SLOPED AT A MAXIMUM OF 4% OR WITH WRITTEN EXCEPTION FROM CITY ENGINEER.

5. CONCRETE CHECK DAMS SHALL BE PLACED FOR EVERY 4-IN. TO 6-IN. OF LONGITUDINAL ELEVATION CHANGE (DETAIL GI-5).

6. BIORETENTION FACILITY DESIGN SHALL OPTIMIZE THE FLAT BOTTOM DIMENSIONS TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY. MINIMUM 2-FT. WIDE FLAT BOTTOM OR WITH WRITTEN EXCEPTION FROM CITY ENGINEER.

7. DEPTH OF AGGREGATE DETERMINED BY SITE SPECIFIC REQUIREMENTS. MINIMUM DEPTH OF 12-IN. UNLESS HYDROMODIFICATION IS REQUIRED. HYDROMODIFICATION DEPTH PER WRITTEN APPROVAL BY CITY ENGINEER.

8. SLOPE PERFORATED PIPES AND OTHER UNDERDRAIN PIPES TOWARD THE OVERFLOW STRUCTURE OR CLEANOUT. OVERFLOW STRUCTURE AND CLEANOUT SHALL DRAIN TO STORM DRAIN SYSTEM.

9. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.

10. PROVIDE A MINIMUM OF ONE CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY.

11. CURB CUT INLET PER DETAIL GI-3.

12. CURB AND GUTTER PER DETAIL GI-4.

13. FOR BIORETENTION FACILITIES ADJACENT TO PARKING LOTS, CURB STOPS (BUMPERS) ARE REQUIRED. PARKING LOT BIORETENTION FACILITIES WITHOUT CURB STOPS ARE REQUIRED TO FOLLOW "STREET SIDE WITH CURB AND GUTTER TYPICAL SECTION VIEW" STANDARD.

14. LOCATE CURB CUTS AND GUTTER MODIFICATIONS TO AVOID ACCESSIBILITY CONFLICTS (E.G. LOCATE OUTSIDE OF CROSSWALKS). PROVIDE PEDESTRIAN CROSSINGS THROUGH BIORETENTION FACILITIES AS APPROPRIATE.

15. BIORETENTION FACILITIES TO AVOID UTILITY CONFLICTS. CONSULT WITH CITY ENGINEER TO ADDRESS UTILITY CONFLICTS IF NEEDED.

CITY OF SAN PABLO
City of New Directions

San Pablo
All-America City
NATIONAL CIVIC LEAGUE
2014

GREEN INFRASTRUCTURE STANDARD DETAILS
ADAPTED FROM LIDI CASQA PROPOSITION 84 GRANT

PLANTER BOX BIORETENTION FACILITY

CITY OF SAN PABLO
PUBLIC WORKS DEPT.
13831 SAN PABLO AVE
BUILDING 3
SAN PABLO, CA 94806
TEL: (510) 215-3030

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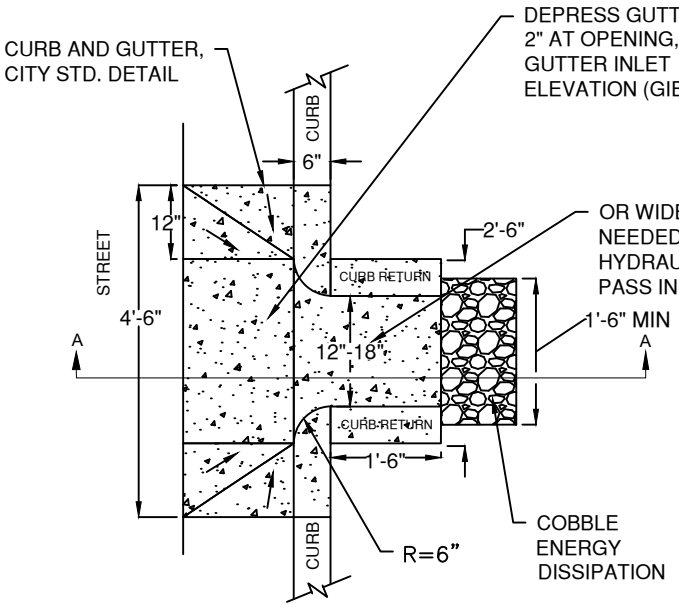
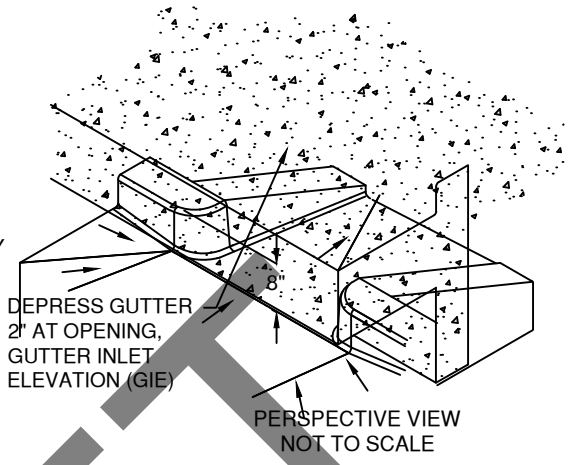
JIMMY ZHOU	5/20/2019	PUBLIC WORKS DIRECTOR / CITY ENGINEER	DATE

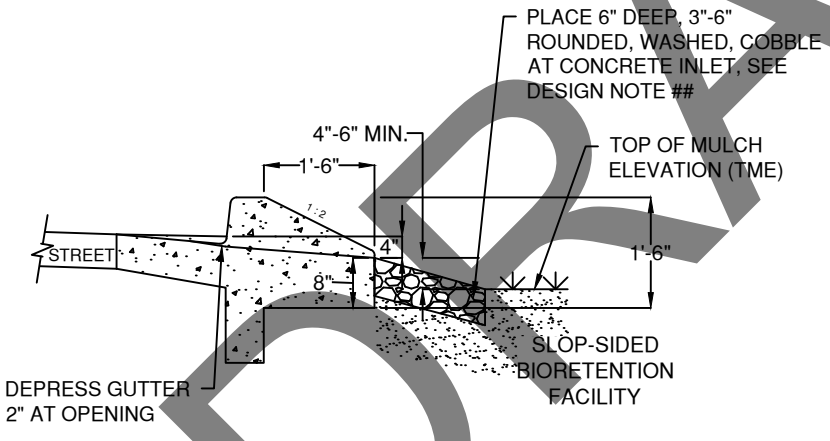
GI-2



PLAN VIEW
NOT TO SCALE



PERSPECTIVE VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE

DESIGN NOTES

1. DESIGN NUMBER AND SPACING OF CURB CUT INLETS TO CALCULATE HYDRAULIC FLOW. SUBJECT TO CHANGE BY CITY ENGINEER.
2. PROVIDE SPOT ELEVATIONS ON PLANS (TME, OE, GFE, IE). SEE DETAIL SW-1 AND SW-2.
3. WHERE INLET FLOW VELOCITY IS HIGH, EXTEND COBBLE INTO FACILITY, BUT AVOID EXCESSIVE USE.
4. CURB HEIGHT MAY BE REDUCED TO 4" WHERE ADJACENT TO A SIDEWALK. SEE CITY STANDARD DETAILS.
5. DO NOT LOCATE PLANTS AT INLETS. CONSIDER MATURE GROWTH TO DETERMINE PLANTING LAYOUT AND AVOID FUTURE BLOCKAGE OF INLETS BY PLANTS.
6. POSITION CURB CUT INLETS TO BE OFFSET FROM OVERFLOW STRUCTURE.

CONSTRUCTION NOTES

1. AFTER CONSTRUCTION, PLACE SAND BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS PLANTED.

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CURB CUT INLET

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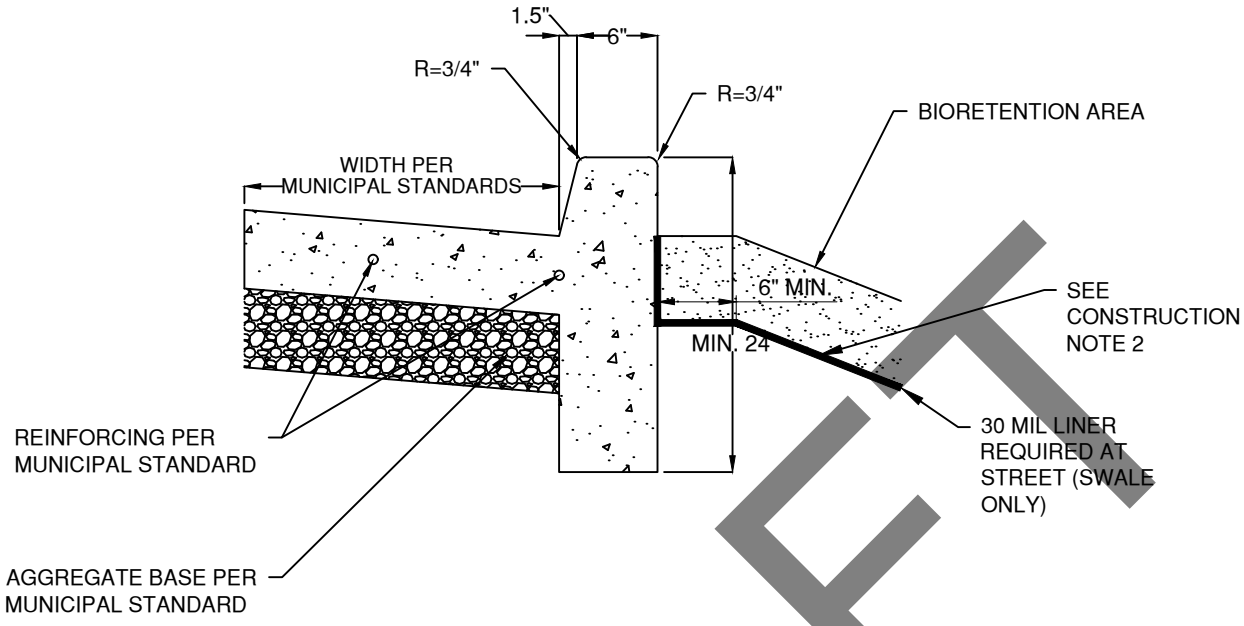
GI-3

SHEET 1 OF 1



DESIGN NOTES

1. SPECIAL DESIGN CONSIDERATION OR STRUCTURAL REVIEW MAY BE REQUIRED FOR LONGER PLANTER WALL SPANS. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.

2. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB, GUTTER, AND WALL DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL BY CITY ENGINEER.

3. CONCRETE AND EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF THE MUNICIPALITY.

4. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.

CONSTRUCTION NOTES

1. FINISH ALL EXPOSED CONCRETE SURFACES.

2. LAYBACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24" BOTTOM WIDTH. AS PLANTER GETS WIDER MAINTAIN 1:1 SLOPE AND INCREASE BOTTOM WIDTH WIDER THAN 24". ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GEOTECHNICAL ENGINEER (I.E. VERTICAL SHORING, REINFORCED TRENCH SIDEWALL) THAT DO NOT REQUIRE SIDEWALK SUPPORT FROM THE LIGHTLY COMPACTED BSM.

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CURB AND GUTTER

CITY OF SAN PABLO
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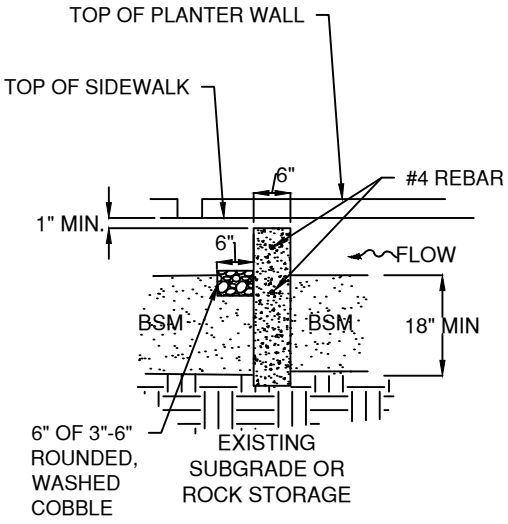
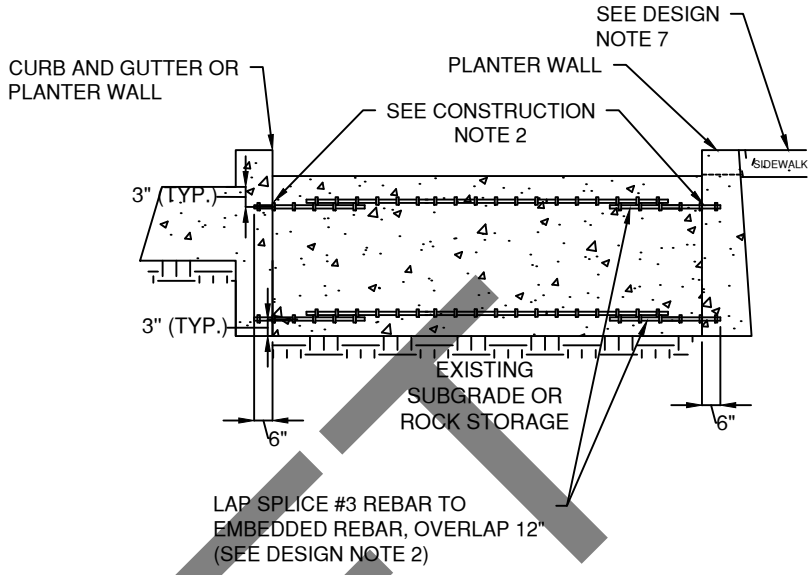
GI-4

SHEET 1 OF 1





BIORETENTION DESIGN NOTES

1. FOR USE WITH BIORETENTION PLANTERS OR SLOPED SIDED SWALES/RAIN GARDENS.
2. FOR CHECK DAMS LONGER THAN 12' SPECIFY REBAR OVERLAP LENGTH.
3. SPACE CHECK DAMS TO MAXIMIZE PONDING ACROSS CELLS.
4. CHECK DAMS SHOULD BE PLACED FOR EVERY 4 - 6" OF LONGITUDINAL ELEVATION CHANGE.
5. PROVIDE ELEVATIONS AND STATIONING AND/OR DIMENSIONING FOR CHECK DAMS.
6. ENSURE THAT CHECK DAM ELEVATIONS DO NOT CAUSE STORMWATER TO OVERFLOW TO SIDEWALK.
7. SHOW PLANTER WALL EMBEDDED IN EXISTING SUBGRADE OR DRAINROCK.
8. PREFERRED DESIGN IS TO CONSTRUCT TOP OF SIDEWALK AT GRADE WITH TOP OF PLANTER WALL TO ALLOW RUNOFF TO SHEETFLOW INTO BIORETENTION PLANTER. IF CURB IS NEEDED, USE ALTERNATE DESIGN AND ENSURE TOP OF CONCRETE CHECK DAM IS A MINIMUM OF 1" BELOW BOTTOM OF CURB NOTCH.

CONSTRUCTION NOTES

1. EMBED #3 REBAR 6" INTO CURB AND PLANTER WALL.
2. DO NOT WORK DURING RAIN OR UNDER WET CONDITIONS.
3. KEEP ALL HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.

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CONCRETE CHECK DAM

CITY OF SAN PABLO
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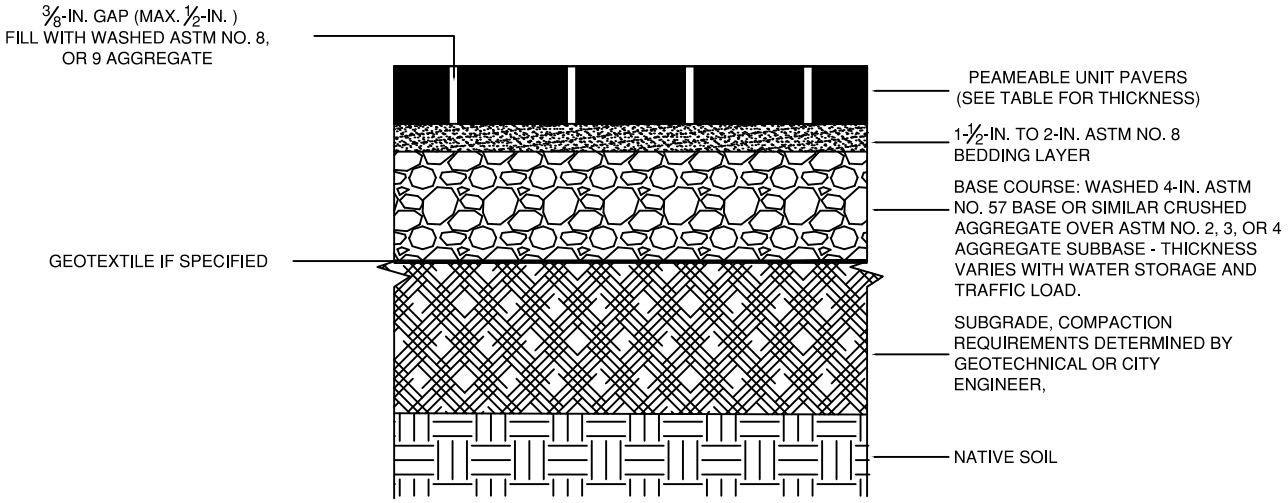
GI-5

SHEET 1 OF 1



SECTION VIEW
NOT TO SCALE

PERMEABLE PAVERS REQUIREMENT:

	RESIDENTIAL DRIVEWAY OR PEDESTRIAN ONLY	PRIVATE STREET, PARKING LOT, OTHER
PERMEABLE INTERLOCKING PAVERS THICKNESS	2-3/8-IN. MIN.	3-1/8-IN. MIN.
ENGINEERING REQ'D, SEE DESIGN NOTE 4	NO	YES
COMPACTION REQ'D	NO	YES

DESIGN NOTES:

1. PAVER DESIGN AND/OR GRADING DESIGN SHALL INCORPORATE MANAGEMENT OF STORMWATER FLOWS TO AVOID LOCAL FLOODING.
2. ADD UNDERDRAIN 3-IN. ABOVE THE BOTTOM OF THE BASE COURSE TO DRAIN WATER THAT CANNOT BE INFILTRATED WITHIN 72 HOURS.
3. UNDERDRAIN AND ORIFICE CONFIGURATION SHALL BE BASED ON ENGINEERED DESIGN.
4. DESIGNS SHALL BE SIGNED & STAMPED BY A GEOTECHNICAL AND/OR CIVIL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA, OR WITH WRITTEN EXCEPTION FROM CITY ENGINEER.
5. GEOTEXTILE USE AND SELECTION MAY BE DETERMINED BY A GEOTECHNICAL ENGINEER PER AASHTO M-288.
6. WRITTEN APPROVAL FROM CITY ENGINEER REQUIRED IF SLOPE IS GREATER THAN 2%.

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PERMEABLE PAVERS

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PREPARED BY: JIMMY ZHOU VERSION: 5/20/2019

APPROVED BY:

PUBLIC WORKS DIRECTOR / CITY ENGINEER DATE

GI-6

SHEET 1 OF 1