C/CAG

CITY/COUNTY ASSOCIATION OF GOVERNMENTS
OF SAN MATEO COUNTY

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Millbrae • Pacifica • Portola Valley • Redwood City • San Bruno • San Carlos • San Mateo • San Mateo County • South San Francisco • Woodside

2:30 PM, Thursday, November 16, 2017

San Mateo County Transit District Office[1]
1250 San Carlos Avenue, 2nd Floor Auditorium
San Carlos, California

STORMWATER (NPDES) COMMITTEE AGENDA

1.	Public comment on items not on the Agenda (presentations limited to three minutes).	Breault	No materials
2.	Stormwater Issues from C/CAG Board meetings: • None	Fabry	No materials
3.	ACTION – Review and approve September 21 Stormwater Committee meeting minutes	Fabry	Pages 1-5
4.	INFORMATION – Announcements on stormwater issues • SB 231 signed, webinar details • Business inspection follow-up • PCBs in building demolition project – Dec 12 stakeholder meeting • Water Board annual report feedback • Other	Fabry	Verbal
5.	ACTION – Review and recommend approval of the proposed project funding list under the Safe Routes to School and Green Streets Infrastructure Pilot Program	Fabry	Pages 6-8
6.	INFORMATION – Receive presentation on Reasonable Assurance Analysis prioritization memo.	Fabry/ Carter	Pages 9-22
7	Regional Board Report	Mumley	No Materials
8.	Executive Director's Report	Wong	No Materials
9.	Member Reports	All	No Materials

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C/CAG AGENDA REPORT

Date: November 16, 2017

To: Stormwater Committee

From: Matthew Fabry, Program Manager

Subject: Review and approve September 21, 2017 Stormwater Committee meeting minutes

(For further information or questions contact Matthew Fabry at 650 599-1419)

RECOMMENDATION

Review and approve September 21, 2017 Stormwater Committee meeting minutes, as drafted.

ATTACHMENTS

1. Draft September 21, 2017 Minutes

STORMWATER COMMITTEE
Regular Meeting
Thursday, September 21, 2017
2:30 p.m.

DRAFT Meeting Minutes

The Stormwater Committee met in the SamTrans Offices, 1250 San Carlos Avenue, San Carlos, CA, 2nd floor auditorium. Attendance at the meeting is shown on the attached roster. In addition to the Committee members, also in attendance were Sandy Wong (C/CAG Executive Director), Matt Fabry (C/CAG Program Manager), Reid Bogert (C/CAG Stormwater Program Specialist), Jon Konnan (EOA, Inc.), Steve Carter (Paradigm Environmental), Breann Liebermann (County Office of Sustainability), Sven Edlund and Hae Won Richie (San Mateo), Ray Donguines (Pacifica), Richard Chiu (Daly City), Ahmad Haya (Redwood City), Breann Liebermann (San Mateo County), Eric Hinkley (Menlo Park), Jennifer Lee (Burlingame), and Dale Bowyer and Selina Louie (Regional Water Board). Chair Breault called the meeting to order at 1:20 p.m.

1. Public comment: None

2. C/CAG staff Matt Fabry provided an update on issues relevant to the Committee from the previous C/CAG Board meetings:

- July: The Board received a copy of the amended Task Order URD-01, issued to Urban Rain Design for technical support to the Countywide Water Pollution Prevention Program, extending the term through December 31, 2017 at no additional cost as executed by the Executive Director.
- September: The Board received a presentation on Countywide Program Highlights for Fiscal Year 2016-17 and the Board appointed Khee Lim, Public Works Director of Millbrae, to the Stormwater Committee.

3. ACTION – (Note: this item was moved to later in the agenda after the committee had a quorum). The draft minutes from the June 15, 2017 Stormwater Committee meeting were unanimously approved as drafted (motion: Oskoui, second: Porter).

4. INFORMATION – Announcements on stormwater issues

- SB231 on Governor Brown's desk – cities encouraged to send in letters of support through Oct 15
- Annual reports to be submitted via C/CAG by Sept 30 to the Regional Water Board FTP site, and draft reports due to EOA for review by Sept 22
- Email to be sent to DARs for approval and submission of Countywide Program Annual Report
- Unfunded mandates – all participating cities resubmitted under one claim after State Commission asserted test claims were incompatible for review; hearing scheduled for Jan 2018
- Stormwater permit fees – the Regional Water Board and State Water Board will be adopting a new stormwater permit fee structure in Fiscal Year 2017-18 and is expecting a 11 percent reduction in municipal stormwater permit fees

5. INFORMATION – Matt Fabry provided overview of the timeline for transitioning business inspections from County Environmental Health (CEH), and shared survey results on agencies' plans for business inspections after December, 31 2017.

- CEH notice of ending stormwater inspections by end of calendar year in Mar 2017
- SMCWPPP response letter to Regional Water Board April 30, agreeing to update ERPs/BIPs and inform of future plans by annual reports
- SMCWPPP survey of plans for business inspections Sept 2017
- SMCWPPP follow-up from Sept 20 CII meeting:
    - List of scheduled inspections per jurisdiction by the end of calendar year (CEH agreed to 50 percent of Fiscal Year 2017-18) sent to all agencies
    - Follow-up at next CII meeting on data management options for agencies
    - Agencies to review BIPs/ERPs after Jan 2018 transition
    - Need for evaluating outreach materials and resources
- Some interest expressed for C/CAG to develop a master RFP process to possibly gain economies of scale by contracting multiple agencies with one inspection consultant
- Water Board staff Dale Bowyer indicated the commercial and industrial inspection program requirements are one of their key priorities in the Municipal Regional Permit and urged municipalities to move forward expeditiously to get new plans in place for ensuring necessary inspections are performed. Discussion with Committee members highlighted the need for improved communications with Water Board staff on compliance issues and concerns to avoid unanticipated consequences.

6. INFORMATION – Jon Konnan (EOA), presented on annual reporting with respect to preliminary quantification of PCBs load reductions to-date via multiple control methods as outlined in the *Interim Accounting Methodology for TMDL Loads Reduced* developed by BASMAA for reporting PCBs and mercury load reductions for MRP 2.0. Konnan reminded the committee that it is regionally agreed upon by Water Board staff that projected controls for PCB load reductions will provide more than adequate treatment to meet all mercury load allocations for the mercury TMDL. Konnan provided a recap of the upcoming compliance deadlines for PCBs and mercury load reductions and the status and projections for loads reduced through the permit term.

PCBs compliance deadlines for MRP 2.0 and beyond:

- 3 kg region-wide by MRP 2.0
- 370 g for San Mateo County permittees by end of MRP 2.0 (final load reduction)
- 60 g for San Mateo County by 2018 (interim load reduction)
- 15 g for San Mateo County via Green Infrastructure (GI) by 2018
- Additional 3 kg regionwide by 2040 via GI

Initial reporting requirement for Fiscal Year 2016-17:

- Permittees were required this year to report estimated PCB/mercury load reductions to-date, including projects completed in Fiscal Year 2013-14 through Fiscal Year 2016-17
- Current estimates show San Mateo County easily achieving load reductions via GI through 2018 (15 g) and likely meeting the overall interim load reduction of 60 g for all controls by 2018
- Estimates show a countywide shortfall of about 60 g for meeting the final load reduction of 370 g for all controls by 2020, but there are uncertainties about additional source property referrals that may result from planned field work and site investigations

- Need to evaluate level of effort desired to identify additional source properties given budget constraints

7. INFORMATION – Steven Carter (Paradigm Environmental) presented the current status of developing a Reasonable Assurance Analysis (RAA) for C/CAG and modeling green infrastructure scenarios to propose the most cost-effective approach for achieving PCBs and mercury load reductions.

Key updates:

- The calibrated baseline model for adjusting baseline sediment and pollutant loading specific to San Mateo County is complete
- Initial loading analyses at a subwatershed level for each jurisdiction, refining to pull out non-jurisdictional areas
- Currently inputting baseline loading data into SUSTAIN model for estimating GI treatment "recipes" for RAA and GI planning for C/CAG's member agencies
- GI scenarios will include cost-optimized treatment estimates (impervious areas treated or volume captured) from all existing GI projects (public and private), projected land area subject to new and redevelopment requirements through 2040, potential retrofits on public parcels, prioritized green streets, and identified regional projects from the Countywide Stormwater Resource Plan
- For each agency, Paradigm will present proportional and targeted green infrastructure "recipes" to demonstrate potential cost savings from implementing green infrastructure on a subwatershed basis, or jurisdiction-wide
- The Program will also facilitate discussions with the Stormwater Committee about a countywide approach to meeting pollutant load allocations, which could include multi-agency MOUs or other mechanisms through C/CAG to allow for cost sharing and achieving load reductions collectively

8. Regional Board Report – Water Board staff, Dale Bowyer, communicated to the committee that it was unfortunate that County Environmental Health decided to withdraw from the business inspection program, and that it was not the intent of the Water Board to encourage the termination of the partnership but only to ensure compliance with what the Water Board considers to be one of the most important components of the countywide program. Committee members emphasized that poor communication practices on behalf of Water Board staff significantly influenced the outcome, and requested a follow-up meeting with Water Board staff and several Stormwater Committee members to improve communications.

9. Executive Director's Report – Executive Director, Sandy Wong, shared the kick-off of the San Mateo Countywide Water Coordination Committee in May 2017, and the development of plans for a countywide spring 2018 "Water Summit" to engage local communities and decision makers on timely synergies and opportunities for better water coordination in the county. Executive Director Wong also mentioned the C/CAG Safe Routes to School and Green Streets Infrastructure Pilot Program Call for Projects which was approved by the C/CAG Board in July, 2017.

10. Member Reports: NONE.

Chair Breault adjourned the meeting at 2:45 p.m.

2017 Stormwater Committee Roster														
Agency	**Representative**	**Position**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Atherton	Marty Hanneman	City Engineer				O								
Belmont	Afshin Oskoui	Public Works Director	X		X	X		X			X			
Brisbane	Randy Breault	Public Works Director/City Engineer	X		X	O		X			X			
Burlingame	Syed Murtuza	Public Works Director	X		X	O		O			O			
Colma	Brad Donohue	Director of Public Works and Planning	X	C		X	C	X	C	C	X			
Daly City	John Fuller	Public Works Director	O	A	X	X	A	X	A	A	O			
East Palo Alto	Kamal Fallaha	City Engineer		N	X		N		N	N				
Foster City	Jeff Moneda	Public Works Director	X	C	X	X	C	X	C	C	X			
Half Moon Bay	Denice Hutten	Associate Engineer		E		X	E	X	E	E	X			
Hillsborough	Paul Willis	Public Works Director	X	L	X	X	L	X	L	L	X			
Menlo Park	Justin Murphy	Public Works Director	X	E	X	X	E	X	E	E	O			
Millbrae	Khee Lim	Public Works Director		D			D		D	D	X			
Pacifica	Van Ocampo	Public Works Director/City Engineer	X			X		X			O			
Portola Valley	Howard Young	Public Works Director			X									
Redwood City	Saber Sarwary	Supervising Civil Engineer	X		X						X			
San Bruno	Jimmy Tan	City Engineer			X	X		X						
San Carlos	Jay Walter	Public Works Director	X		X	X		X			X			
San Mateo	Brad Underwood	Public Works Director				X		X			X			
South San Francisco	Eunejune Kim	Public Works Director	X			X								
Woodside	Sean Rose	Public Works Director	X		X			X						
San Mateo County	Jim Porter	Public Works Director	X		X	X		X			X			
Regional Water Quality Control Board	Tom Mumley	Assistant Executive Officer	O								O			

"X" - Committee Member Attended
"O" - Other Jurisdictional Representative Attended

C/CAG AGENDA REPORT

Date: November 16, 2017

To: Stormwater Committee

From: Matthew Fabry, Program Manager

Subject: Review and recommend approval of the proposed project funding list under the Safe Routes to School and Green Streets Infrastructure Pilot Program.

(For further information or questions contact Matthew Fabry at 650 599-1419)

RECOMMENDATION

Review and recommend approval of the proposed project funding list under the Safe Routes to School and Green Streets Infrastructure Pilot Program.

FISCAL IMPACT

$2,000,000.

SOURCE OF FUNDS

Funded in equal parts from local $4 vehicle license fees (AB 1546) designated for regional stormwater pollution prevention programs and $10 vehicle license fees (Measure M) designated for Safe Routes to School Programs.

BACKGROUND

At the July 13, 2017 C/CAG Board of Directors meeting, the Board approved Resolution 17-31 authorizing the Safe Routes to School and Green Streets Infrastructure Pilot Program (Pilot Program), including a Call for Projects and associated funding guidelines. The purpose of the Pilot Program is to demonstrate an integrated approach to building infrastructure that makes it safer for walking and biking to school while simultaneously addressing the capture and cleaning of stormwater runoff. Specifically, the Pilot Program is intended to fund integrated improvements at intersections and mid-block crossings near schools. Funding for the Pilot Program includes $1 million from Measure M slated for the Safe Routes to Schools (SRTS) program and $1 million from AB 1546 slated for countywide stormwater pollution prevention programs.

Staff released a Call for Projects on July 18, 2017. A pre-application coordination meeting was held on May 18, 2017 for interested local agency and school representatives. In addition, C/CAG hosted an application workshop on August 3, 2017 for potential project sponsors. Proposals were due on October 20, 2017.

Sixteen (16) applications were submitted from 12 jurisdictions. Applications were screened for responsiveness and 15 of the 16 proposals were deemed eligible. A selection panel, including staff from C/CAG, County Office of Sustainability, County Health System, and County Office of Education scored the eligible projects based on the scoring criteria, and scores were ranked and summarized (see Attachment 1).

Of the 15 eligible projects submitted, nine are recommended for full funding and one for partial funding, totaling $2,000,000. In accordance with the Pilot Program guidelines, the recommended funding list prioritizes distribution of funds to as many jurisdictions as possible before funding multiple projects in a single jurisdiction (i.e., second project proposals from three jurisdictions are not recommended for funding). Also, due to being oversubscribed with qualified projects ($2,489,267 in eligible funding requests), staff recommends providing partial funding ($137,137) for the Menlo Park submittal, which requested $250,000. This recommendation is based on there being insufficient funds to award the entire requested amount and based on the project's ranking.

Projects receiving funding are required to be completed by October 1, 2019, with the final reimbursement request submitted to C/CAG no later than December 31, 2019. Once approved by the Committee, the C/CAG Board of Directors will consider approval of the recommended funding list and execution of funding agreements at its next meeting.

ATTACHMENTS

1. Safe Routes to School and Green Streets Infrastructure Pilot Program Funding Recommendation

Recommended Funding List					
Rank	**Score**	**Jurisdiction**	**Project Title**	**Funding Request**	**Funding Recommendation**
1	**91**	**Redwood City**	**Safe Routes to School (SRTS) and Green Streets Infrastructure Pilot Program at Taft Community School**	**$250,000**	**$250,000**
2	**91**	**Colma**	**Mission Road Improvements Safe Routes to School and Green Streets Infrastructure Project**	**$200,000**	**$200,000**
3	**85**	**Pacifica – Cabrillo**	**Cabrillo School Pedestrian Crossing Improvement Project**	**$157,600**	**$157,600**
4*	78	Pacifica – Terra Nova	Terra Nova High School Pedestrian Crossing Improvement Project	$123,200	$0
5	**78**	**East Palo Alto**	**Addison Avenue SRTS and Green Streets Infrastructure Project**	**$250,000**	**$250,000**
6	**78**	**Millbrae**	**Taylor Middle School SRTS and GSIPP**	**$212,500**	**$212,500**
7	**77**	**Brisbane**	**Brisbane SRTS and Green Infrastructure Project**	**$245,263**	**$245,263**
8	**76**	**Daly City - Westlake**	**Westlake Elementary School Pilot Green Streets Improvements Project**	**$144,500**	**$144,500**
9	**76**	**San Mateo County**	**Fair Oaks Community School Green Infrastructure and SRTS Improvements**	**$250,000**	**$250,000**
10*	75	Daly City - Panorama	Panorama Elementary School Pilot Green Streets Improvement Project	$170,000	$0
11	**72**	**Half Moon Bay – Cunha**	**Half Moon Bay Safe Routes to Cunha School Project**	**$153,000**	**$153,000**
12	**71**	**Menlo Park**	**Oak Grove SRTS and Green Infrastructure Improvements Project**	**$250,000**	****$137,137**
13*	69	Half Moon Bay - Hatch	Half Moon Bay Safe Routes to Hatch School Project	$221,000	$0
14	66	South San Francisco	Hillsdale Blvd Safe Routes to Martin School Project	$212,204	$0
15	54	Belmont	School Crossing at Cipriani Blvd and Carmelita Ave	$100,000	$0
			TOTAL:	**$2,489,267**	**$2,000,000**

Note:
* Second application for jurisdiction
** Partial funding

C/CAG AGENDA REPORT

Date: November 15, 2017

To: Stormwater Committee

From: Matthew Fabry, Program Manager

Subject: Receive presentation on Reasonable Assurance Analysis prioritization memo.

(For further information or questions contact Matthew Fabry at 650 599-1419)

RECOMMENDATION

Receive presentation on Reasonable Assurance Analysis prioritization memo.

FISCAL IMPACT

N/A

SOURCE OF FUNDS

N/A

BACKGROUND

The Municipal Regional Permit (MRP) requires Reasonable Assurance Analyses (RAA) to demonstrate mercury and PCB (polychlorinated biphenyls) load reductions will be achieved via green infrastructure and the other control measures. Paradigm Environmental has been developing the RAA for C/CAG's member agencies and Steve Carter will summarize the attached memo and associated feedback requests from member agencies regarding prioritization approaches and assumptions to be used in the modeling effort.

ATTACHMENTS

1. RAA Prioritization and Assumption Memo

PARADIGM ENVIRONMENTAL

To:	Matthew Fabry, PE, San Mateo Countywide Water Pollution Prevention Program
From:	Stephen Carter, PE, Paradigm Environmental
cc:	Sandy Mathews, Larry Walker Associates Reid Bogert, San Mateo Countywide Water Pollution Prevention Program
Date:	November 9, 2017
Re:	Selecting and modeling low impact development, green infrastructure, and structural control measures for the Reasonable Assurance Analysis

The purpose of this memorandum is to provide San Mateo City/County Association of Governments (C/CAG) member agency review of the Reasonable Assurance Analysis (RAA) methodology for selecting and modeling green infrastructure (GI) projects within each city and unincorporated county jurisdiction of San Mateo County. This memorandum provides agencies the opportunity to provide input and feedback on key decision points before modeling begins. Throughout this memorandum, these decision points are designated with text boxes to guide agencies in their review and decisions. For example, the first decision point is provided in the text box at the bottom right of this page.

For the purposes of RAA supporting GI Plans, GI is representative of a group of structural control measures that provide similar processes for the capture, infiltration, and/or treatment of urban runoff prior to the discharge to receiving waters. The San Mateo County Stormwater Resource Plan (SRP) categorized stormwater capture opportunities in three primary categories:

- Parcel-based or Low Impact Development (LID), where stormwater is managed at parcel level;
- Green streets, where stormwater is managed in the public rights-of-way at the block scale; and,
- Regional projects, where stormwater is managed at the neighborhood or watershed scale.

For the RAA, these primary categories are further grouped or broken down as follows:

1. **Existing Projects**: Stormwater treatment and GI projects that have been implemented since FY-2004/05. This is primarily all of the Regulated Projects that were mandated to treat runoff via Provision C.3 of the Municipal Regional Permit (MRP), but also includes any public green street or other demonstration projects that were not subject to Provision C.3 requirements. For Regulated Projects in the early years of C.3 implementation, stormwater treatment may have been achieved through non-GI means, such as underground vault systems or media filters.
2. **Future New and Redevelopment:** This is all the regulated projects that will be subject to Provision C.3 requirements to treat runoff via GI and is based on spatial projections of future new and redevelopment tied to regional models for population and employment growth.
3. **Regional Projects (identified)**: The SRP identified three projects within public parks to provide regional capture and infiltration/treatment of stormwater, and included conceptual designs to support further planning and designs.

Decision 1: For each project category, the RAA will identify goals in terms of the amount of projects needed by 2040 within each subwatershed and jurisdiction. The goal of the RAA is to quantify the amount of projects and impervious area treated to be needed, however, there will be opportunity in the future to select alternative projects through an adaptive management process. Are these primary categories of projects sufficient for representing and determining initial goals for GI planning?

4. **Green Streets**: The SRP identified and prioritized opportunities throughout San Mateo County for retrofitting existing streets with green infrastructure in public rights-of-way.
5. **Other GI Projects (to be determined)**: Other types of GI projects on publicly owned parcels, representing a combination of either additional parcel-based GI or other Regional Projects. The SRP screened and prioritized public parcels for opportunities for onsite LID and Regional Projects. These opportunities need further investigation to determine the best potential projects.

Additional discussion of these project types and how they will be considered for prioritization in the RAA is provided in the following sections.

1 REPRESENTING GI IN THE RAA

The RAA is a quantitative approach to establish relationships between GI implementation and pollutant load reduction. Model output will estimate the amount of GI, or capacity expressed in acre-feet of treatment area, needed to achieve pollutant load reduction targets for C/CAG member agencies, and the resultant amount of impervious area treated. During development of the SRP, C/CAG developed a street- and parcel-level project identification and prioritization process (see Section 2) to identify and rank potential locations suitable for implementation of GI. This list will be used to develop assumptions for GI project opportunities used as input to the RAA model, and to provide a head start in the development of GI Plans. Table 1-1 presents a summary of the GI project types described in the following sub-sections. Modeling of GI implementation scenarios will typically incorporate the different GI categories in the order they appear in the table, while considering modeling assumptions documented in the attached memorandum provided to C/CAG on February 15, 2017 for review (subject was Green Infrastructure Modeling Assumptions for the Reasonable Assurance Analysis). Some types of GI are represented as a fixed-size. For instance, sizing of Existing Projects is based on project information obtained for built projects (e.g., drainage area or size of GI project type), while the sizing of Future New and Redevelopment is based on projections of area treated and assumptions for LID sizing documented in the previous February 15th memorandum. Regional Projects sizing and modeling assumptions are based on information obtained from project concepts (or current project designs), while also considering modeling assumptions from the February 15th memorandum. Other GI types (e.g. Green Streets, Other GI Projects) are then modeled based on assumptions from the February 15th memorandum, but the amount and combination of those GI projects are determined through cost optimization performed by the RAA to meet the pollutant load reduction target.

Decision 2: Are there any suggested changes to the modeling assumptions documented in the attached February 15th memo, before modeling begins?

Table 1-1. Summary of structural control measure types

Order	GI Type	Fixed Size/Number of Projects	Optimized Size/Number of Projects
1	Existing Projects	●	--
2	Future New and Redevelopment	●	--
3	Regional Projects (identified)	●	--
4	Green Streets (low, medium, high priority)	--	●
5	Other GI Projects	--	●[1]

1: Additional stormwater capture projects considered when other categories of SCMs are determined insufficient to meet pollutant reduction targets.

After modeling and cost-optimization has been performed for each city and unincorporated county area, the GI types presented in Table 1-1 will be summarized by jurisdiction in a single implementation "recipe" capable of meeting the required pollutant load reduction. Figure 1-1 presents an example GI recipe for showing the distribution of selected GI categories versus incremental reductions in pollutant loading and increasing cost. A unique GI recipe will be developed for each jurisdiction representing the distribution of GI categories recommended through the RAA. The results of the RAA will be presented as tables and maps for each jurisdiction, and will set the goals for GI planning efforts for each agency. The presentation of output from the RAA will be discussed further in future documentation.

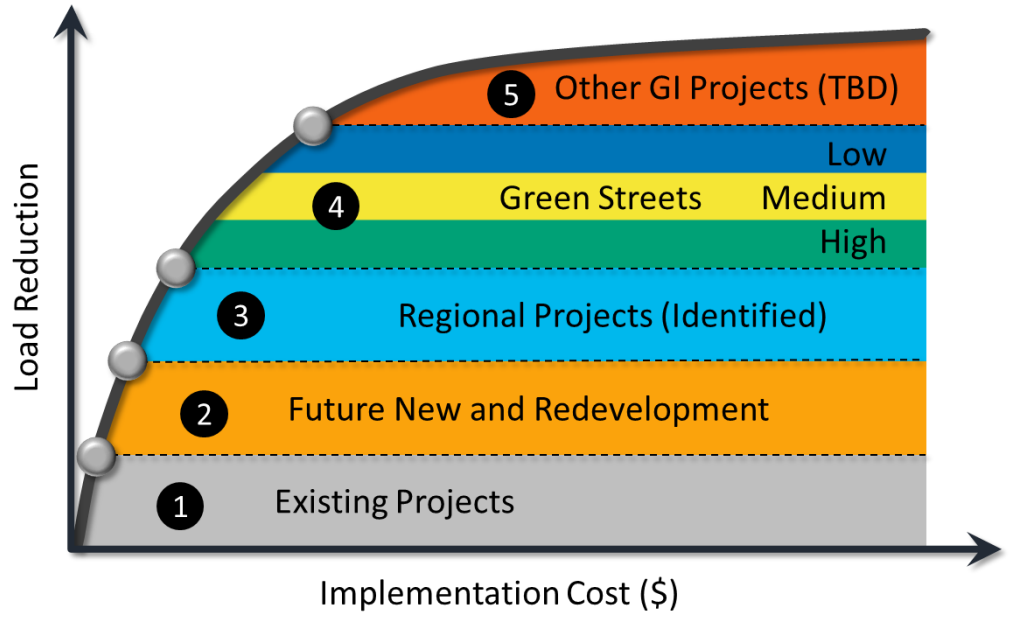


Figure 1-1. Example implementation recipe showing the general sequencing of GI categories.

Existing Projects

The RAA model incorporates existing projects which are already providing a benefit in terms of runoff volume and pollutant load reduction. The list of existing projects within each jurisdiction was developed through discussions with agency staff and by compiling project details from MRP annual reports related to Provision C.3 implementation. This inventory goes back to when C.3 stormwater treatment was first required in San Mateo County in 2005. It is anticipated that most of the existing projects utilized GI/LID features; therefore, existing projects are represented in the RAA model using a generalized configuration. Contributing drainage area for these projects is represented using the recorded parcel area for each project.

Future New and Redevelopment

LID for new and redevelopment represents the implementation of Provision C.3 requirements which will largely fall on third-party private developers. A methodology was developed based on the commonly-used planning unit Traffic Analysis Zones (TAZ) from the *San Mateo Countywide Transportation Plan 2040* (see attached memo) to spatially distribute the projected implementation of stormwater control measures across the county. Based on this analysis, by 2040 a total of 1,837.1 acres of urban land is estimated to be subject to stormwater management requirements consistent with the Provision C.3 technical guidance with 88% of that area in watersheds draining to San Francisco Bay.

Regional Projects (Identified)

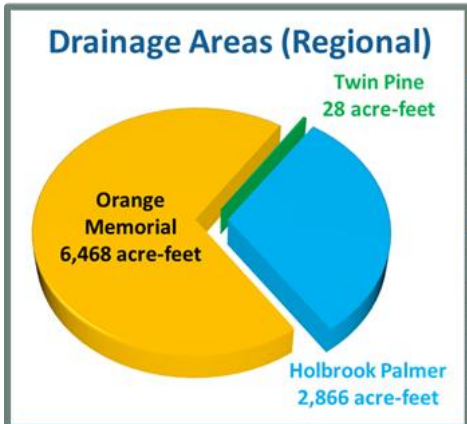
Regional projects typically capture runoff from a larger contributing area than other stormwater control measures. Three regional projects included in the SRP are incorporated directly into the RAA model. Since design concepts have already been developed for these 3 projects, the current known contributing drainage areas and structural designs (e.g. capacity) and site characteristics (e.g. infiltration rates) are represented in the RAA model.

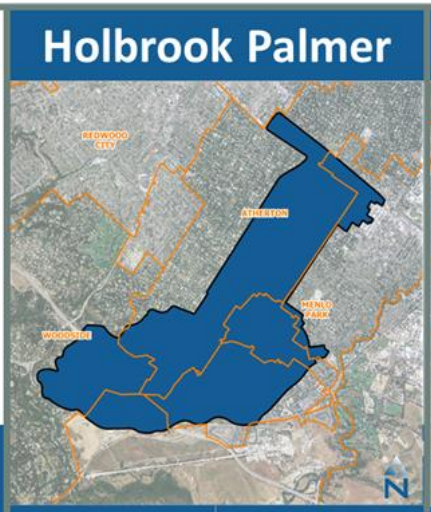
Table 1-2 summarizes the three regional projects with conceptual designs that have been incorporated into the RAA along with the primary jurisdiction where the project is located. In two instances, Orange Memorial Park and Holbrook-Palmer Park, the contributing drainage area extends to upstream jurisdictions, as shown in Figure 1-2. In these cases, a portion of the project benefits and cost can be attributed to the upstream jurisdictions based on contributing drainage area.

Decision 3: Presently, there are three Regional Project concepts available from the SRP that can be modeled. As designs proceed with these projects, modeling assumptions can be further refined based on changes from the original concepts. Are there other Regional Projects that should be considered for development of concepts and modeling assumptions for the RAA?

Table 1-2. Summary of regional projects represented in the RAA

Project Name	Primary Jurisdiction	# of Contributing Jurisdiction
Holbrook-Palmer Park	Atherton	4
Orange Memorial Park	South San Francisco	6
Twin Pines Park	Belmont	--





Jurisdiction	Total Area (Acres)	Holbrook Palmer		Orange Memorial		Twin Pine	
		Acres	%	Acres	%	Acres	%
Atherton	703	703	24%	--	--	--	--
Belmont	28	--	--	--	--	28	100%
Colma	1,225	--	--	1,225	19%	--	--
Daly City	2,054	--	--	2,054	32%	--	--
Menlo Park	1,297	1,297	45%	--	--	--	--
Pacifica	18	--	--	18	0.3%	--	--
San Bruno	21	--	--	21	0.3%	--	--
South San Francisco	1,913	--	--	1,913	30%	--	--
Woodside	420	420	15%	--	--	--	--
San Mateo County	1,683	446	16%	1,237	19%	--	--
Total	**9,362**	**2,866**	**100%**	**6,468**	**100%**	**28**	**100%**

Figure 1-2. Contributing drainage area distribution by jurisdiction for identified regional capture projects.

Green Streets

Green street implementation involves the use of bioretention, permeable pavement, or a combination of both to capture, treat, and infiltrate runoff generated from roadways or adjacent parcels contributing to the right-of-way. For the SRP, identification of suitable streets focused on local neighborhood roads, city streets, parking lot roads, and alleys. These functional classes typically exhibit characteristics of lower traffic volume and lower speed limits as opposed to major arteries, collector roads, and highways which have an effect on long-term GI performance and cost. Contributing drainage area was represented as right-of-way area and a percentage of adjacent parcel area estimated to flow directly to the right-of-way. Based on the SRP scoring and prioritization methodology discussed in Section 2, three categories of green streets can be represented in the RAA to facilitate implementation planning:

- High Priority – Project opportunities scoring in the top 90th percentile
- Medium Priority – Project opportunities scoring between the 65th and 90th percentile
- Low Priority – Remaining project opportunities scoring below the 65th percentile

These sub-categories can be explicitly represented in each jurisdiction's recipe (Figure 1-1) to provide more specificity for GI plans.

Decision 4: The present plan is to explicitly represent the High, Medium, and Low Priority Green Street opportunities in the RAA. Recall that the RAA will use this information to set goals for GI planning, and through adaptive management, there will be opportunity to implement other projects to meet these goals. Are there any reasons why the High, Medium, and Low Priority Green Streets should not be represented in the RAA?

Other GI Projects

In some cases, the required pollutant reduction may be greater than can be achieved with the above Existing Projects, Future New and Redevelopment, Regional Projects (identified), and Green Streets. When necessary, another GI category, "Other GI Projects," can be included in the RAA model. Because specific opportunities for implementing these features have not been thoroughly investigated, the RAA modeling will represent these as generalized project capacities which could be a mix of green streets, regional projects, or other LID measures. The SRP included screening and prioritization methodologies for regional capture projects and public LID retrofits for public parcels (resulting in *high*, *medium* and *low* priority sub-categories like green streets), however, these sub-categories are not being represented in the RAA recipe explicitly. The results of the SRP screening and prioritization of public parcels for GI projects provide agencies a head start for GI Plans to determine what projects are needed to meet goals for Other GI Projects, if this category is determined necessary by the RAA for a jurisdiction to meet pollutant reduction targets. A summary of the process for screening and prioritizing opportunities for retrofitting public parcels with LID or regional capture projects is provided in Section 2.

2 SUMMARY OF SRP PROCESS FOR SCREENING AND PRIORITIZATION OF GI PROJECT OPPORTUNITIES

As outlined in Section 1, the RAA is planning to incorporate: (1) Regional Capture Projects identified in the SRP with conceptual designs available to developing modeling assumptions, and (2) prioritized opportunities for Green Streets based on a scoring methodology utilized by the SRP. While regional and LID project opportunities were also scored in the SRP, project details for these types of GI would need to be further investigated during conceptual design to provide modeling assumptions for the RAA. Assumptions of stormwater capture along linear street length may be applied to Green Streets, allowing the prioritized Green Street opportunities from the SRP to be incorporated into the RAA. However, the prioritized opportunities for LID retrofit and regional projects for public parcels can support GI planning efforts to identify other GI projects in the future.

The purpose of this section is to provide a summary of the SRP process for screening and prioritizing green streets, regional projects on public parcels, and LID retrofit projects on public parcels, and provide C/CAG member agencies an opportunity to revisit these assumptions prior to initiation of the RAA and GI planning efforts. The process used during development of the SRP consisted of two steps: (1) screening of potential project locations and (2) a metric-based prioritization of screened project locations. Each project type was evaluated with different sets of metrics during the screening and prioritization.

Screening

Lists of project sites to be used in the prioritization method were created through the screening of the County parcel and rights-of-way GIS datasets. Separate lists were created for each project type; regional capture and LID sites were determined from the parcel dataset while green street sites were determined from the rights-of-way dataset. Ownership and land use information were used to screen the GIS datasets for public opportunities only. Other site characteristics, such as slope and parcel size, were then used to screen out the sites that may be unsuitable for inclusion of GI. Table 2-1 and Table 2-2 show the criteria used to produce the lists of project opportunities that are later used in the prioritization process. The screening process is used to "weed out" sites where GI is either infeasible or ineffective. The results of the screening process are then used to prioritize sites that are most effective for implementation of GI.

Note that for screening of street rights-of-way (Table 2-2), the street classifications used in the TIGER database were used to identify viable opportunities for Green Streets. An additional screening was performed based on State Highways, which resulted in El Camino Real screened out (State Highway 82). For the RAA, El Camino Real will be added back to the list of Green Street opportunities considered.

Decision 5: Are there other streets that were screened out during the SRP that should be added for the RAA? Or alternatively, should we not use the State Highways classification for screening out Green Street opportunities?

Table 2-1. Screening criteria for parcels

Screening Factor	Parcel Characteristic	Criteria	Reason
Public Parcels	Ownership	City, County, or Town	Identify all public parcels for regional storm and dry weather runoff capture projects or onsite LID retrofits
	Land Use	Park, School, Other (e.g., Golf Course)	
Suitability	Parcel Size	≥0.25 acres	Adequate space for regional stormwater and dry weather runoff capture project
		<0.25 acres	Opportunity for onsite green infrastructure retrofit
	Average Parcel Slope	< 10 %	Steeper grades present additional design challenges

Table 2-2. Screening criteria for rights-of-way

Screening Factor	Street Section Characteristic	Criteria	Reason
Selection	Functional Class	S1200[1] S1400[2] S1730[3] S1780[4]	Local neighborhood road, rural road, city street, alley, parking lot roads
Suitability	Ownership	Public	Potential projects are focused on public and right-of-way opportunities
	Road Slope	< 5%	Steep grades present additional design challenges; reduce capture opportunity due to increased runoff velocity

[1]TIGER classification: Secondary road (arterial streets)
[2]TIGER classification: Local neighborhood road, rural road, city street
[3]TIGER classification: Alley
[4]TIGER classification: Parking lot road

Prioritization and Scoring

A quantitative metrics-based analysis was conducted to assign each project location a score based on key metrics that are indicators of project effectiveness in terms of stormwater capture and pollutant load reductions. Separate scoring processes were developed for the three types of GI projects. Scoring criteria for each project type are presented in Table 2-3 through Table 2-5. A project's priority score was determined by summing all the points assigned from the evaluated physical characteristics, proximity to areas of interest, potential for co-locating projects, and various multiple benefits. A factor is assigned to each individual category to modify the weight given during the prioritization step. The scoring criteria and associated weighting factors were established based on discussions with C/CAG

member agencies regarding their importance to the community (e.g., reduce flood risk), regulatory drivers (e.g., TMDLs for PCBs), and ability to leverage other funding opportunities to increase likelihood of implementation (e.g., co-location with currently planned projects).

Physical characteristics of opportunity sites are key considerations in the prioritization process, as these typically serve as surrogate indicators of the expected effectiveness of each project. For each indicator, quantitative scores and project ranking were assigned based on anticipated project effectiveness of stormwater capture.

In addition to physical site characteristics, several special considerations were included to account for high opportunity and currently planned capital improvement projects as well as consideration of potential multiple benefits. Each metric that is considered in the prioritization process is explained in detail below.

Decision 6: There is opportunity before the RAA proceeds to revisit the prioritization process used in the RAA. This mostly impacts Green Streets, if High, Medium, and Low Priorities are considered for the RAA (see Decision 4, page 6). Are there any suggested changes for the metrics and scoring of projects used in the SRP prioritization process shown in Tables 2-3 through 2-5?

Physical Characteristics

Parcel land use *(regional and LID only)* was used to prioritize regional capture and LID projects based on land uses that are generally conducive to those types of projects. For example, regional projects were given higher priority on parks or other public open space where a regional project can be implemented with adequate footprint and minimal disturbance to existing uses. For LID projects, public buildings and parking lots receiving higher scores where LID can be integrated into existing hardscape without greatly impacted the existing use of the parcel.

Street type *(green street only)* is used to prioritize sites that are most suitable for green street opportunities. Heavily-used streets can require increased maintenance and reduce system performance. Highest priority is given to local neighborhood roads, city streets, parking lot roads, and alleys, while lower priority is given to major arterials, collector roads, and highways.

Parcel size *(regional only)* parcel size is prioritized to ensure that regional project sites have adequate space to capture and treat runoff from large drainage areas.

Impervious area is used to prioritize sites with large runoff potential. Because one of the primary goals is pollutant reduction through stormwater capture, implementation in high runoff-producing areas ensures the effective placement of SCM projects.

Hydrologic soil group is used to prioritize projects in areas with well-drained soils. Infiltration of captured stormwater is often a primary treatment mechanism in SCMs. Priority is given to projects located over Group A (well-drained) soils, while least priority is given to projects located over Group D (poorly-drained) soils.

Slope is considered in the priority scoring as higher slopes often present additional design challenges. Mild slopes are often preferred for most types of SCMs as greater volume can be captured and less maintenance is usually required. Mild slopes also promote greater infiltration capability.

Special Considerations

Flood-prone streams may benefit from the implementation of SCMs and so are considered in the prioritization. SCMs, if distributed throughout a watershed, may help to mitigate flood risks and reduce hydromodification impacts by limiting the volume of runoff that reaches impacted streams. Only projects within the subwatershed of a flood-prone stream are considered for this metric. Higher

priority was given to sites closest to the flood-prone streams with the assumption that more upstream area could potentially be captured.

PCB interest areas are examined to give higher scores to projects with potential for source control. Siting of stormwater capture projects in PCB interest areas can potentially address water quality issues. Areas of "high interest" are given higher priority than "moderate interest," while areas that did not contain an interest area are given the lowest priority. PCB interest areas were identified by assessing parcel information, including past and current land uses, and are explained in greater detail in the SRP (Section 2.8.1).

Co-located planned projects are an important factor in prioritization due to the opportunity to leverage support from other improvement efforts. Each jurisdiction was given the opportunity through a survey to submit public projects (e.g. municipal capital improvement projects) to be considered in the prioritization. Projects from the Safe Routes to School program, a coordinated effort between C/CAG and the San Mateo County Office of Education, were also added to this list. Projects within 500 feet of another public project are considered co-located and are given higher priority.

Projects that drain to TMDL waters are given higher priority. The San Francisco Bay is subject to several TMDLs that require reductions in pollutant loads over the next several decades. Projects located in watersheds that drain to Bay TMDL waters were given higher scores. Implementation of GI in these watersheds will result in the enhancement of streams that lead to TMDL waters.

Projects above a groundwater basin were given higher priority for the opportunity to recharge the groundwater aquifer. Since infiltration is a common component of GI, recharge of the local groundwater supply can be a potential benefit.

Multiple benefits are considered in the prioritization of project sites. These benefits include augmenting water supply, source control, restoration of natural hydrology, enhancement of habitat and open space, and community enhancement. Detailed descriptions of each multiple benefit are outlined in the SRP (Section 4.2.1.6). Each project type was given points based on a different set of multiple benefits. For example, projects located above an aquifer were given a point for augmenting water supply. All projects were assigned points for source control, restoration of natural hydrology, and community enhancement since these are common benefits achieved by GI. Other points for multiple benefits were given if listed in the project survey submitted by each city.

FINAL SCORING

The final score for each project is determined by the sum of points received for each metric, with weighting factors applied. The result is a prioritized list with the most effective projects rising to the top. For use in the RAA (described in Section 1), these projects were categorized into high, medium, and low priorities. "High Priority" projects are the top 90th percentile projects. "Medium Priority" projects are those that scored between the 65th and 90th percentiles. "Low Priority" projects consist of the remaining lowest scoring projects. Note, the three project types are scored separately.

Table 2-3. Prioritization metrics for regional capture projects

	Points						Weight Factor
	0	1	2	3	4	5	
Parcel Land Use	--	--	Schools/Golf Courses	Public Buildings	Parking Lot	Park / Open Space	--
Impervious Area (%)	X < 40	40 ≤ X < 50	50 ≤ X < 60	60 ≤ X < 70	70 ≤ X < 80	80 ≤ X < 100	--
Parcel Size (acres)	0.25 ≤ X < 0.5	0.5 ≤ X < 1	1 ≤ X < 2	2 ≤ X < 3	3 ≤ X < 4	4 ≤ X	--
Hydrologic Soil Group	--	D	Unknown	C	B	A	--
Slope (%)	5 < X ≤ 10	4 < X ≤ 5	3 < X ≤ 4	2 < X ≤ 3	1 < X ≤ 2	0 < X ≤ 1	--
Proximity to Flood-prone Channels (miles)	Not in sub-basin	3 < X	--	1 < X ≤ 3	--	X ≤ 1	2
Contains PCB Risk Areas	None	--	--	Moderate	--	High	2
Currently planned by City or co-located with other City project	No					Yes	2
Drains to TMDL water	No					Yes	
Above groundwater basin	No		Yes				--
Augments water supply	No	Yes					--
Water quality source control	No	Yes					--
Reestablishes natural hydrology	No	Yes					--
Creates or enhances habitat	No	Yes					--
Community enhancement	No	Yes					--

Table 2-4. Prioritization metrics for green street projects

	Points						Weight Factor
	0	1	2	3	4	5	
Street Type	Highway	--	Arterial	Collector	Alley	Local	--
Imperviousness (%)	X < 40	40 ≤ X < 50	50 ≤ X < 60	60 ≤ X < 70	70 ≤ X < 80	80 ≤ X < 100	--
Hydrologic Soil Group	--	D	Unknown	C	B	A	--
Slope (%)	--	4 < X ≤ 5	3 < X ≤ 4	2 < X ≤ 3	1 < X ≤ 2	0 < X ≤ 1	--
Proximity to Flood-prone Channels (miles)	Not in sub-basin	3 < X	--	1 < X ≤ 3	--	X ≤ 1	2
Contains PCB Risk Areas	None	--	--	Moderate	--	High	2
Currently planned by City or co-located with other City project	No					Yes	2
"Safe Routes to School" program	No					Yes	2
Drains to TMDL water	No					Yes	--
Above groundwater basin	No		Yes				--
Augments water supply	No	Yes					--
Water quality source control	No	Yes					--
Reestablishes natural hydrology	No	Yes					--
Creates or enhances habitat	No	Yes					--
Community enhancement	No	Yes					--

Table 2-5. Prioritization metrics for public-parcel LID projects

	Points						Weight Factor
	0	1	2	3	4	5	
Parcel Land Use	--	--	Schools/Golf Courses	Park / Open Space	Parking Lot	Public Buildings	--
Impervious Area (%)	X < 40	40 ≤ X < 50	50 ≤ X < 60	60 ≤ X < 70	70 ≤ X < 80	80 ≤ X < 100	--
Hydrologic Soil Group	--	D	Unknown	C	B	A	--
Slope (%)	5 < X ≤ 10	4 < X ≤ 5	3 < X ≤ 4	2 < X ≤ 3	1 < X ≤ 2	0 < X ≤ 1	--
Proximity to Flood-prone Channels (miles)	Not in sub-basin	3 < X	--	1 < X ≤ 3	--	X ≤ 1	2
Contains PCB Risk Areas	None	--	--	Moderate	--	High	2
Currently planned by City or co-located with other City project	No					Yes	2
Drains to TMDL water	No					Yes	--
Above groundwater basin	No		Yes				--
Augments water supply	No	Yes					--
Water quality source control	No	Yes					--
Reestablishes natural hydrology	No	Yes					--
Creates or enhances habitat	No	Yes					--
Community enhancement	No	Yes					--