

**Grant Progress Report**  
**Bay Area Green Infrastructure Master Planning Project**  
**GA# 12-415-550**

**Progress Report # 5**

**Reporting Period: 7/01/2014 to 9/30/2014**

**Submittal Date 11/15/2014**

**Grant Agreement No:** 12-415-550

**Project Name:** Bay Area Green Infrastructure Master Planning Project

**Contractor Name:** San Francisco Estuary Partnership / ABAG

I certify under penalty of law that this document and any attachment was prepared by me or under my direction in accordance with the terms and conditions of each Grant Agreement Exhibit. Based on my inquiry of the persons or persons who manage the project, or those directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. All information submitted in this document and all attachments conform to and is in accordance with the state and federal laws and I so here certify with my signature. I am aware that there are significant penalties for submitting false or misleading information.

**Project Director:** \_\_\_\_\_  
Judy Kelly – Printed Name
Signature

**Summary of Work Completed To Date**

Work Item	Items for Review	Critical Due Date	Estimated Due Date	Percent Work Complete	Date Submitted
EXHIBIT A – SCOPE OF WORK TO BE PERFORMED BY THE GRANTEE					
A.	PLANS AND GENERAL COMPLIANCE REQUIREMENTS				
1.	GPS information for Project site and monitoring locations	Day 90		100%	10/26/13
2.	Monitoring and Reporting Plan	N/A	N/A	N/A	N/A
2.1	Project Assessment and Evaluation Plan (PAEP)	Day 90		100%	10/26/13
2.2	Monitoring Plan (MP)	N/A	N/A	N/A	N/A
2.3	Quality Assurance Project Plan (QAPP)	N/A	N/A	N/A	N/A
2.4	Proof of Water Quality Data Submission to CEDEN	N/A	N/A	N/A	N/A
3.	Copy of final CEQA/NEPA Documentation	Day 90		100%	10/26/13
4.	Public Agency Approvals, Entitlements, or Permits	N/A	N/A	N/A	N/A
B.	PROJECT-SPECIFIC REQUIREMENTS				
1.	Project Management				
1.2	Notification of Upcoming Meetings, Workshops, and Trainings		15 Days In Advance		
2.	TAC				

2.1	List of TAC Members, Their Affiliated Organizations, and Their Roles and Responsibilities		November 2013	100%	12/2/13
2.2	Three (3) TAC Meeting Agendas, Sign-In Sheets, and Minutes		As Needed	100%	8/15/14
2.3	TAC Status Report	December 31, 2014			
3.	Toolkit				
3.4	The Packaged Toolkit		February 2015		
3.5	Toolkit Technical Memorandum	April 30, 2015			
3.6	List of Communities and Staff Contact Information that Participated in Toolkit Demonstration		May 2015		
4.	Green Infrastructure Master Plans		May 2015		
4.1	Preliminary Meeting Minutes and a List of Selected Watersheds		February 2014	100%	12/31/13
4.2	Toolkit Results and Secondary Meeting Minutes		December 2014		
4.3	List of Potential LID Retrofit Sites Selected for Field Verification		December 2014		
4.5	List of Selected Sites for LID Conceptual Design		April 2015		
4.6	Green Infrastructure Master Plans		May 2015		
5.	Evaluation of Potential Funding Mechanisms				
5.1	Meeting Agendas, Sign-In Sheets, and Minutes		April 2015		
5.2	In-Lieu Fee Program Memorandum		May 2015		
6.	Education and Outreach				
6.1	Website Link		October 2013	100%	10/26/13
6.3	Webinar Material		July 2015		
6.5	Project Results Presentation Material		July 2015		
EXHIBIT B – INVOICING, BUDGET DETAIL, AND REPORTING PROVISIONS					
A.	INVOICING		Quarterly	55% (5/9)	11/15/14
G.	REPORTS				
1.	Progress Reports within forty-five (45) days following the end of the calendar quarter (March, June, September, and December)		Quarterly	55% (5/9)	11/15/14
2.	Annual Progress Summaries		Annually by 9/30		
3.	Natural Resource Projects Inventory (NRPI) Survey Form	Before Final Invoice			
4.	Draft Final Project Report	August 31, 2015			

5.	Final Project Report	October 31, 2015			
6.	Final Project Summary	Before Final Invoice			
7.	Final Project Inspection and Certification	Before Final Invoice			

## **Progress Report Narrative**

GreenPlan Bay Area is a collaborative effort between San Francisco Estuary Partnership (SFEP), San Francisco Estuary Institute (SFEI) and several Bay Area municipalities. SFEI will develop spatial tools which will be used by several Bay Area municipalities to develop plans that identify the optimal combination of Green Infrastructure (GI)/Low Impact Development (LID) features for achieving desirable outcomes at the watershed scale.

The spatial tools, aka Green-Plan-it, will include four components: a GIS siting tool with user interface to determine site suitability, a watershed model to identify high-yield runoff and pollutant areas ('hot spot'), optimization techniques to search for optimal combinations of LID locations, types and configurations, and a post-processor to compile and display outputs in user-friendly formats.

After development, Green-Plan-it will be pilot tested in several municipalities/watersheds. The results of Green-Plan-it will serve as the basis for municipal Green Infrastructure Master Plans and/or a list of priority LID sites for each jurisdiction. Conceptual designs will be developed for 8 LID sites/projects. Jurisdictions will also collaborate with ABAG/SFEP to explore potential funding frameworks (such as alternative compliance programs) for LID retrofits.

## **Summary of Activities**

- SFEP and SFEI held a TAC conference call with participating municipalities and TAC members on July 2<sup>nd</sup>, 2014 to discuss prioritizing the suggestions and revisions to the GreenPlan-it toolkit that were proposed during the June 17<sup>th</sup> TAC meeting. (agenda, summary and list of attendees submitted with Q4 quarterly report)
- SFEP and SFEI held a TAC conference call with participating municipalities and TAC members on September 10, 2014 to discuss prioritizing the suggestions and revisions to the GreenPlan-it toolkit. Agenda and Meeting Summary Attached.
- SFEI and SFEP staff met with the City of San Mateo staff on August 12<sup>th</sup>, 2014 to discuss the Green Plan-it toolkit developments and how to incorporate the findings into San Mateo's Sustainable Streets Plan.
- SFEI and SFEP staff held meetings with city staff from San Mateo and San Jose on September 24<sup>th</sup>, 2014 to present 90% outputs of the Green Plan-it toolkit and to solicit comments and feedback.
- SFEI staff gave a presentation of Green Plan-it to the City of Oakland staff.
- SFEI continued development of the optimization and site locator modules of GreenPlan-IT, including consultations with technical advisors. This is documented in the attached SFEI quarterly progress report. The group utilized comments and suggestions made in the TAC meetings to refine and revise the functionality and contents of the GreenPlan-it modeling and GIS tools.
- SFEP and SFEI worked with the City of San Mateo to create a memo for inclusion in San Mateo's Sustainable Streets Plan.
- Consultant Dan Cloak began planning for 8 conceptual designs with cities of San Jose and San Mateo
- SFEP staff continued research on Alternative Compliance program models.
- SFEP completed updates to the GreenPlan Bay Area webpage including meeting notes and agendas. [www.sfestuary.org/greenplanning](http://www.sfestuary.org/greenplanning).

## **Summary of Items for Review**

Invoice #5

### **Project Administration** (Cumulative 55% complete)

Project administration during this quarter has included the completion of Invoice 4, project management including completing the quarterly report, updating the project website, reviewing project deliverables submitted by SFEI and attending team meetings.

### **Project Design** (Cumulative 50% complete)

Project design included the tasks listed on the attached SFEI quarterly progress report as well as attending development meetings with staff from participating municipalities and SFEI; reviewing documents and providing input.

## **Exhibit A Deliverables**

B(G)1 - Progress Reports (Cumulative 55%, 5 out of 9 complete) - continues on a quarterly basis no delays or issues to report.

#### **Attachments**

1. SFEI progress report #5 (Quarter 5 – July 1, 2014 through September 30, 2014)
2. San Mateo Sustainable Streets Plan Memo
3. TAC meeting September 10, 2014 – Meeting agenda and summary attached
4. Meeting with San Mateo staff – August 12<sup>th</sup>, 2014 - Meeting notes and list of attendees
5. Meeting with San Jose staff – September 24<sup>th</sup>, 2014 - Meeting notes and list of attendees
6. Meeting with San Mateo staff – September 24<sup>th</sup>, 2014 - Meeting notes and list of attendees
7. Match Documentation
  - Item 1 - Meeting with San Mateo staff – August 12<sup>th</sup>, 2014
  - Item 2 - Meeting with San Mateo staff – September 24<sup>th</sup>, 2014
  - Item 3 - Meeting with Jose staff – September 24<sup>th</sup>, 2014

#### **Summary of Items in Progress**

##### **SFEP**

- Exhibit A - B(G)1 Progress Reports - continues on a quarterly basis; no delays or issues to report.
- Exhibit B5 Evaluation of potential funding mechanisms - alternative compliance research
- Exhibit B4.2 Toolkit results and secondary meeting minutes - meetings with San Jose and San Mateo to present GreenPlan-IT outputs
- Exhibit B4.3 Developing list of Potential LID retrofit sites for field verification

##### **SFEI**

- Updating GreenPlan-IT Model
- Exhibit B4.3 Developing list of potential LID retrofit sites for field verification
- Exhibit B2.3 TAC status report
- 8 conceptual designs with cities of San Jose and San Mateo



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### Green Infrastructure Master Planning Project Quarterly Progress Report Q5 2014

#### **Task 1: Project Assessment and Evaluation Plan**

##### **Work Completed during the Period**

- No work completed on this task during Quarter 5

#### **Task 2: Technical Advisory Committee**

##### **Work Completed during the Period**

- SFEI prepared for and held the 3rd project TAC meeting.
  - SFEI prepared for and held the 3rd TAC on July 2, 2014. The agenda, powerpoint presentation and meeting summary from the TAC meeting is included in this submittal.
  - SFEI prepared for and held the 4th TAC meeting on September 10, 2014. The agenda and meeting summary from the TAC meeting is included in this submittal.

#### **Task 3: LID Toolkit**

##### **Work Completed during the Period**

- SFEI continued to hold internal meetings to check in on project progress, discuss technical questions, and plan project next steps.
- Staff continued to work with Jennifer Walker of WatEarth. Tasks completed included:
  - Developed definitions for each LID/BMP type in the base analysis.
  - Developed sizing criteria for each LID/BMP type in the base analysis
- SFEI continued to work on development of the optimization and site locator modules. Staff reached the 90% complete mark at the end of September for both modules.
- SFEI Staff prepared for and held a meeting with our project partner cities (San Mateo and San Jose) on September 24th. Staff presented the 90% output to each city and solicited comments and feedback. Additional changes were made to the site locator tool including adding a feature for the tool to output the map as a Google Earth document.
- SFEI staff worked with the City of San Mateo and SFEP on a memo for inclusion in the San Mateo Sustainable Streets Plan. The memo is included in this submittal.
- SFEI staff began documenting the toolkit modules including user and technical documentation. SFEI staff worked to develop match documentation for the project.

#### **Task 4: Green Infrastructure Master Plans**

##### **Work Completed during the Period**

- SFEI and Dan Cloak attended meetings on September 24, 2014 with the cities of San Mateo and San Jose. In addition to describing how GreenPlan-IT works, discussions were held as to how the GreenPlan-IT outputs will be useful in city planning efforts.
- Dan Cloak of DCEC began planning for the 8 conceptual designs with cities of San Mateo and San Jose

#### **Task 5: Education and Outreach**

##### **Work Completed during the Period**

- Staff prepared for and gave a presentation to the City of Oakland on the Green Plan-IT toolkit.



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**Tuesday, October 07, 2014**

**TO: City of San Mateo**

**FR: San Francisco Estuary Institute**

**RE: Memo for City of San Mateo Sustainable Streets Plan**

### **Background**

Green Infrastructure is a highly effective stormwater management technique for reducing runoff and contaminant loads from urban and developed areas. The City of San Mateo will be incorporating Green Infrastructure into its Complete Streets program, which will be one of the drivers for the City's Sustainable Streets Plan. GreenPlan-IT, a GIS and modeling tool developed by San Francisco Estuary Institute, is being piloted by the City to help identify the optimal combination of Green Infrastructure features and sites for achieving predetermined and desirable outcomes at the watershed scale.

### **How does GreenPlan-IT Work?**

GreenPlan-IT has an Arc-GIS based site locator module to identify, rank, and map potential Green Infrastructure locations, a hydrologic and water quality module that quantifies reductions in stormwater and associated pollutants, and an optimization module that uses cost-benefit analyses to identify the best combinations of Green Infrastructure types and sites within a watershed for achieving load reduction goals.

### **City of San Mateo's Involvement**

The City of San Mateo is a Green Plan-IT partner and assisted in the development of the pilot site locator tool. The City provided SFEI with the following GIS data layers as inputs for the tool: street centerlines, StreetSaver data, sidewalks, facilities, pedestrian trails, potential pedestrian trails, street tree locations, stormdrain lines, catch basins, fire running lanes, San Mateo Greenway Network, lagoons, streams, lakes, schools, libraries, city hall, parks, and City-owned parcels. Regional data layers included: Bay Area Priority Development Areas, CARI Wetlands, Open Street Maps (OSM) parking lots, OSM Parks, California Protected Areas, and regional bike facilities). San Mateo staff also participated in several discussions with SFEI to prioritize the data layers, which is the mechanism for calculating site priority rankings. Priority Development Areas were the most highly weighted data layer since this is an area slated for future emphasis in the city. Data layers associated with future funding opportunities were also weighted more heavily. The site locator tool has end-user flexibility with access to the tool's engine resulting in an iterative tool that can be fine-tuned as additional local data, with better resolution, become available.

### **GreenPlan-IT Outputs**

Based on City prioritization, the site locator tool identified 18 acres of City-owned property or right-of-way as highly ranked locations for potential Green Infrastructure implementation, 113 acres as moderately ranked, and 11 acres as lower ranked locations. In total, 142 acres were identified as feasible locations for Green Infrastructure. These locations are shown Figure 1 and are distinguished by color gradations according to the legend scale. The tool also produced feasible Green Infrastructure locations for privately owned property.

**Recommended Next Steps:** City staff can now use toolkit outputs in combination with other local knowledge such as flood prone areas, areas for redevelopment, and educational opportunities as a step in identifying optimized Green Infrastructure placement. The site locator tool outputs will be incorporated into San Mateo's Sustainable Streets Plan as an important facet of the City's vision and planning. By managing runoff close to its source through smart Green Infrastructure placement, we can enhance the local environment, protect public health, and improve community livability.



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### Green Plan-IT Technical Advisory Committee (TAC)

#### Meeting Agenda

September 10, 2014, 1:00pm – 2:30pm

WebEx and Phone Information below

Item	Title	Time	Staff
1	<b>Introduction</b> <ul style="list-style-type: none"><li>• Introductions,</li><li>• Goals for today's meeting</li></ul>	1:00	Lester McKee
2	<b>LID Site Locator Tool</b> <ul style="list-style-type: none"><li>• Update on progress since last TAC meeting and next steps</li></ul>	1:05	Pete Kauhanen
3	<b>LID Modeling Tool development (Hydrologic model)</b> <ul style="list-style-type: none"><li>• Update on sediment modeling recommendation from 1<sup>st</sup> TAC meeting and next steps</li><li>• <b>Question:</b> What is the ratio of LID footprint area to impervious treated area?</li></ul>	1:15	Jing Wu
4	<b>LID Optimization Tool development (linking site locator and modeling modules through statistical optimization)</b> <ul style="list-style-type: none"><li>• Update on progress since the last TAC meeting and next steps</li></ul>	1:25	Jing Wu
5	<b>LID Feature Sizing Criteria</b> <ul style="list-style-type: none"><li>• Discuss sizing estimates for each LID feature type<ul style="list-style-type: none"><li>○ Bioretention</li><li>○ Vegetated Swale</li><li>○ Permeable pavement</li><li>○ Infiltration trench</li><li>○ Stormwater wetland</li><li>○ Wet pond</li></ul></li></ul>	1:35	Lester
6	<b>LID Feature Cost</b> <ul style="list-style-type: none"><li>• Discuss cost estimates for implementing each LID feature type<ul style="list-style-type: none"><li>○ Bioretention</li><li>○ Vegetated Swale</li><li>○ Permeable pavement</li><li>○ Infiltration trench</li><li>○ Stormwater wetland</li><li>○ Wet pond</li></ul></li></ul>	2:00	Lester
7	<b>Adjourn</b>	2:30	

#### Join WebEx meeting

Meeting number: 627 701 694

#### Join by phone

[1-650-479-3208](tel:1-650-479-3208) Call-in toll number (US/Canada)

Access code: 627 701 694





## **Green Plan-IT Technical Advisory Committee (TAC)**

### **Meeting Summary**

**September 10, 2014, 1:00pm – 2:30pm**

<b>Item</b>	<b>Title</b>	<b>Meeting Discussion/ Outcomes</b>
<b>1</b>	<b>Introduction</b> <ul style="list-style-type: none"><li>Jennifer Krebs, Sarah Sutton, Dino, Kristen Hathaway, Bryan Apple, Kathy Cody, Peter Schultz-Allen, Matt Fabry, Jennifer Walker, Jill Bicknell, Ken Chin, Melody (city of Sunnyvale), Elaine Marshall</li></ul>	<ul style="list-style-type: none"><li></li></ul>
<b>2</b>	<b>LID Site Locator Tool</b> <ul style="list-style-type: none"><li>Update on progress since last TAC meeting and next steps</li></ul>	<ul style="list-style-type: none"><li>Made changes to the tool to not exclude locations based on the base analysis.</li><li>There will be more funding directed towards PDAs in each city.</li><li>Matt Fabry: Don't overweight something from economic vs technical perspective.</li><li></li></ul>
<b>3</b>	<b>LID Modeling Tool development (Hydrologic model)</b> <ul style="list-style-type: none"><li>Update on sediment modeling recommendation from 1<sup>st</sup> TAC meeting and next steps</li><li><b>Question:</b> What is the ratio of LID footprint area to impervious treated area?</li></ul>	<ul style="list-style-type: none"><li>Improved sediment calibration a bit but probably can't get much better with the data we have.</li></ul>
<b>4</b>	<b>LID Optimization Tool development (linking site locator and modeling modules through statistical optimization)</b> <ul style="list-style-type: none"><li>Update on progress since the last TAC meeting and next steps</li></ul>	<ul style="list-style-type: none"><li>Programming is done for this module.</li></ul>
<b>5</b>	<b>LID Feature Sizing Criteria</b> <ul style="list-style-type: none"><li>Discuss sizing estimates for each LID feature type<ul style="list-style-type: none"><li>Bioretention</li><li>Vegetated Swale</li><li>Permeable pavement</li><li>Infiltration trench</li><li>Stormwater wetland</li><li>Wet pond</li></ul></li></ul>	<p>Sizing criteria</p> <ul style="list-style-type: none"><li>Standard to use surface area for sizing criteria</li><li>SWMM uses an aggregated (lumped) approach for all LIDs identified within a drainage area.</li><li>Ratio of LID footprint to impervious treated area will have large impact on modeling solution<ul style="list-style-type: none"><li>There are specific sizing criteria in the MRP for redevelopment. Most common approach is 0.2 inches per hour. ROW LID</li></ul></li></ul>

Item	Title	Meeting Discussion/ Outcomes
		<p>implementation is often limited by size that may not meet the MRP sizing criteria.</p> <ul style="list-style-type: none"> <li>○ Private should be 4% ratio</li> <li>○ Public is more tricky due to limited space available</li> <li>○ 5% rule is used by Region 10 as well. Probably don't have enough opportunities to achieve 100% treatment. Run the full range of treatment options and then can see what solutions exist.</li> <li>○ Proposal: Run 2, 4, 6, 10% scenarios of the total drainage area as sizing and run full range of treatment percentages (0-100%). Have the tool use as many as real world numbers as possible.</li> </ul>
6	<p><b>LID Feature Cost</b></p> <ul style="list-style-type: none"> <li>• Discuss cost estimates for implementing each LID feature type <ul style="list-style-type: none"> <li>○ Bioretention</li> <li>○ Vegetated Swale</li> <li>○ Permeable pavement</li> <li>○ Infiltration trench</li> <li>○ Stormwater wetland</li> <li>○ Wet pond</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Use costs of construction, engineering, design, maintenance and operations in cost estimates.</li> <li>• Kristen Hathaway, Sarah Sutton, Peter Schultz-Allen has some cost estimates (bio retention and streetscape). Bids are coming in high right now since economy is doing well.</li> <li>• Use higher estimates since they are more realistic</li> <li>• Talk with San Mateo County about grassy swales</li> <li>• Could there be options for small and large feature cost that take into economy of scale? Probably too complicated to have different per unit costs based on size. Can do post analysis to compare costs</li> <li>• We are planning to run a sensitivity analysis with a range of costs to see how costs affect the cost/benefit analysis</li> </ul>

Item	Title	Meeting Discussion/ Outcomes
		<ul style="list-style-type: none"> <li>• Take out vegetated swale from optimization module – can add in with future funding. <b>SFEI will look into adding a user defined option for adding in vegetated swales.</b></li> <li>• <b>SFEI will get some additional cost data and send the tables around for review with our recommendation via email</b></li> </ul>
<b>7</b>	<b>Adjourn</b>	Jen Hunt

## GreenPlan San Mateo Meeting Minutes

8-12-14, 9:30 to 11:30 am

### San Mateo Conference Room C

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Attendees: Dan Cloak (DCE), Lester McKee & Pete Kauhanen (SFEI), Josh Bradt & Jennifer Krebs (SFEP), Ken Chin, Sarah Scheidt, Jocelyn Walker, Gary Heap (San Mateo), Matt Fabry (C/CAG)

Pete K of SFEI presented information on GreenPlan-IT (powerpoint attached)

Q & A -

Sarah - want to overlay PCB and trash areas to assure that the areas identified meet MRP compliance.

Ken – the improvements in GreenPlan-IT are great! It is cool, useful, and usable. I should have invited more folks to attend the meeting. It will help the city move from “pin the tail on the donkey” to a better approach. 2 areas to be included (maybe) are Bay Meadows and Humboldt offramp.

Gary – what is relevant about the Humboldt corridor - bids for work are coming back high – We can nix areas in non-high-priority areas.

Matt - how to incorporate this info in Sustainable Streets Plan?

Ken – The outputs should be in plan - maps etc. City will approve the plan in Feb/Mar. CEQA will take place in June/July. Then the Planning Dept will update City General Plan.

Next Steps:

- SFEI will schedule a follow up conference call to determine how to prioritize data layers, weighting issues, etc.
- This Group (expanded) will meet again in mid/late sept. to review the updated data outputs
- Site verification/site design. Dan Cloak will check out San Mateo drive and grant Ave. He will work on drawings to for the sustainable streets plan, or appendix, or ....
- Josh Bradt is working on alternative compliance methodologies. He presented an outline of thoughts to date and got feedback (outline attached). This will also be expanded by the next meeting.

Extra notes for Josh

Dan to date some developers have taken street run off or other uphill site. REstrictions will probably go away next MRP. Not too many projects will need offsite; so they might not really push public infrastructure. But might help city allow the development to happen. Josh - add swales to city parking lot.

Impact fees. Matt - in Portland they charge vehicle fees, Ken - San Mateo wants to add traffic fee, might be sustainable streets fee. Burlingame has SW fee.

Matt will try to make progress on regional level, but need help on local funding.

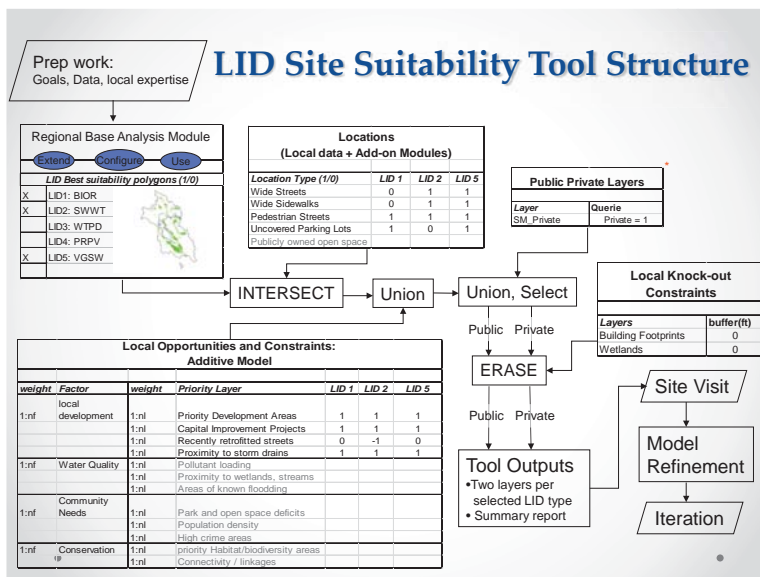
# GreenPlanIT LID Site Suitability Tool San Mateo Draft Output

Pete Kauhanen, [petek@sfei.org](mailto:petek@sfei.org)

San Mateo GreenPlanIT Meeting, 06/17/2014

## Presentation Outline

- Tool Structure
- User Input Tables
- San Mateo Draft Process
  - Maps
  - Tables
- San Mateo Draft Output



## User Input

- Check which LID types to run
  - Infiltration Trench\*
  - Bioretention
  - Permeable Pavement
  - Vegetated Swale
  - Storm Water Wetlands
  - Wet Pond
- Configuration Data Tables
  - The scale/accuracy of input data determines the scale/accuracy of the final outputs
  - Location Layer Table
  - Opportunities and Constraints Weighted Addition Table
    - Rank layer factors to match funding opportunities and local importance
  - Public Private Layer table
  - Knock-Out Constraint Table

# Base analysis table (check)

LID Selection	include	Location Analysis	Opportunities and Constraints	Ownership	Knockouts
LID1 (bior)	1	1	1	1	1
LID2	0	1	1	1	1
LID3	0	1	1	1	1
LID4	0	1	1	1	1
LID5	0	1	1	1	1
LID6	0	1	1	1	1



# Location table

Full_File_Name	layer alias	LID 1	LID 2	LID 3	LID 4	LID 5	LID 6	Assume_Public
G:\1_CleanWater\Conservation\StringToolAnalysis\GIS\ToolAnalysis.gdb\SM_ate\the_indiana_streetwidth_300_Lin	1InStreet_SideParking	1	1/0	1/0	1/0	1/0	1/0	1
G:\1_CleanWater\Conservation\StringToolAnalysis\GIS\ToolAnalysis.gdb\SM_ate\the_indiana_streetwidth_300_Lin	2InStreet_SideParking	1	1/0	1/0	1/0	1/0	1/0	1
G:\1_CleanWater\Conservation\StringToolAnalysis\GIS\ToolAnalysis.gdb\SM_ate\the_indiana_streetwidth_300_Lin	4ft+_Sidewalk_Plantar_Width	1	1/0	1/0	1/0	1/0	1/0	1
G:\1_CleanWater\Conservation\StringToolAnalysis\GIS\ToolAnalysis.gdb\SM_ate\the_indiana_streetwidth_300_Lin	8ft+_Sidewalk_Width	1	1/0	1/0	1/0	1/0	1/0	1
G:\1_CleanWater\Conservation\StringToolAnalysis\GIS\ToolAnalysis.gdb\SM_ate\the_indiana_streetwidth_300_Lin	Pedestrian Trails	1	1/0	1/0	1/0	1/0	1/0	0
G:\1_CleanWater\Conservation\StringToolAnalysis\GIS\ToolAnalysis.gdb\SM_ate\the_indiana_streetwidth_300_Lin	Potential Pedestrian Trails	1	1/0	1/0	1/0	1/0	1/0	0
G:\1_CleanWater\Conservation\StringToolAnalysis\GIS\ToolAnalysis.gdb\SM_ate\the_indiana_streetwidth_300_Lin	Parking_OSM	1	1/0	1/0	1/0	1/0	1/0	0
G:\1_CleanWater\Conservation\StringToolAnalysis\GIS\ToolAnalysis.gdb\SM_ate\the_indiana_streetwidth_300_Lin	Parks_OSM	1	1/0	1/0	1/0	1/0	1/0	0

## Location Details



- **Street-side parking**
  - 2 Lane
    - Width of street – (Width of street – 8ft on both sides)
    - Where there are at least 20ft of lane space left
  - 1 Lane
    - Width of street – (Width of street – 8ft on one side)
    - Where there is at least 10ft of lane space left
- **Wide Sidewalk**
  - Sidewalk width  $\geq 8$ ft
- **Wide Sidewalk Planter**
  - Planter width  $\geq 4$ ft

## Location Details



- **OSM Parks**
  - Open Street Maps
    - Free, Bay Wide
  - Not exhaustive
- **Pedestrian Trails**
  - Trail line buffered 4 ft (Bior width?)

## Location Details



- **OSM Parking**
  - Open Street Maps
    - Free, Bay Wide
  - Not exhaustive
  - Not high quality everywhere
  - Includes parking structures
    - Building foot prints?

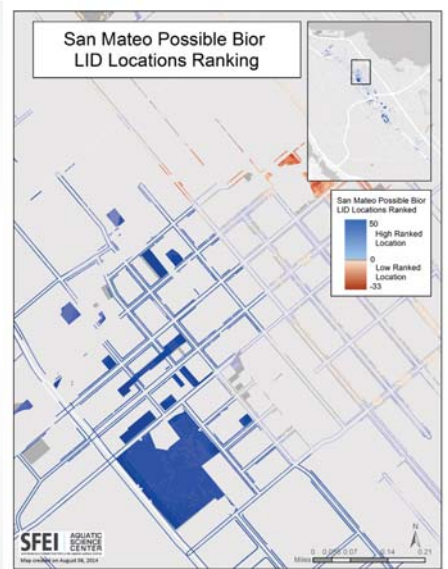
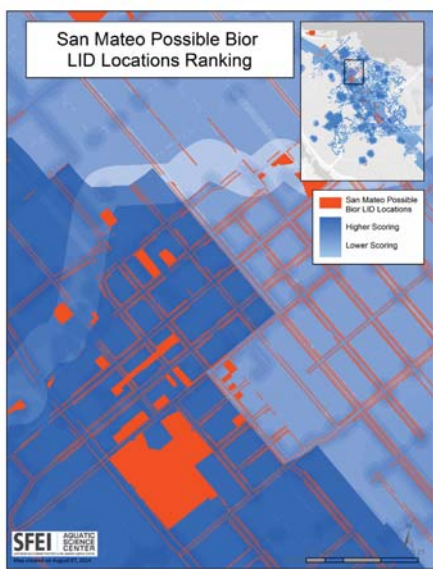
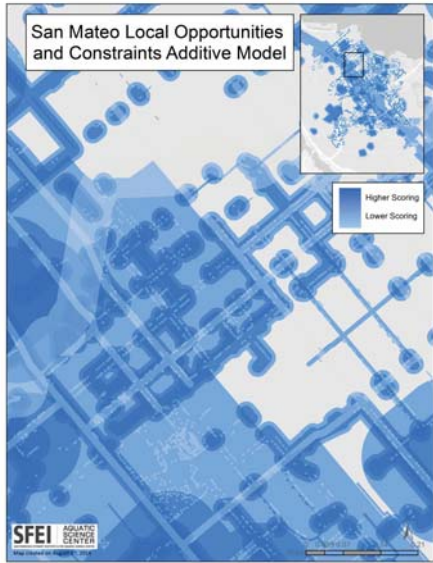






## Opportunities and Constraints Table

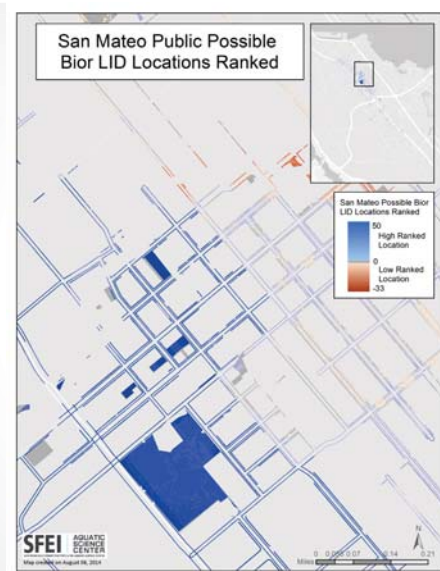
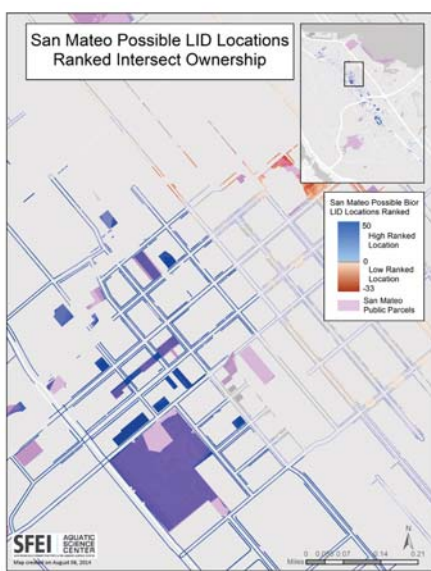
factor_weight	factor_name_alias (10 char)	factor	layer_weight	layer_name_alias (10 char)	layer_name	layer_filename	layername_i_n_file	layer_q_uerie	buffer_type	lid_1_r_ank	lid_1_r_buffer_ft
1/3	LocDev	local development	1	BayPDA	priority development areas	G:\1_CleanWater_GroundPat_LID\pat_Aquatic_Science_Priority_Development_Areas.shp	Priority_Development_Areas.shp		Full	1	0
1/6	IntllFeas	Install Feasibility	0.25	StrmLn60	Storm Line 60ft	G:\1_CleanWater_GroundPat_LID\pat_Storm_Line_60ft.shp	SD_STORMLINES.shp		Full	1	60(ft)
			0.25	StrmLn100	Storm Line 100ft	G:\1_CleanWater_GroundPat_LID\pat_Storm_Line_100ft.shp	SD_STORMLINES.shp		Full	1	100(ft)
			0.25	StTree12	Street Trees 12ft	G:\1_CleanWater_GroundPat_LID\pat_Street_Trees_12ft.shp	PARKS_STREET_TREES.shp		Full	-1	12(ft)
			0.25	StLi5	Street Lights 5ft	G:\1_CleanWater_GroundPat_LID\pat_Street_Lights_5ft.shp	STREETLIGHTS.shp		Full	-1	5(ft)
1/6	wtrQual	water quality	1	Strm200	Streams 200ft	G:\1_CleanWater_GroundPat_LID\pat_Streams_200ft.shp	STREAMS.shp		Full	-1	200(ft)
1/6	ComNds	community needs	0.25	Bike15	Regional Bike Facilities	G:\1_CleanWater_GroundPat_LID\pat_Regional_Bike_Facilities.shp	Regional_Bike_Facilities.shp		Full	1	15(ft)
			0.25	DmgSt	Damaged Streets	G:\1_CleanWater_GroundPat_LID\pat_Damaged_Streets.shp	SM_StreetDamagedWithTable.shp		Full	1	halfWIDT H
			0.25	DmgSdwk	Damaged Sidewalk	G:\1_CleanWater_GroundPat_LID\pat_Damaged_Sidewalk.shp	SIDEWALKS.shp		n/a	1	0
			0.25	FireRns36	Fire Running Lanes 36ft	G:\1_CleanWater_GroundPat_LID\pat_Fire_Running_Lanes_36ft.shp	FD_FIRE_RUNNING_LANES.shp		Full	-1	36(ft)
1/12	Cons	conservation	1	Lks300	Lakes 300ft	G:\1_CleanWater_GroundPat_LID\pat_Lakes_300ft.shp	LAKES.shp		Full	-1	300ft(ft)
1/12	ComVis	community visibility	0.25	School200	Schools 200ft	G:\1_CleanWater_GroundPat_LID\pat_Schools_200ft.shp	DOIT_SCHOOLS.shp		Full	1	200(ft)
			0.25	School500	Schools 500ft	G:\1_CleanWater_GroundPat_LID\pat_Schools_500ft.shp	DOIT_SCHOOLS.shp		Full	1	500(ft)
			0.25	Lib200	Libraries 200ft	G:\1_CleanWater_GroundPat_LID\pat_Libraries_200ft.shp	DOIT_LIBRARIES.shp		Full	1	200(ft)
			0.25	Lib500	Libraries 500ft	G:\1_CleanWater_GroundPat_LID\pat_Libraries_500ft.shp	DOIT_LIBRARIES.shp		Full	1	500(ft)



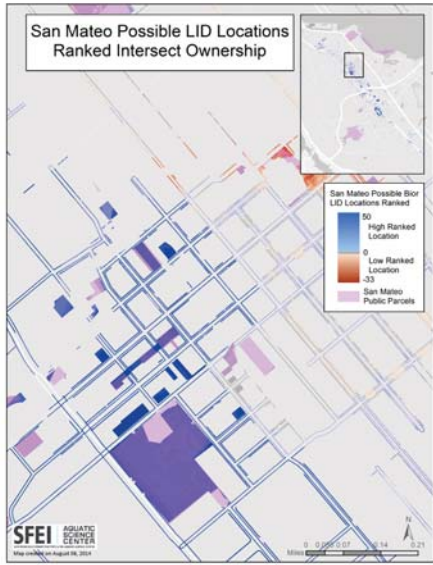
## Public Table

Layer Location	Layer Name	Ownership field	public value	Public queried
G:\1_CleanWater\Geospatial_Data\SanMateo\SanMateo20140802\SM_PublicParcels\CSM_PublicParcels_City_parcel_merged.shp	City_parcel_merged	public	1	

If Public query is false – then use ownership field and public value

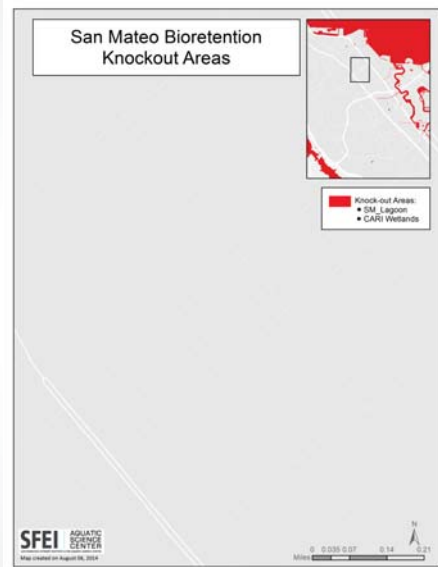


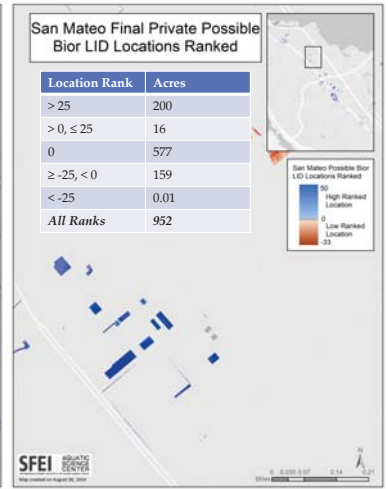
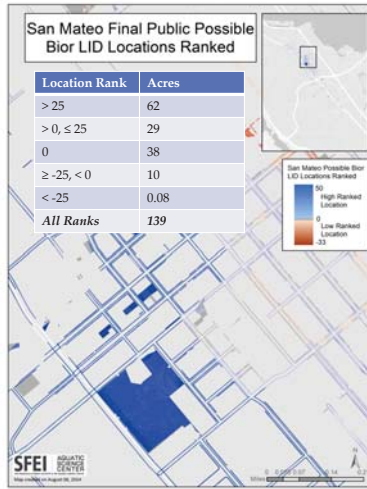
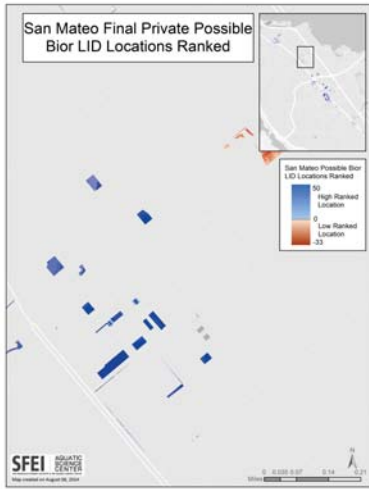
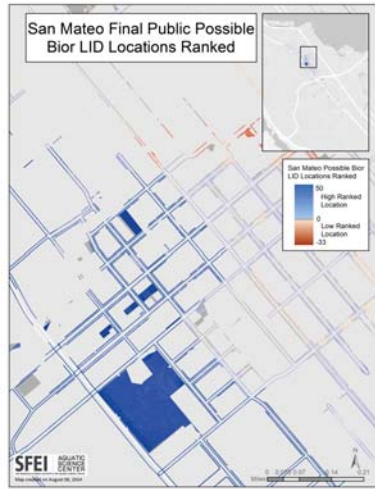




## Knockout Table

Full_File Name	layer alias	LID 1	LID 2	LID 3	LID 4	LID 5	LID 6
C:\1_Chase\Water\General\p\n\1Data\SM_Central\smf\SM_Central_Paths.lyr	CARI Wetlands	1	1/0	1/0	1/0	1/0	1/0
C:\1_Chase\Water\General\p\n\1Data\SanMateo\smf\SM_SanMateo_Paths.lyr	SM_Lagoon	1	1/0	1/0	1/0	1/0	1/0
C:\1_Chase\Water\General\p\n\1Data\SanMateo\smf\SM_SanMateo_Paths.lyr	Building Footprints	0	1/0	1/0	1/0	1/0	1/0





## Discussion

- Group to fill out Opportunities and Constraints Table for San Mateo
  - In person or web-ex
  - Possibly a few hours to complete
- Sustainable Streets Plan
- Layers that rank differently in different areas or for different attributes
  - Ex: Different buffers for different diameters of storm drain pipe?

# Thank You!

- Please email or call with additional feedback

# Stormwater Management Alternative Compliance Framework

**Project Deliverables:** 1) Alternative Compliance Framework  
2) Memorandum describing program  
3) Case study/progress of program development (Final Report)

**Alternative Compliance** (aka "Off-site Mitigation") = provision offered by municipality allowing developers to meet new & redevelopment sw mgmnt requirements off-site of a project. This option provides flexibility to developer (where on-site sw controls are infeasible or limited), and potentially leads to net environmental benefits above those achievable on-site.

## **MRP parameters for AC programs:**

**Provision C.3.e.:** Permittees may allow a Regulated Project to provide **alternative compliance** with Provision C.3.c , where LID treatment of Stormwater runoff not treated on site may be provided at either:

### **Option 1: An Offsite Location**

Treat the remaining portion of the Provision C.3.d runoff with LID treatment measures at an offsite project **in the same watershed**. The offsite LID treatment measures must provide hydraulically-sized treatment (in accordance with Provision C.3.d) of an equivalent **quantity** of **both stormwater runoff and pollutant loading** and achieve a **net environmental benefit**.

Offsite Projects:

- Must be constructed by the end of construction of the Regulated Project.
- Or for each additional year, up to three years, after the construction of the Regulated Project, the offsite project must provide an additional 10% of the calculated equivalent quantity of both stormwater runoff and pollutant loading.

### **Option 2: A Regional Project<sup>1</sup> with an in-lieu fee<sup>2</sup> contribution**

Pay equivalent in-lieu fees to treat the remaining portion of the Provision C.3.d runoff with LID treatment measures at a Regional Project. The Regional Project must discharge into the **same watershed** as the Regulated Project and must achieve a **net environmental benefit**.

Regional Projects:

- Must be completed within three years after the end of construction of the Regulated Project
- Or up to five years with Executive Officer approval.

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<sup>1</sup> **Regional Project:** A regional or municipal stormwater treatment facility that discharges into the same watershed as the Regulated project does

<sup>2</sup> **In-lieu Fee:** "Monetary amount necessary to provide both hydraulically-sized treatment (in accordance with Provision C.3.d) with **LID treatment** measures of an equivalent **quantity** of stormwater runoff and **pollutant loading**, and a proportional share of the **operation and maintenance** costs of the Regional Project."

## Regulated Project Compliance Hierarchy/Options (taken from West Virginia program)

- 1) On-site Compliance – Developer designs & installs required sw controls on-site.

Muni Role	Developer Role
<ul style="list-style-type: none"> <li>reviews and approves developer compliance</li> <li>conduct tracking and reporting</li> </ul>	<ul style="list-style-type: none"> <li>demonstrate full compliance on-site</li> </ul>

- 2) Developer-driven Off-site Mitigation (private/private) – use off-site project to fulfill entire runoff/pollutant reduction volume or remaining volume after partial on-site management.

Muni Role	Developer Role
<ul style="list-style-type: none"> <li>verify on-site infeasibility</li> <li>review on-site &amp; off-site plans</li> <li>inspect installation</li> <li>verify on/off-site LT maintenance practices</li> <li>conduct tracking and reporting</li> </ul>	<ul style="list-style-type: none"> <li>must document infeasibility</li> <li>ID locations for off-site</li> <li>prepare plans,</li> <li>secure property rights</li> <li>construction</li> <li>maintenance</li> </ul>

- 3) Muni-facilitated (Regional) Off-Site Mitigation (private/public) – developer builds off-site project on public land (right of way or environmentally sensitive area) at site(s) suggested/determined by muni.

Muni Role	Developer Role
<ul style="list-style-type: none"> <li>verify on-site infeasibility</li> <li>IDs priority areas &amp; potential projects</li> <li>works with developer to select site (meeting community-watershed goals)</li> <li>review on-site &amp; off-site plans</li> <li>may assist with securing property rights, approvals, permits</li> <li>inspect installation</li> <li>verify on/off-site LT maintenance practices</li> <li>conduct tracking and reporting</li> </ul>	<ul style="list-style-type: none"> <li>must document infeasibility</li> <li>ID locations for off-site</li> <li>prepare plans</li> <li>secure property rights</li> <li>construction</li> <li>maintenance</li> </ul>

- 4) Payment In-Lieu (private/public) – developer pays fee to cover cost of muni implementing project off-site in the public right-of-way or on municipal property.

Muni Role	Developer Role
<ul style="list-style-type: none"> <li>IDs priority areas and potential projects,</li> <li>sets payment in lieu rate</li> <li>assess and collect fee from developer</li> <li>plan off-site project</li> <li>construct off-site project</li> <li>maintain off-site project</li> <li>administer In-Lieu program</li> <li>conduct tracking and reporting</li> </ul>	<ul style="list-style-type: none"> <li>documents on-site infeasibility</li> <li>pays in-lieu fee</li> </ul>



### **Alternative Compliance Program Establishment Needs**

- ID Municipal preference (or hierarchy) for AC program options (off-site, regional, in lieu)
- List of Opportunity sites (Green Plan-IT, watershed plans, CIP plans, or other structure to define implementation objectives of program)
- ID internal administrative costs to muni
  - Permits
  - Design review
  - Inspections
  - Reporting
- Modify existing SW Ordinance to codify/authorize program
- Develop rates for In Lieu program
  - Internal/administrative costs
  - Site selection/planning cost
  - Design, engineering cost
  - Operations & Maintenance

# San Mateo GreenPlan Meeting

## *A G E N D A*

**8-12-14**

**9:30 am**

**San Mateo City  
Hall**

- Welcomes and Introductions
- SFEI presentation of San Mateo GreenPlan-IT “outputs”
- Questions/methodology discussion/comments on the outputs & GreenPlan-IT based upon the outputs
- Next steps
  - Getting outputs in Sustainable Streets Plan
  - Site verification
  - Conceptual design of sites
- Adjourn

**San Jose GreenPlan Meeting Minutes**  
**9-24-14, 1:30 to 3:30**

**Attendees:**

Mira Chokshi, AECOMM  
Anne Symonds, AECOMM  
Casey Hirasaki, City of San Jose  
James Downing, City of San Jose  
Jared Hart, City of San Jose  
Bryan Apple, City of San Jose  
Brian Mendenhall, Santa Clara Valley Water District  
James Manidakos, Santa Clara Valley Water District  
Liang Lee, Santa Clara Valley Water District  
Jing Wu, SFEI  
Lester McKee, SFEI  
Pete Kahanen, SFEI  
Jen Hunt, SFEI  
Dan Cloak, DCE  
Josh Bradt, SFEP  
Jennifer Krebs, SFEP

**1. SFEI presentation on GreenPlan-IT outputs for San Jose** – Powerpoint presented by Pete Kahanen of SFEI

**2. Discussion**

- AECOMM is currently working on San Jose Storm Sewer Master Plan due to be complete in 2016. Green-PlanIT outputs likely to go into this document rather than into the Urban Village Plans.
- San Jose may have additional data layers for SFEI – to be discussed by SFEI and San Jose. These include urban villages, future capital plans, some data on contaminants.

**3. SFEI Presentation on Optimization Tool outputs for San Jose** -Powerpoint presented by Jing Wu

**4. Discussion**

- Should there be data runs for other than 2-year, 24 hour duration designstorm? Possibly multi year total rain fall to calculate contaminant removal. San Jose and SFEI to discuss further.

**5. Design Issues** – Dan Cloak suggested a brainstorm on possible green infrastructure retrofits. Sites included:

- Thompson creek – severe runoff issues.
- Guadalupe River next to Montague Expressway – site of pump station.

- Dan and San Jose to discuss further. After a list of sites is compiled, Dan will visit and inspect sites.

**6. Funding Issues** – Josh Bradt distributed a memo on alternative compliance programs and their framework nationally. Discussion:

- SCVWD has \$ for watershed improvements.
- Storm sewer master plan will have chapter on how to fund. Focused on capacity more than WQ. Perhaps set up in lieu fee.
- Rebate programs – SCVWD has several. Perhaps rebate program for parking lots and/or driveways.

**7. Next Steps** –

- These are noted above in the text. Also another meeting will be set to discuss revised GreenPlan-IT outputs, planning and funding issues.

**San Mateo GreenPlan Meeting Minutes**  
**9-24-14, 9:30 to 11:30**

**Attendees:**

Jessica Alba, Nelson-Nygaard  
Ken Chin, City of San Mateo  
Pete Kahanen, SFEI  
Jen Hunt, SFEI  
Jennifer Krebs, SFEP  
Josh Bradt, SFEP  
Lester McKee, SFEI  
Matt Fabry, C/CAG  
Gary Heep, City of San Mateo  
Jocelyn Walker, City of San Mateo  
Dan Cloak, DCE Environmental  
Suzanne Chan, City of San Mateo  
Ken Messing?, City of San Mateo

**1. SFEI presentation on GreenPlan-IT outputs for San Mateo** – Powerpoint presented by Pete Kahanen of SFEI

**2. Discussion**

- The City requests the final GreenPlan-IT outputs in KML. Also maps in high resolution PDF for the Sustainable Streets Plan.
- The City proposes to review KML outputs prior to (and perhaps instead of) a walking verification of LID sites.
- SFEI will follow up with San Mateo regarding possible alternative ways of ranking data layers. Additional runs of the model may occur.
- The City needs documents for the Sustainable Streets Plan by 10/15 – Maps and data runs will go in the appendices. The main document will need a brief write-up of how data were derived and a map.
- SFEI will add post-GIS processing information on contaminated sites. These will be packaged with the final version of GreenPlan-IT.

**3. Design Issues** – Dan Cloak suggested a brainstorm on possible green infrastructure retrofits. Sites included:

- San Mateo Drive. Nelson Nygaard has conceptuels for San Mateo Drive. Dan suggested walking the street and picking out spots for rain gardens. Then he'll write up a step-by-step procedure for how to do this in other areas.
- PGE substation
- South Claremont near lumberyard.
- 9<sup>th</sup> & Pine.

- Hayward Ave
- Dale Ave near Treatment Plant.

#### **4. Funding issue –**

- The Sustainable Streets Plan will have a funding chapter. Nelson Nygaard will send a copy of the chapter to SFEP to review.
- There was discussion of having some sort of metric goal for sustainability so that fees cover achieving an endpoint.

#### **5.Next Steps –**

These are noted above in the text. Also another meeting will be set to discuss planning and funding issues.

**Match Total Quarter 5 - GreenPlan Bay Area**  
**Bay Area Green Infrastructure Master Planning Project GA# 12-415-550**

**QR5**

<b>Activity</b>	<b>Date</b>	<b>Total Match</b>
GreenPlan Staff meeting with San Mateo	8/12/2014	\$824.00
GreenPlan Staff meeting with San Mateo	9/24/2014	\$1,046.00
GreenPlan Staff meeting with San Jose	9/24/2014	1,394.00
<b>Total QR5</b>		<b>\$3,264.00</b>

Q5	Match Documentation- In-kind Services: GREEN PLAN BAY AREA				GRANT 12-415-550		ABAG 102223	
ITEM	ACTIVITY	DATE	NAME OF ATTENDEE	AFFILIATION	HOURS	HOURLY RATE	EXPENSES (PKG, MILEGAGE)	TOTAL
1	Green Plan Bay Area Technical and Planning meeting in San Mateo	8/12/2014	Jocelyn Walker	City of San Mateo	2	80		\$160.00
1	Green Plan Bay Area Technical and Planning meeting in San Mateo	8/12/2014	Gary Heap	City of San Jose	2	83		\$166.00
1	Green Plan Bay Area Technical and Planning meeting in San Mateo	8/12/2014	Ken Chin	City of San Mateo	2	69		\$138.00
1	Green Plan Bay Area Technical and Planning meeting in San Mateo	8/12/2014	Matt Fabry	County of San Mateo	2	100		\$200.00
1	Green Plan Bay Area Technical and Planning meeting in San Mateo	8/12/2014	Jocelyn Walker	City of San Mateo	2	80		\$160.00
							<b>TOTAL</b>	<b>\$824.00</b>
2	Green Plan Bay Area Technical and Planning meeting in San Mateo	9/24/2014	Jocelyn Walker	City of San Mateo	2	80		\$160.00
2	Green Plan Bay Area Technical and Planning meeting in San Mateo	9/24/2014	Gary Heap	City of San Jose	2	83		\$166.00
2	Green Plan Bay Area Technical and Planning meeting in San Mateo	9/24/2014	Ken Chin	City of San Mateo	2	69		\$138.00
2	Green Plan Bay Area Technical and Planning meeting in San Mateo	9/24/2014	Matt Fabry	County of San Mateo	2	100		\$200.00
2	Green Plan Bay Area Technical and Planning meeting in San Mateo	9/24/2014	Jocelyn Walker	City of San Mateo	2	80		\$160.00
2	Green Plan Bay Area Technical and Planning meeting in San Mateo	9/24/2014	Suzzanna Chan	County of San Mateo	2	111		\$222.00
							<b>TOTAL</b>	<b>\$1,046.00</b>
3	Green Plan Bay Area Technical and Planning meeting in San Jose	9/24//2014	Bryan Apple	City of San Jose	2	75		\$150.00
3	Green Plan Bay Area Technical and Planning meeting in San Jose	9/24//2014	Jared Hart	City of San Jose	2	91		\$182.00
3	Green Plan Bay Area Technical and Planning meeting in San Jose	9/24//2014	James Downing	City of San Jose	2	91		\$182.00
3	Green Plan Bay Area Technical and Planning meeting in San Jose	9/24//2014	Casey Hirasaki	City of San Jose	2	140		\$280.00
3	Green Plan Bay Area Technical and Planning meeting in San Jose	9/24//2014	Brian Mendenhall	Santa Clara Valley Water D	2	100		\$200.00
3	Green Plan Bay Area Technical and Planning meeting in San Jose	9/24//2014	James Manidakos	Santa Clara Valley Water D	2	100		\$200.00
3	Green Plan Bay Area Technical and Planning meeting in San Jose	9/24//2014	Liang Lee	Santa Clara Valley Water D	2	100		\$200.00
							<b>TOTAL</b>	<b>\$1,394.00</b>
							<b>GRAND TOTAL</b>	<b>\$3,264.00</b>



## Memo

From: Jennifer Krebs, SFEP

To: Rachid Ait-Lasri, State Board

Re: GreenPlan Bay Area (Agreement Number 12-415-550) Match Sources, Amounts, and Background

Date: 10/17/2014

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Since the start of the Green Infrastructure Master Planning Grant, SFEI and partners have worked on a number of projects with direct bearing on the Planning Grant. These projects, and their critical work, are helping to inform the Planning Grant as listed below. Based upon guidance from the State Board during Summer 2014, San Francisco Estuary Partnership provides the following three tables to document matching funds for GreenPlan Bay Area. If the explanations below need further clarification, please let me know so we can provide additional information. I can be reached to discuss this at 510-622-2315.

Table 1: Guadalupe River PCB Monitoring Development Conducted in 2011/2012 – in-kind services were provided by SFEI staff to monitor PCBs in the Guadalupe River during Water Year 2011/2012. The data were collected at the request of Bay Area Stormwater Managers (Bay Area cities and counties). These data were used to develop source area data layers for the GreenPlan-IT Optimization Module.

Table 2: PCB and Hg Regional Watershed Model Development (RWMD) – in-kind services were provided by SFEI staff to develop algebraic methods for calculating PCB and Hg factors throughout the Bay Area and identify potential PCB and Mercury sources in Bay Area watersheds. The model was developed at the request of Bay Area Stormwater Managers (Bay Area cities and counties) under guidance by the Small Tributaries Loading Strategy (STLS) (a working group comprised of local stormwater districts under which the RWSM [Regional Watershed Spreadsheet Model] is developed and reviewed). The reports noted in the task descriptions describe and document the model development. The reports provide the documentation and assumptions that went into the RWMD development, source area GIS data layer development, loading factors etc. The data have then been used as inputs for GreenPlan-IT.

Table 3: Guadalupe River Highway 101 Monitoring – in-kind services from the US Geological Survey to assist the San Francisco Bay Regional Water Quality Control Board and the Santa Clara Valley Water District in continuing the ongoing hydrologic and sediment monitoring at the Guadalupe River Highway 101 location. Hydrology and sediment data, from the Guadalupe River monitoring, were used to calibrate the Stormwater Management Model (SWMM) (which is the modeling platform used in GreenPlan-IT) and also to aid in the development of a water budget for the Guadalupe River. The hydrology and sediment model will be used to measure the predicted effectiveness of LID in reducing stormwater runoff volume and hydrograph and sediment loading from this watershed. Please note that a memo is provided (attachment 1) to explain how USGS calculates costs.

TABLE 1: Guadalupe River PCB Monitoring 2011-2012		Match Documentation- In-kind Services: GREEN PLAN BAY AREA			GRANT 12-415-550			ABAG 102223	
ITEM	ACTIVITY	DATE	NAME OF ATTENDEE	AFFILIATION	HOURS	HOURLY RATE	EXPENSES	TOTAL	
Guadalupe River PCB Monitoring 2011-2012	Uploaded GIS and modeling data to SFEI FTP site	8/1/2011-6/1/2012	Grosso, Cristina	SFEI	1	\$ 102.77		\$ 103	
Guadalupe River PCB Monitoring 2011-2012	Provided QA/QC review of Guadalupe River PCB and Mercury contaminant data.	8/1/2011-6/1/2012	Yee, Donald	SFEI	13	\$ 130.13		\$ 1,692	
Guadalupe River PCB Monitoring 2011-2012	Collected storm water samples for analysis of PCB and Mercury during storm events at the Guadalupe River 101 monitoring station	8/1/2011-6/1/2012	McKee, Lester	SFEI	138.75	\$ 127.74		\$ 17,724	
Guadalupe River PCB Monitoring 2011-2012	Collected storm water samples for analysis of PCB and Mercury during storm events at the Guadalupe River 101 monitoring station	8/1/2011-6/1/2012	Hunt, Jennifer	SFEI	81	\$ 85.10		\$ 6,893	
Guadalupe River PCB Monitoring 2011-2012	Provided GIS support and applying stormwater concentrations to maps for the Guadalupe River project	8/1/2011-6/1/2012	Klatt, Marcus	SFEI	2.5	\$ 59.88		\$ 150	
Guadalupe River PCB Monitoring 2011-2012	Provided GIS support and applying stormwater concentrations to maps for the Guadalupe River project	8/1/2011-6/1/2012	Wong, Adam	SFEI	1	\$ 50.82		\$ 51	
Guadalupe River PCB Monitoring 2011-2012	Collected storm water samples for analysis of PCB and Mercury during storm events at the Guadalupe River 101 monitoring station	8/1/2011-6/1/2012	Gluchowski, David	SFEI	83.5	\$ 47.97		\$ 4,006	
Guadalupe River PCB Monitoring 2011-2012	Provided GIS support and applying stormwater concentrations to maps for the Guadalupe River project	8/1/2011-6/1/2012	Striplen, Charles	SFEI	1	\$ 76.72		\$ 77	
Guadalupe River PCB Monitoring 2011-2012	Collected storm water samples for analysis of PCB and Mercury during storm events at the Guadalupe River 101 monitoring station	8/1/2011-6/1/2012	Franz, Amy	SFEI	35.75	\$ 69.06		\$ 2,469	
Guadalupe River PCB Monitoring 2011-2012	Project invoicing to BASMAA (funds for this project were provided by the Bay Area Stormwater Management Agency)	8/1/2011-6/1/2012	Leung, Lawrence	SFEI	10	\$ 83.45		\$ 835	
Guadalupe River PCB Monitoring 2011-2012	Provided GIS support and applying stormwater concentrations to maps for the Guadalupe River project	8/1/2011-6/1/2012	Bezalel, Shira	SFEI	1	\$ 85.10		\$ 85	
Guadalupe River PCB Monitoring 2011-2012	Collected storm water samples for analysis of PCB and Mercury during storm events at the Guadalupe River 101 monitoring station	8/1/2011-6/1/2012	Gilbreath, Alicia	SFEI	4	\$ 69.88		\$ 280	
Guadalupe River PCB Monitoring 2011-2012	Collected storm water samples for analysis of PCB and Mercury during storm events at the Guadalupe River 101 monitoring station	8/1/2011-6/1/2012	Kim, Patrick	SFEI	54.75	\$ 20.75		\$ 1,136	
Guadalupe River PCB Monitoring 2011-2012	Collected storm water samples for analysis of PCB and Mercury during storm events at the Guadalupe River 101 monitoring station	8/1/2011-6/1/2012	Casady, Jenna	SFEI	2	\$ 20.75		\$ 42	
Guadalupe River PCB Monitoring 2011-2012	Collected storm water samples for analysis of PCB and Mercury during storm events at the Guadalupe River 101 monitoring station	8/1/2011-6/1/2012	Silver, Stephanie	SFEI	6.5	\$ 20.74		\$ 135	
							Total	\$ 35,675	
TABLE 2: PCB and Mercury Regional Watershed Model Development		Match Documentation- In-kind Services: GREEN PLAN BAY AREA			GRANT 12-415-550			ABAG 102223	
ITEM	ACTIVITY	DATE	NAME OF ATTENDEE	AFFILIATION	HOURS	HOURLY RATE	EXPENSES	TOTAL	
PCB and Mercury Regional Watershed Model Development	Analyzed literature for identification of sources of PCBs and Mercury; Reviewed GIS source area data layers and reported findings in a final report	1/1/2012-12/31/2012	McKee, Lester	SFEI	53	\$ 137.33		\$ 7,279	
PCB and Mercury Regional Watershed Model Development	Developed and applied algebraic methodology for calculating source area PCB and Mercury concentrations from empirical stormwater concentrations	1/1/2012-12/31/2012	Lent, Michelle	SFEI	306	\$ 61.79		\$ 18,909	
PCB and Mercury Regional Watershed Model Development	Developed source area data layers for PCB and Mercury based on conceptual models for sources of these pollutants in Bay Area watersheds	1/1/2012-12/31/2012	Kass, Jamie	SFEI	81.75	\$ 72.99		\$ 5,967	
PCB and Mercury Regional Watershed Model Development	Delineated Region 2 watersheds for GIS data layers	1/1/2012-12/31/2012	Pearce, Sarah	SFEI	9.5	\$ 97.14		\$ 923	
PCB and Mercury Regional Watershed Model Development	Worked on final report to STLS	1/1/2012-12/31/2012	Hunt, Jennifer	SFEI	79.5	\$ 94.24		\$ 7,492	
PCB and Mercury Regional Watershed Model Development	Worked on final report to STLS	1/1/2012-12/31/2012	Gilbreath, Alicia	SFEI	16.5	\$ 71.95		\$ 1,187	
							Total	\$ 41,758	
TABLE 3: Guadalupe River Hwy 101 Monitoring		Match Documentation- In-kind Services: GREEN PLAN BAY AREA			GRANT 12-415-550			ABAG 102223	
ITEM	ACTIVITY	DATE	NAME OF ATTENDEE	AFFILIATION	HOURS	HOURLY RATE	EXPENSES	TOTAL	
Guadalupe River Hwy 101 Monitoring	Continuous turbidity data gauge station operation and maintenance; data management	1/1/2012-12/31/2012	various staff	USGS				\$8,473	
Guadalupe River Hwy 101 Monitoring	Continuous turbidity data gauge station operation and maintenance; data management	1/1/2012-12/31/2012	various staff	USGS				\$31,861	
Guadalupe River Hwy 101 Monitoring	Continuous turbidity data gauge station operation and maintenance; data management	1/1/2012-12/31/2012	various staff	USGS				\$6,838	
Guadalupe River Hwy 101 Monitoring	Continuous turbidity data gauge station operation and maintenance; data management	1/1/2013-12/31/2013	various staff	USGS				\$8,473	
Guadalupe River Hwy 101 Monitoring	Continuous turbidity data gauge station operation and maintenance; data management	1/1/2013-12/31/2013	various staff	USGS				\$31,861	
Guadalupe River Hwy 101 Monitoring	Continuous turbidity data gauge station operation and maintenance; data management	1/1/2013-12/31/2013	various staff	USGS				\$6,838	
Guadalupe River Hwy 101 Monitoring	Continuous turbidity data gauge station operation and maintenance; data management	1/1/2014-12/31/2014	various staff	USGS				\$8,550	
Guadalupe River Hwy 101 Monitoring	Continuous turbidity data gauge station operation and maintenance; data management	1/1/2014-12/31/2014	various staff	USGS				\$32,150	
Guadalupe River Hwy 101 Monitoring	Continuous turbidity data gauge station operation and maintenance; data management	1/1/2014-12/31/2014	various staff	USGS				\$6,900	
							Total	\$141,943	
Grand Total								\$ 219,376	

Attachment 1

Email from Anthony Guerrero at USGS to Jen Hunt of SFEI 10-14:

"Hi Jen -

Yes the discharge record at Guadalupe is a base service and has matching funds so O&M is \$20,600 - of which \$13,700 comes from SCVWD (Santa Clara Valley Water District, a local water district) and \$6,900 is USGS matching funds. There is the additional sediment program which is \$32,150 as well as the turbidity surrogate which is an additional \$8,550 - No matching funds there.

As far as previous years 2013 - 2014 had the same O&M costs, generally costs only go up when our costs do and 2013 & 2014 had no cost of living increase so there was no change to those programs. 2015 has seen a 0.9% cost increase to reflect the preceding 1% cost of living increase to federal employees. With that said total O&M at Guadalupe was \$20,400 for 2013 & 2014."



# United States Department of the Interior

U.S. GEOLOGICAL SURVEY

## UNITED STATES GOVERNMENT MEMORANDUM

DATE: April 9, 2014  
REPLY TO:  
ATTN OF: Director, USGS, CAWSC, Sacramento, California  
SUBJECT: PROGRAMS AND PLANS – Statewide Monitoring Program Prices for 2015  
Fiscal Year  
TO: All California Supervisors

The following information represents prices for use in negotiating programs for the 2015 fiscal year.

### A GUIDE FOR DATA OPERATION COSTS FY 2015

#### **SURFACE-WATER OPERATIONS**

The following gaging station costs and the related system for deriving costs should be considered as a guide, subject to adjustment if circumstances warrant. Individuals who develop different standards should take responsibility for adequate internal documentation of changes. A formal budget spread sheet must be filled out and the Deputy Director or Monitoring Program Chief consulted before actual implementation of alternative prices for data collection.

**A. An "equivalent streamflow station" is defined as follows:**

1. Has a fairly stable control; one or two ratings used per year.
2. Work effort required is such that three "equivalent stations" could be measured in a day at any time of the year by the average hydrographer.
3. Travel to the station is moderate, less than about 50 miles or 45 minutes time.
4. Maintenance requirements are not more than two working days per year.
5. Vandalism is minimal; one minor incident that causes lost record once every three years.
6. Total working day effort required to go from "gage to page" varies throughout the Center depending on the number of visits and the methods of operation. Fourteen working days are considered the average workforce needed per station per year.

**B. The standard streamflow O&M increase in FY15 is 0.9% within the cooperative, OFA, and FERC programs.**

All costs were increased by 0.9%, then rounded up or down to the nearest \$50 increment if \$1,000 or above, the nearest \$10 increment if below \$1,000. The multiplier factor used for FY93 will be kept so that future increases will be kept at that ratio for all elements of the program. Therefore, an element that increases at a different rate this year (due to rounding), will stay in balance over time as the rounding will go both ways in succeeding years.

An evaluation of the above established a base cost for an "equivalent streamflow station" at \$22,800 for the 2015 fiscal year. This cost should be applied to all stations without FMF in the coop, OFA, and FERC programs. For gages in the coop program where FMF is applied, the total cost is \$20,600.

**C. In addition to the base cost of \$22,800 (\$20,600 FMF total), the following should be added for other services:**

	<b>Unmatched (No FMF)</b>	<b>Matched (With FMF)</b>
1. Flood-warning station--compute monthly record and be on-call 24 hours a day during flood season for equipment repairs, etc.	\$4,300	\$3,900
2. Furnish monthly streamflow records. We endeavor to provide provisional data via the WWW, but if cooperators specify specific due dates for reviewed monthly records, additional costs are incurred.	\$2,000	\$1,850
3. Major rivers or special measurements that require more equipment, such as boats, or more manpower than normal.	*	*
4. Helicopter operation-cost/benefit of helicopter use should be evaluated and estimated case by case.	*	*
5. FERC stations--for any measurements made beyond the eight normally made during the year, or for special measurements requested.	*	*
6. Stations that have multiple diversions will be computed on an individual basis using 60% (or \$13,700) of an "equivalent station" cost for each diversion.	*	*
7. Stations with difficult access and long distance to or between stations--estimate on a case by case basis.	*	*
* Items 3-7 should be estimated using a standard budget sheet. This will consider labor, expenses, and overhead.		

**D. For selected other kinds of station or work, use the following multipliers to determine equivalent costs:**

	<b>Multiplier of an Equivalent Station</b>	<b>Unmatched (No FMF)</b>	<b>Matched (With FMF)</b>
Streamflow O&M	1.00	\$22,800	\$20,600
Seasonal Streamflow O&M	.60	13,650	12,350
Partial Range Streamflow (above or below a specific discharge threshold)	.60	13,650	12,350
Lake/reservoir O&M	.35	8,000	7,250
Crest-stage gage	.20	4,550	4,150
Temperature, continuous	.301	6,850	6,200
Temperature, continuous (in conjunction with full O&M)	.184	4,200	3,800
Specific Conductance and temperature, continuous	.806	18,350	16,550
Specific Conductance and temperature, continuous (in conjunction with full O&M)	.437	10,000	9,050
Precipitation	.35	8,000	7,250
Daily Suspended sediment	1.67	38,100	34,350
Daily total load sediment	2.04	46,550	42,000
Daily seasonal suspended sediment	1.41	32,150	29,000
Daily seasonal total load sediment	1.73	39,450	35,600
Periodic suspended sediment	.76	17,350	15,650
Periodic total load sediment	.92	21,000	18,950
Periodic seasonal suspended sediment	.64	14,600	13,200
Periodic seasonal total load sediment	.79	18,000	16,250

**E.           Cooperator Furnished Records (primarily FERC) - review and publish:**

	<b>Multiplier of an Equivalent Station</b>	<b>Unmatched (No FMF)</b>	<b>Matched (With FMF) (Coop only)</b>
Streamflow record, comp & review	.825	18,800	16,950
Streamflow record:			
Full review	.221	5,050	4,600
Full review with fixed geometry weir	.167	3,850	3,500
Partial range record:			
Full review	.167	3,850	3,500
Full review with fixed geometry weir	.088	1,950	1,800
Canal record	.188	4,250	3,850
Non-recording streamflow record (staff)	.088	1,950	1,800
Reservoir:			
Telemetered, daily observations	.054	1,250	1,150
Recorded, full review	.120	2,750	2,500
Non-recording record	.086	2,000	1,850
Powerhouse record	.018	410	N/A
AVM quality assurance check/review	.054	1,250	1,150

Stations or work other than those listed will need to be estimated individually. An additional reduction of 5% rounded to the nearest \$10.00 increment if below \$1,000 and to the nearest \$50 increment if \$1,000 or above, will be allowed for electronic transfer of furnished record. See the enclosure for definitions of furnished records.

## **GROUND-WATER OPERATIONS**

Standard annual cost for routine operations at ground-water sites will no longer be used. Each ground-water program will be individually budgeted on an actual cost basis.

## **WATER-QUALITY OPERATIONS**

In 2007, the cost for continuous water-quality monitoring was increased beyond the annual station cost increase for that year to account for the additional work required for quality assurance associated with the guidelines for continuous water-quality monitors. This quality assurance work requires cross-sectional measurements of each monitored parameter at each site twice annually.

Temperature as a stand-alone parameter or as an add-on to a full operation gage is listed in this memo, but beginning with the 2007 water year, specific conductance is no longer priced as a single parameter. It is assumed that specific conductance monitoring will not occur without concurrent temperature monitoring, so the cost for these two parameters are combined into a single cost.

Costs for other continuous water-quality monitoring (adding a third parameter such as dissolved oxygen or pH) and turbidity monitoring will be priced individually by site and may vary depending on local conditions, but will include a minimum of \$2,450 for the cross-sectional measurements that are required for quality assurance.



Eric G. Reichard  
Director, USGS California Water Science Center

Enclosure



## **DEFINITIONS OF FURNISHED RECORDS**

### **Full Range Record -- Full review**

Full range of flow is documented and requires detailed review of computed record including two visits with discharge measurements per year.

### **Full Range Record -- Full review with a fixed geometry weir**

Full range of flow is documented and requires a cursory review of computed record. Two site visits per year do not require discharge measurements unless there is reason to believe the weir is not operating properly (i.e., filling in of approach or weir broken, etc.).

### **Partial Range Record -- Full review**

Flow range limited to low and medium flows. Weir or natural control, subject to shifting, requiring detailed review of computed record.

### **Partial Range Record with fixed geometry weir**

Flow range is required such as a fish release. Two visits but not measurements required unless there is reason to believe it is not operating properly.

### **Partial Range Record -- Not reviewable**

Staff gage sites that require verification of rating for staff. Observations may or may not be published as determined on a case by case basis.

### **Reservoir, telemetered, daily observations**

Hand recorded at remote site. Two visits to check relation between staffs and telemetry. Record then accepted as daily observations.

### **Reservoir, recorded, full review**

One-site record, two visits per year to verify recording procedure.