

C/CAG

CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY

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TASK ORDER FORM

Date/Start Date: March 1, 2016

Consultant Name: Larry Walker & Associates

Contract: Countywide Water Pollution Prevention Program Technical Support

Task Order No.: LWA-01

Task Order Name: Municipal Stormwater NPDES Permit Compliance Assistance

Scope of Work: Portions of Subcommittee & Training Support, Green Infrastructure, Mercury & PCBs, and Stormwater Resource Planning

Deliverables: See attached scope of work

Budgeted Cost: Per attached budget, not to exceed \$326,209

Completion Date: June 30, 2016

The parties indicated herein agree to execute this Task Order per the scope indicated above. No payment will be made for any work performed prior to the start date of this Task Order. Unless otherwise indicated, receipt of this executed Task Order is your Notice to Proceed with the work specified herein.

C/CAG

LWA

Sandy Wong, Executive Director Date

Date

Scope of Services

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Scope of Services

Services described in this document are limited to those that will be conducted in Fiscal Year 2015-2016, from the start of the contract in January 2016 through June 2016.

Task 2. Subcommittee Support

Sub-Task 2.7 Assess Current Subcommittee Effectiveness

The LWA team will assist SMCWPPP assess the effectiveness of the current subcommittee structure. LWA will review past meeting information, meet with the C/CAG Program Manager and meet with each subcommittee Chair (and past Chair if appropriate) to assess the effectiveness of the current structure and identify opportunities for improving the system. Improvements could include providing a mix of meeting and communication methods, as well as consolidating subcommittees (e.g., one municipal operations subcommittee with forums for Parks/IPM, Trash, and Maintenance). LWA will develop an assessment tool in advance of the evaluation and work with the C/CAG Program Manager and TAC in advance, conduct the evaluation, and provide a summary report of the findings and recommendations for improvement. In the schedule and budget, this sub-task is listed as a supplemental task.

Deliverables

- Subcommittee Effectiveness
 - Draft evaluation tool
 - Draft and final summary report and recommendations

Task 3. Training

Sub-Task 3.6 Develop a Training Program Framework

The LWA team will develop a Stormwater Program Training Framework. This document would ensure that the training requirements in the MRP are met and would define and present the core competencies (knowledge, level of experience, and skills) necessary to ensure that the individuals implementing the stormwater program are aware of the guidance and tools available to them and understand how to conduct their job in a manner that is in compliance with the MRP and protective of water quality. In the schedule and budget, this sub-task is listed as a supplemental task.

The approach for developing the Training Program Framework will include:

- Training Program Assessment
 - Identification of the core MRP training requirements
 - Assessment of the existing training approach and modules
 - Identification of any training/information gaps (comparison of the existing approach/modules to the MRP requirements)
 - Identification of functional updates that could be made to existing training modules to maintain relevance
- Training Program Focus
 - Identification of the key workshops necessary to address the MRP requirements as well as staff core competencies
 - Identification of the target audiences and core competencies for each topic area
- Training Program Methods
 - Identification of methods that may be used for training (classroom, field-based, webinars, etc.)

- Identification of topic areas that may benefit from “introductory” as well as “advanced” training workshops
- Training Program Opportunities
 - Identification of opportunities for program-wide or region-wide training
 - Identification of other training opportunities for staff such as Bay-Friendly Landscape Maintenance Training and Qualification Program
- Training Program Schedule
 - Development of a comprehensive training schedule

Deliverables

- Training Program Framework
 - Outline
 - Draft & Final Framework with brief response to comments

Task 5. Green Infrastructure Planning

Work on the Sub-Tasks 5.1 and 5.2 will commence this Fiscal Year, but the majority of the effort described herein is anticipated to occur in subsequent years.

Sub-Task 5.1 Countywide approach to assist member agencies in developing Green Infrastructure Plans

This task will be the heart of the Green Infrastructure Planning effort with a focus on coordinating with the Task 10 development of the SRP and its web-based GIS tool, and the Sub-Task 9.6 determination of future goals for green infrastructure to meet TMDL pollutant load reductions. Coordination with these efforts both in terms of data-gathering and development of tools will help facilitate cost-effective and timely development of the frameworks and work plans for Green Infrastructure Plans this will be the focus of Sub-Task 5.1 effort during FY 15-16. In future years the work will expand to include annual reporting on green infrastructure implementation; development of guidelines, standard specifications and design details, and other elements related to achieving adoption of Green Infrastructure Plans; and the mercury and PCBs load reduction related efforts in Sub-Tasks 5.3, 5.4, and 5.5.

a) Support ongoing technical advisory committee

The LWA team will provide staff support for an ongoing technical advisory committee (TAC) of member agency representatives. Per the project schedule, support and/or participation in TAC meetings are expected to begin in the 2nd quarter of 2016 and continue to the 2nd quarter of 2018. Several of the TAC meetings will involve discussion of work products for multiple tasks. This work will include coordinating with C/CAG to prepare agendas, meeting minutes, PowerPoint presentations, handouts to supplement key elements of presentations, and draft and final work products as agenda attachments.

Deliverables

- Draft and final agendas, meeting minutes, presentations, work products, work schedules and other materials for TAC meetings (projected number of 9 meetings between May 2015 and May 2018).
- Up to two TAC meetings and support in determining TAC membership (FY 15-16).

b) Support development of frameworks or work plans for Green Infrastructure Planning

The development and approval of Green Infrastructure Plans is a key requirement of the MRP with the first major milestone being approval of frameworks or work plans for preparation of the Green Infrastructure Plans by each of C/CAG’s member agencies by June 30, 2017. In Fiscal Year 15-16,

the LWA team will develop a draft annotated outline for the model framework or work plan to be used as a roadmap for each individual member agency. In the next fiscal year, the LWA team will prepare a draft and final model framework or work plan. Following C/CAG approval of the model framework or work plan, the LWA team will support each member agency prepare jurisdictional-specific frameworks or work plans for approval by officials from each agency.

The LWA team will also coordinate and collaborate with the BASMAA Development Committee, as appropriate, in the Committee's collaborative efforts to create a regional model for frameworks and work plans. This effort will include review of materials prepared for the BASMAA Committee and attending selected Committee meetings.

The following steps will lead to the efficient and timely approval of the work plans or frameworks by the June 30, 2017 MRP deadline:

1. The LWA team will prepare an initial draft annotated outline for the frameworks or work plans for C/CAG staff review in Fiscal Year 15-16. This will be informed by related national and California best practices and information that may be developed by the BASMAA Development Committee.
2. Following C/CAG review and comments on the draft annotated outline, the LWA team will finalize the outline for development of the model framework or work plan by the end of Fiscal Year 15-16.
3. In Fiscal Year 16-17, the LWA team will prepare an initial draft model framework or work plan for review by C/CAG staff. Following C/CAG review and comments on the draft model framework or work plan, the LWA team will finalize the model framework or work plan.
4. The LWA team will coordinate with C/CAG staff to develop a format for a TAC workshop for member agency staff to present and receive comments on their progress in developing their frameworks or work plans. It is anticipated that each member agency will provide their draft documents and highlight key questions or issues to the LWA team prior to the workshop. In this way, the content of the workshop can be organized to address issues raised by multiple agencies.
5. The LWA team will work with C/CAG member agencies to develop focused background materials for use in preparation of staff reports and presentations to support review and approval of frameworks or work plans by commissions, boards, and councils.

Deliverables

- Draft annotated outline for framework or work plan. (FY 15-16)
- Final annotated outline for framework or work plan. (FY 15-16)
- Draft and final model framework or work plan. (begin work on draft in FY 15-16 and finish work in FY 16-17)
- Memorandum summarizing review of C/CAG member agency issues and draft agency frameworks and work plans. (FY 16-17)

c) Develop guidelines, standard specifications, and design details

Work on this sub-task will begin in FY 16-17. Information on the regional efforts in development of these materials will be gathered through the LWA Team's work in Sub-Task 5.6 Coordination with C/CAG and BASMAA.

d) Develop Model Plan Update Materials

The LWA team will develop model text and other materials for member agency policy documents that can appropriately include green infrastructure policies, programs, and requirements, including (but not limited to): "General Plans, Specific Plans, Complete Streets Plans, Active Transportation Plans, Storm Drain Master Plans, Pavement Work Plans, Urban Forestry Plans and other plans

that may affect the future alignment, configuration, or design of impervious surfaces,” as described in MRP 2.0 section C.3.e.i(2)(h). CD+A’s expertise in preparing Specific Plans and Complete Streets Plans, amending General Plans, and other land use, transportation, and infrastructure documents will help to facilitate their work on this task. The LWA team will develop model text and other materials for General Plans, Specific Plans, and other jurisdiction planning documents per requirements of MRP and best practices.

First, C/CAG member agencies will be asked to identify documents that exist or are planned for development during the period of the MRP that could include policies and references to the MRP’s green infrastructure and other related requirements. The LWA team will compile a list of documents and gather PDF files for review in the next fiscal year.

Work on the remainder of this sub-task will begin in FY 16-17.

Deliverables

- List of C/CAG member agency policy documents, noting if documents currently contain green infrastructure or related policy statements. (FY 15-16)

e) Identify green infrastructure opportunities and prioritization

The majority of the work on this sub-task will occur following this Fiscal Year. The efforts in this Fiscal Year will focus on coordinating with Task 10’s efforts to gather GIS data from C/CAG member agencies.

CD+A is aware through their work on the City of San Mateo Sustainable Streets project that there is an interest in gathering data that helps to establish the feasibility of green streets, such as the presence of on-street parking, parking utilization, presence of trees and other landscape, potential for road diets or other pavement reduction, etc. Information regarding any existing or planned green infrastructure projects will also be requested.

The LWA team will coordinate with the GIS data gathering effort to begin establishing these characteristics throughout the County, to the extent that data is available. This will be done by contributing a data request to C/CAG member agencies for the above information as well as data available for “pipeline” private development projects, housing element opportunity sites (already gathered through MTC PDA readiness efforts), and other future development opportunities identified by local agencies to enhance PDA mappings. Data that is received will be cataloged for the later work of this Sub-Task.

Deliverables

- Draft and final data request memorandum summarizing compiled data.
- Initial catalog file of data received from C/CAG member agencies.

Sub-Task 5.2 Education and outreach materials

The LWA team will use its knowledge, presentation, and graphic skills gained from the team’s involvement in green streets, complete streets, and sustainable and green streets planning and design projects, which have included extensive public outreach. Specifically, CD+A prepared and delivered public outreach and education PowerPoint presentations for the green streets elements of the City of San Mateo’s Sustainable Streets Plan. This background will help us to provide support to C/CAG in educating the public, agency staff, and elected officials on green infrastructure and LID planning, policy, design, and implementation. Examples of the wide range of potential work products that CD+A staff can produce or contribute to include the preparation of:

- PowerPoint presentations on green infrastructure related topics
- Handouts on specific topics or a series of coordinated educational booklets or flyers

- Presentation or handout text or graphic components
- Case studies and summaries of research results
- Individual tables, diagrams, 3D or other graphics

Under this task, C/CAG can take advantage of CD+A's experience in preparing graphics that convey complex spatial relationships or topics in an intuitive manner that is easy to grasp by a broad range of audiences. Graphics capabilities of CD+A staff include the preparation of:

- 3D Isometrics
- Computer generated photo simulations
- Hand drawn perspectives, sketches or vignettes
- Plan view drawings and diagrams
- AutoCAD drawings
- Flow charts

The budget for this task is based on an anticipated level of effort that may be needed to support C/CAG over the course of the Green Infrastructure Planning. No work would be undertaken in the task without prior approval from C/CAG.

Deliverables

- Draft and final educational and outreach materials (slides for PowerPoint presentations, individual or coordinated series of handouts, individual graphics, etc.).

Sub-Task 5.6. C/CAG and BASMAA Coordination

The LWA team will coordinate with C/CAG and BASMAA, attending meetings and participating in regional workgroups focused on C.11 and C.12 compliance efforts such as tracking measures, accounting for load reductions. Information regarding green infrastructure planning, such as: development of jurisdiction frameworks or work plans for Green Infrastructure Planning; development of guidelines, standard specifications, and design details; and other related information that may be developed through BASMAA activities during this Fiscal Year. The LWA team will provide briefings and advise to the C/CAG Program Manager, Stormwater and Technical Advisory Committees on the regional approaches.

Task 9. Mercury & PCBs Load Reduction

Sub-Task 9.7 Develop a Building Demolition Management Program

LWA led the team that developed a model implementation process (MIP) in 2011 to assist municipalities in developing programs to address PCBs loads in runoff resulting from demolition and remodeling projects. The team worked with municipal staff to develop a process, model ordinance, inspection forms and other elements of a program. While in general, PCBs-containing materials were used in buildings constructed between 1950 and 1980, approaches to verifying that a building's materials contain PCBs and identifying appropriate disposal options are needed. Other challenges were identified by municipal staff and considered in the development of the MIP.

Among the lessons learned was the importance of engaging municipal staff from building and planning departments. Therefore, outreach and education to this group would be a key step in the development of a building demolition management program. Outreach will include interviews with building and planning staff from cities within San Mateo County and a workshop to train staff regarding the building demolition management program requirements. The LWA team is experienced in developing and conducting effective training for many aspects of municipal stormwater programs including implementation of industrial and construction stormwater inspection

programs. Previous successful efforts will be used as the model for the training program developed for this program.

The approaches used in the MIP development along with information from resources identified in the MRP factsheet will be used to develop protocols, documents, and training workshops for the building demolition program.

Sub-Task 9.9. C/CAG and BASMAA Coordination

The LWA team will coordinate with C/CAG and BASMAA, attending meetings and participating in regional workgroups focused on Green Infrastructure planning efforts. The LWA team will provide briefings and advise to the C/CAG Program Manager, Stormwater and Technical Advisory Committees on the regional approaches.

Deliverables

- Memorandum describing building demolition program with model ordinance, inspection forms, example debris recovery plans and other documents
- Two training workshops for municipal staff
- Memorandum describing building demolition load reduction assessment methodology

Task 10. Stormwater Resource Planning

The Countywide Stormwater Resource Plan (SRP) provides an ideal opportunity for C/CAG to proactively plan for future requirements of the MRP (e.g., Reasonable Assurance Analyses, Green Infrastructure Plans) while providing essential information needed to explore funding needs and opportunities and Proposition 1 grants for project implementation. Although the State Water Board guidelines for SRPs are new, several agencies in southern California have a head start in developing watershed plans to address their MS4 permit requirements that meet the State Water Board guidelines and are therefore equivalent to SRPs. State Water Board staff are familiar with these southern California plans, which have set the bar in terms of expectations of SRPs. The southern California plans also include State and EPA vetted approaches for performing Reasonable Assurance Analyses (Sub-Task 9.6) and green infrastructure planning (Task 5) that have resulted in significant progress in developing and applying models and tools that can be easily leveraged and tailored to San Mateo County. Our approach will rely on these vetted methods combined with local datasets, which will minimize new investment in research and development. Our approaches have withstood technical reviews performed by multiple Regional Water Boards, State Water Board, and EPA staff, and have been proven to address TMDLs for mercury and PCBs. Our efforts will ensure that the Countywide SRP capitalizes on these Southern California planning approaches to the extent possible to maximize technical products in a cost-efficient manner and ensure successful competition for Proposition 1 funding opportunities.

As the SRP will precede future planning efforts required of the MRP, including the Sub-Task 9.6 Reasonable Assurance Analysis and the Task 5 Green Infrastructure Plan, it will be important for the SRP to initiate the County's narrative in terms of mercury and PCBs sources, the transport of these pollutants to impaired receiving waters via stormwater, and control programs incorporating green infrastructure that will address associated TMDLs, including the role of green infrastructure. The SRP provides an opportunity to craft a narrative that can speak to these future efforts and provide a foundation that can be built upon as more technical work is performed. As a result, this narrative can evolve through subsequent planning efforts, but the SRP will be critical in efforts to set the stage and present an in terms of the overall storyline for the County.

The following technical approach provides a detailed description of how existing tools and planning approaches can be leveraged with local models and datasets to provide C/CAG a high-quality and cost-effective SRP.

Sub-Task 10.1. Compile Existing Plans, Mapping Efforts, Hydrologic Data, Design Criteria, and Other Information Needed to Develop a Countywide Stormwater Resource Plan

Key to the SRP will be a detailed characterization of the watersheds within the County and the opportunities and constraints to the implementation of stormwater capture projects. The LWA team is fluent in all GIS and monitoring datasets that are available for this effort (e.g., NOAA rainfall data, satellite imagery, NRCS soil classifications) and has already assembled many of these data for the County. The LWA team will coordinate with C/CAG, its member agencies, and existing technical consultants to identify additional local datasets that can further support the following:

- Characterization of drainage areas and stormwater infrastructure, particularly areas regulated by the MRP. (The LWA team has C/CAG GIS datasets for storm drain networks, catchments, and outfalls).
- Analysis of soils and infiltration rates, topography (e.g., LiDAR), land use, and imperviousness that influence hydrology and opportunities for siting stormwater capture projects.
- Characterization of observed hydrology based on local rainfall and flow measurements (combined with datasets from NOAA and USGS).
- Assessment of pollutant sources and transport based on local water quality monitoring and source characterization studies.
- Identification of opportunities for stormwater capture projects and green infrastructure based on roadway characteristics and parcel ownership.

Based on a combination of these datasets, the LWA team will combine metadata to formulate specific categories of land characteristics that form the basis of understanding watershed processes and identifying opportunities for stormwater capture. Our team has formulated approaches for defining Hydrologic Response Units (HRUs) and development of associated GIS layers based on a composite of datasets such as soil type, parcel definition, land use, imperviousness, road types, slope, and other defining characteristics that form the basis of understanding hydrology and pollutant transport (**Figure 15**). This improved spatial representation of land characteristics will lend to the SRP's assessment of watershed processes and the identification of project opportunities, while providing the foundation for future modeling to support the Reasonable Assurance Analysis and the development of a Green Infrastructure Plan. The LWA team has led similar

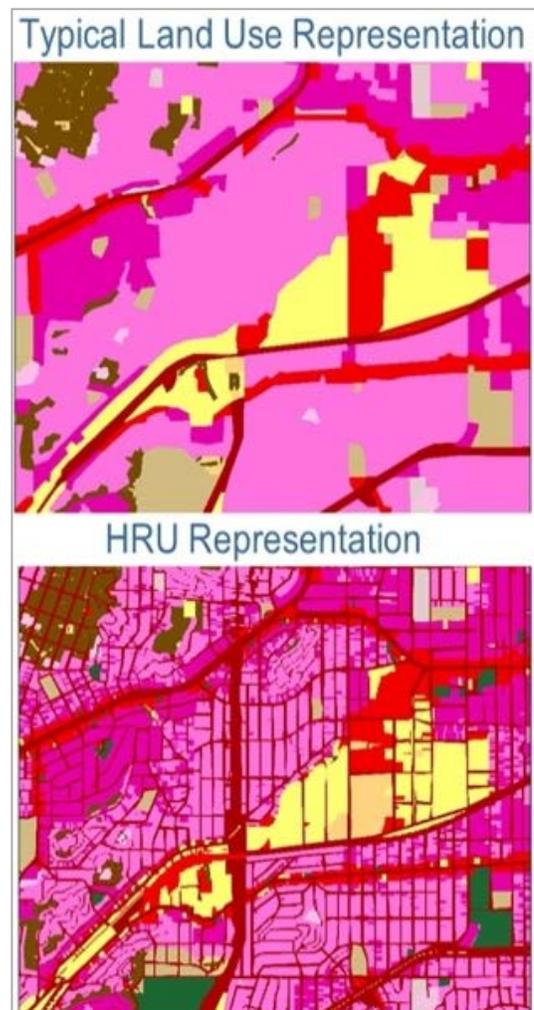


Figure 1. Example HRUs

approaches for the entire Lake Tahoe watershed, all coastal watersheds of Los Angeles County, and watersheds throughout the City of San Diego that have formed the foundation of TMDL implementation and watershed and green infrastructure planning efforts in those regions. Utilizing proven approaches such as HRU development will result in cost savings to C/CAG by avoiding expensive research and development efforts, while taking advantage of state-of-the-practice techniques to provide detailed datasets of County land characteristics never previously available.

Based on the LWA team's thorough review of data available for the County, recommendations will be provided in terms of new data that could be collected to inform decision-making for the SRP and support future planning efforts. These recommendations will include descriptions of the purpose of the data and associated costs or level of effort to develop, as well as prioritizations that will guide C/CAG in the selection of datasets to pursue.

Deliverables

- Technical memo summarizing data compiled, new GIS datasets produced in this task (e.g., HRUs), and recommendations for new data that could be collected.

Sub-Task 10.2. Develop Process for Identifying and Prioritizing Stormwater and Dry Weather Runoff Capture/Green Infrastructure Projects Using a Metrics-Based and Integrated Evaluation and Analysis of Multiple Benefits

Prior to initiating the SRP development effort, an important step is to engage C/CAG on the overall process for project identification and prioritization to ensure that C/CAG preferences are considered and the overall process is understood and approved. The LWA team will start with a standardized process for project screening that has been conducted for various watersheds in California (vetted thoroughly by over 80 cities/counties), and tailor this process based on available data identified in the previous task. This process is divided into three steps as illustrated in **Figure 2** and further discussed below, which will be summarized and reported to C/CAG for review. Once input is received from C/CAG regarding the overall process or metrics used in the prioritization framework, the LWA team will finalize the process for implementation in subsequent tasks.

Step 1: Identify Subwatersheds

The first step in the process is the identification of subwatersheds and the spatial scale for prioritizing those catchments for implementation of stormwater and dry weather runoff capture, including green infrastructure. The delineation of subwatershed boundaries will consider:

- Storm drain catchments previously developed within GIS by C/CAG.
- Isolation of key urban HRUs developed in the previous task, particularly land uses amenable to green infrastructure, areas of high imperviousness (and high runoff potential), lower slopes, higher infiltration rates, and other HRU attributes that may guide project selection.



Figure 2. Process for Screening California Watersheds

- Location of underlying groundwater supplies subject to potential recharge via infiltration.

Step 2: Identify Public Parcels and Rights-of-Way

The next step is the development of a process for identifying/screening public parcels or rights-of-way as opportunities for stormwater capture or green infrastructure. This process will also rely heavily on HRUs in addition to GIS identifying roadway types or widths. If such roadway datasets do not exist, the LWA team has performed GIS analyses in other regions to obtain the information needed. For instance, for Los Angeles County no data were available for secondary roads, so parcel datasets were used to isolate and identify road surfaces and rights-of-way based on the void space within GIS between ownership parcels (**Figure 1**). The process will outline methods for utilizing HRUs, public parcels, and rights-of-ways to identify project opportunities and quantify metrics in terms of potential for capturing runoff from impervious areas (used in Step 3). The process will also consider land uses that provide functional integration of green infrastructure (e.g., green streets in residential or commercial areas) or other stormwater capture projects (e.g., neighborhood stormwater capture within public parks or vacant lots).

Step 3: Prioritize Project Opportunities

Once project opportunities are identified, the final step is to develop a process for prioritizing stormwater capture and green infrastructure projects. This step will utilize the priority subwatersheds identified in Step 1, metrics developed in Step 2 for stormwater capture potential, in addition to metrics established for multi-benefits, to provide overall prioritization of projects within each municipal jurisdiction. Multi-benefits include potential augmentation of local water supplies, water quality improvement, flood management, environmental, and other community benefits. Metrics associated with these multi-benefits will be based on a scoring system that will be presented to C/CAG for review and input. Once metrics are established, the LWA team will develop the overall project prioritization framework and present to C/CAG for final approval.

Deliverables

- Technical memo summarizing process
- Meeting with C/CAG to provide an overview of process and receive input

Sub-Task 10.3. Identify Opportunities and Projects

The LWA team will utilize the screening processes developed in the previous task to provide a preliminary list of prioritized project opportunities within each municipal boundary of the County.

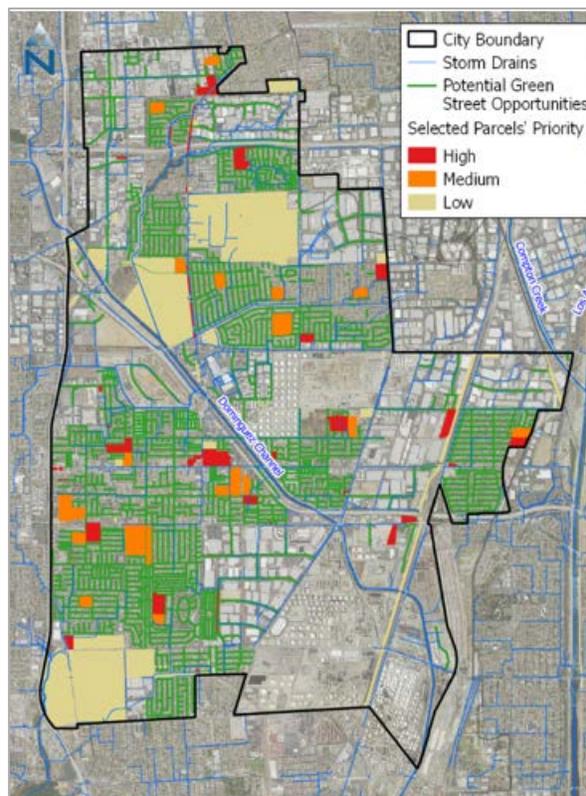


Figure 3. Example Prioritization of Public Parcels and Rights-of-Way - City of Carson, CA

The highest ranked projects will then be further evaluated through more-detailed GIS analysis at individual project sites for thorough assessment of site-specific multi-benefit opportunities, including:

- Project enhancements or opportunities for groundwater recharge or storage and reuse.
- Source control of pollutants and stormwater and dry weather runoff.
- Development, restoration, or enhancement of habitat and open space (e.g., wetlands, riparian habitat, recreational space).

This task will also provide more-detailed assessment of current uses of the public parcels to determine if those uses will be disrupted or could be enhanced with the capture of runoff onsite and/or offsite (e.g., parks, public space, community gardens, farm or agriculture preserves, schools, government offices).

Based on the project rankings and additional site-scale assessments/verifications, the LWA team will recommend prioritized project sites within the County with a goal of identifying one regional/sub-regional stormwater capture project and three green streets within each municipal jurisdiction. These priority projects will be presented to C/CAG member agencies for review and consideration for inclusion in the SRP.

Deliverables

- Technical memo summarizing project ranking and selection of priority projects

Sub-Task 10.4. Develop a Stormwater Capture Model and Quantify Runoff Capture Capability from Proposed Project Sites

There are a number of proven modeling approaches at C/CAG's disposal to develop cost-effective strategies to quantify runoff volume capture and meet SRP Guidelines, while providing a preliminary strategy to support future efforts to address compliance with the MRP. The platform of the approach can be divided into two components: (1) a watershed or stormwater runoff model, and (2) a model for predicting runoff capture for project sites. **Figure 4** provides an overview of the approaches proposed for each component.

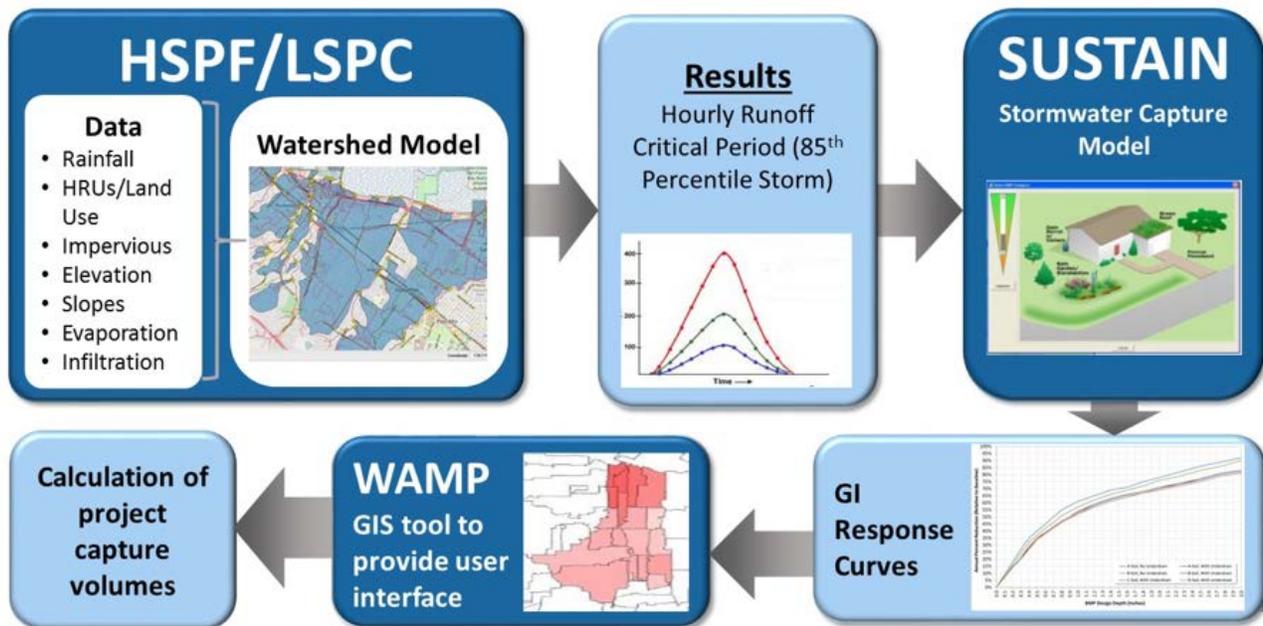


Figure 4. Modeling Approaches for Watershed/Stormwater Capture and Quantify Runoff Capture

The SRP Guidelines state that pollutant reductions may be estimated using a relationship between volume reduction and pollutant reduction. At the watershed scale, the guidelines suggest a narrative to describe in a quantitative manner how projects or programs will contribute to the preservation, restoration, or enhancement of watershed processes including: overland flow, groundwater recharge and infiltration, interflow, evapotranspiration, delivery of sediment and organic matter to receiving waters, and chemical and biological transformation. As such, the watershed model that forms the basis of the analysis should have the capability to address these processes, whether in the current effort or in the future. Only the Hydrologic Simulation Program - Fortran (HSPF) and the Loading Simulation Program C++ (LSPC) include these processes within model configuration (LSPC is a recoded version of HSPF into C++). Note that other models such as SWMM may provide simulation of overland flow, but lack the capability to simulate interflow, subsurface baseflow, or sediment transport.

An HSPF model has been developed for the County as part of the Bay Area Hydrologic Model (BAHM; <http://bayareahydrologymodel.org>), which utilizes local rainfall and climate data and calibrated parameters to provide continuous simulation of hydrology. The LWA team will utilize BAHM to develop unit-area-runoff time series for various land uses, soils, and meteorological zones throughout watersheds of the county. In essence, hourly runoff predictions will be developed throughout the duration of the 85th percentile 24-hr storm event for various watershed characteristics on a unit-area basis (e.g., flow per acre of drainage area). Paradigm staff have performed similar analysis as part of development of LA County's Watershed Management Modeling System (WMMS; includes LSPC), which includes methods that are easily transferrable to San Mateo County by utilizing BAHM modeling parameters. These unit-area-runoff time series will be imported into a GIS tool for assigning runoff calculations for all project sites identified in Task 2. Utilizing BAHM output based on these proven methods will provide cost-savings to C/CAG by reducing research and development and taking advantage of the many lessons learned, while providing robust modeling tools based on methods that have been approved by Regional Water

Board and State Water Board staff and are in the public domain (all models and documentation for WMMS can be downloaded at <http://dpw.lacounty.gov/wmd/wmms/>).

The SRP Guidelines also suggest demonstration of the capture of dry weather runoff. The LWA team has developed innovative techniques for the estimation of dry weather runoff as a function of urban irrigation practices. These approaches were first tested in the development of the LSPC component of WMMS, and later refined through modeling supporting Reasonable Assurance Analyses within Los Angeles watershed plans to address MS4 permit requirements (based on estimates of per capita water use and irrigation runoff). The LWA team will tailor these assumptions to local estimates of per capita water use and combine resulting predictions of dry weather runoff with the 85th percentile storm predictions above, to be utilized for site-scale runoff predictions throughout the County.

Integral to the development of the San Mateo County model is the ability to predict the capture and infiltration of runoff associated with various projects, ranging from regional detention facilities to green infrastructure. Over the last decade, our team has supported EPA and various cities and counties throughout California by performing research and developing tools that have been received well by Regional Water Board and State Water Board staff. We have openly discussed and explained these tools at countless workshops (most recently the EPA and San Francisco Bay Regional Water Board workshop on Reasonable Assurance Analyses), meetings with the State Water Board committee (including Tom Mumley of the San Francisco Bay Regional Water Board) reviewing the Los Angeles MS4 Permit, and workshops and meetings with the Los Angeles and San Diego Regional Water Boards during their review of watershed plans. Key to the acceptance of our tools and approaches was the ability to translate often complex processes into simple terms, such as the demonstration that captured runoff addresses TMDLs and other downstream impairments or issues. Our team has utilized state-of-the-science public domain tools such as EPA's SUSTAIN to develop metrics for runoff capture predictions that are defensible and cost-effective. To ensure consistent messaging and demonstration of runoff capture with projects in the County, and to take advantage of the extensive research and lessons learned in other California regions, the LWA team will utilize similar tools to take advantage of cost-savings, provide assurance of defensibility, and prepare the County for emerging MRP requirements similar to the Los Angeles and San Diego permits in terms of Reasonable Assurance Analyses.

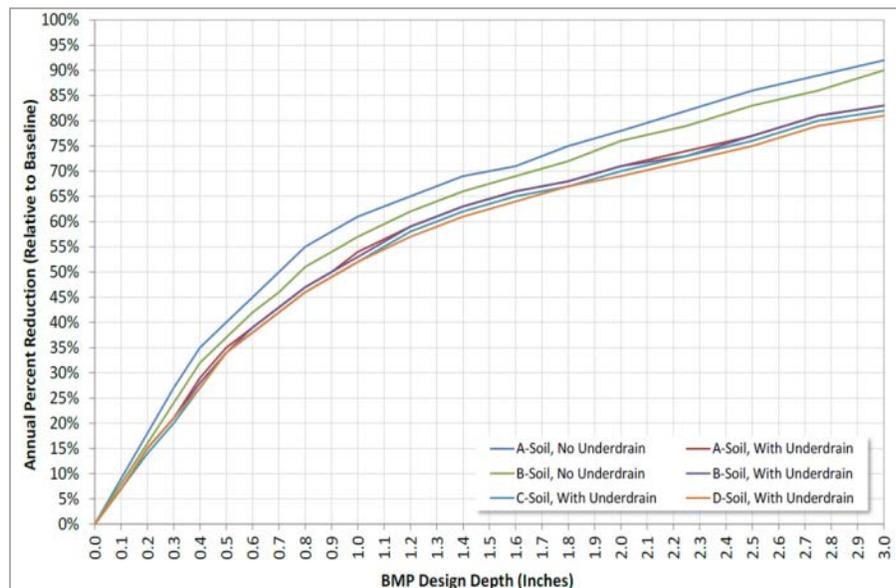


Figure 5. Example GI Response Curve

Key to the acceptance of our tools and approaches was the ability to translate often complex processes into simple terms, such as the demonstration that captured runoff addresses TMDLs and other downstream impairments or issues. Our team has utilized state-of-the-science public domain tools such as EPA's SUSTAIN to develop metrics for runoff capture predictions that are defensible and cost-effective. To ensure consistent messaging and demonstration of runoff capture with projects in the County, and to take advantage of the extensive research and lessons learned in other California regions, the LWA team will utilize similar tools to take advantage of cost-savings, provide assurance of defensibility, and prepare the County for emerging MRP requirements similar to the Los Angeles and San Diego permits in terms of Reasonable Assurance Analyses.

Our team will utilize SUSTAIN to automate the production of hundreds of runoff capture responses based on a range of project types, drainage area characteristics, and site conditions. As the principal developer of SUSTAIN for the EPA Office of Research and Development, team member

John Riverson of Paradigm has performed over a decade of research on the modeling of stormwater capture and the automation of SUSTAIN based on stormwater capture response curves specific to various project types. These response curves will be loaded into a GIS tool, combined with the unit-area-runoff predicted by BAHM, and all priority sites identified in Task 2 will be analyzed to predict each site's potential runoff volume captured.

To serve as the GIS tool for San Mateo County, Paradigm has developed the Watershed Adaptive Management Program (WAMP) that provides a cost-effective way to access model output on a site by site basis, without requiring a robust watershed and stormwater capture modeling system required for a complete Reasonable Assurance Analysis. **Figure 6** provides a screenshot of the WAMP's web-based platform for accessing locations via GIS, selecting project characteristics (e.g., BMP type and size, drainage area characteristics, infiltration rate), and predicting runoff capture volumes for the 85th percentile storm, other critical storms, or annual volumes. The WAMP also provides storage of project information and runoff capture predictions for integration within Reasonable Assurance Analyses performed in the future, providing "apples to apples" data for translation to modeling assumptions for use in the Reasonable Assurance Analyses. A similar GIS tool will be developed for C/CAG to support current efforts to develop a defensible SRP, as well as prepare for future Reasonable Assurance Analyses and Green Infrastructure Plans facing the County.

Upon completion of the SRP, the WAMP will be provided to C/CAG via weblink with a username/password. The WAMP, tailored for the County and pre-loaded with modeling results for both hydrology and BMP capture volume response predictions, will provide C/CAG the capability to plan projects beyond the SRP and perform capture volume calculations for future project concepts. Based on project site characteristics entered into the WAMP, the tool will calculate stormwater capture volumes, or the tool can assist with sizing alternative site designs (e.g., depth of bioretention) based on targeted volume capture goals. As projects are implemented in the future, C/CAG can continue to use WAMP to load project information and compile stormwater capture volumes for each member agency.

Deliverables

- Draft WAMP delivered via weblink
- Meeting with C/CAG to provide a demonstration of WAMP and its functionality
- Final version of WAMP, incorporating C/CAG comments

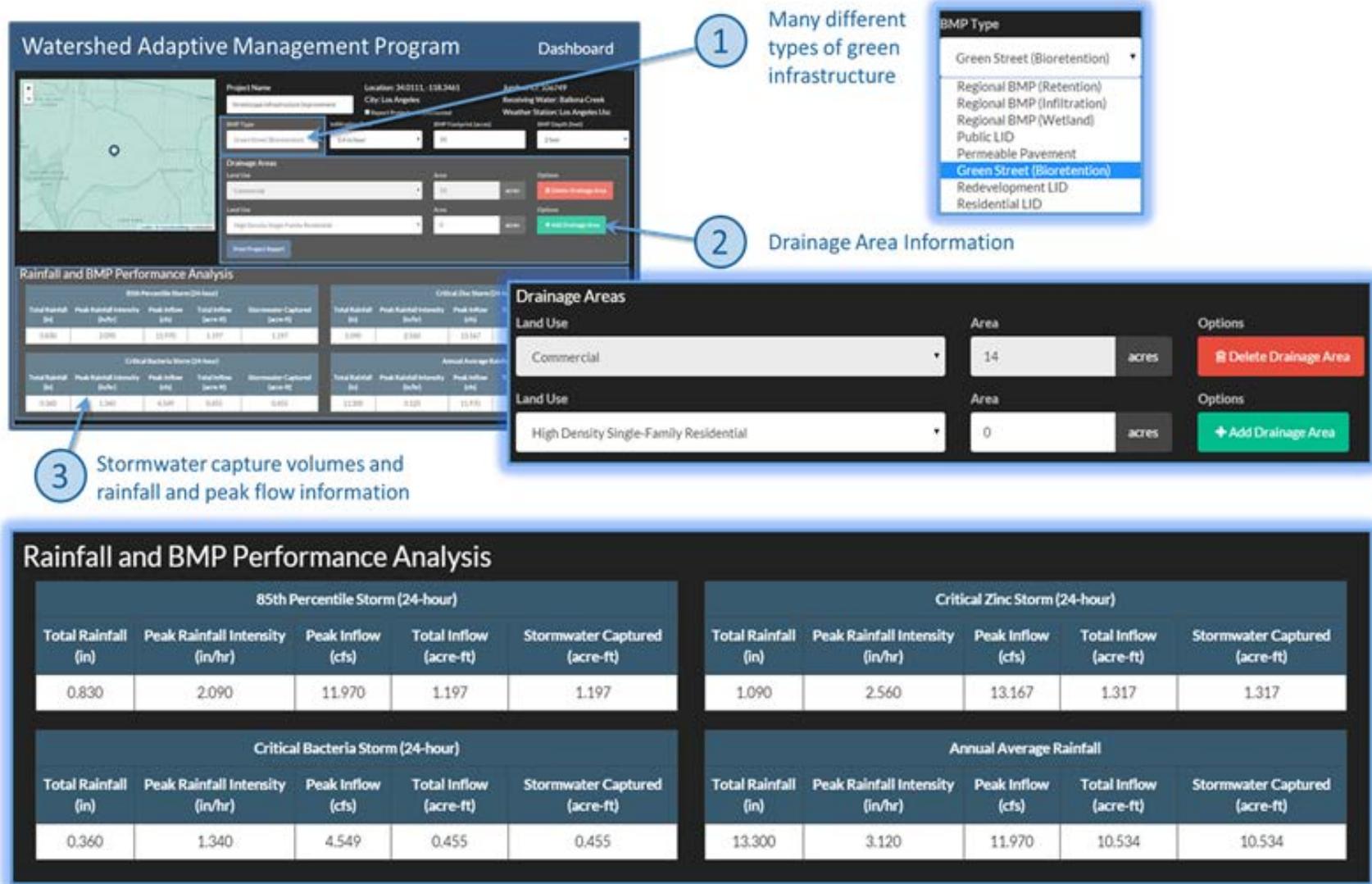


Figure 6. Watershed Adaptive Management Program (WAMP)

Sub-Task 10.5. Develop Methods to Quantitatively Evaluate Multiple Benefits for Project Sites

The LWA team will develop a dynamic and transparent GI evaluation matrix to prioritize potential projects and balance often competing goals based on a series of criteria developed through interaction with C/CAG. Ordinal rankings from one to five (with five being the highest) will be assigned for each potential project and benefits including but not limited to, groundwater recharge, treating priority PCBs and mercury source areas, and habitat restoration, using available datasets and C/CAG member agency institutional knowledge. Each benefit will be assigned a weighting percentage based on C/CAG member feedback. A simplified example weighting scheme may be assigning groundwater recharge a weight of 25%, treating priority PCBs and mercury source areas as 60%, and habitat restoration 15%. The sum of all weights must be 100%.

The ranking for each potential GI project would be multiplied by the associated weight and summed to yield what could be termed a GI Index score. A simplified theoretical example comparison matrix is presented below using the previously outlined weighting scheme and the rankings shown in the **Table 1**. Projects with a higher GI Index Score would be expected to most effectively achieve multiple benefits based on the weighting used and would theoretically be carried on to Sub-Task 10.6. The theoretical 2_Mills project would be the best of the four projects evaluated here with a GI Index Score of 4 with 2_Belmont being the second strongest project with a GI Index Score of 3. The GI Index score evaluation matrix is expected to be a dynamic resource for C/CAG member agencies and will be delivered in Microsoft Excel format as a living tool. Changes to benefit scores or weights will automatically translate through to a revised set of GI Index scores.

Table 1. Theoretical example GI Index Score Evaluation Matrix.

| Opportunity | Groundwater recharge | Priority Source Areas | Habitat Restoration | GI Index Score |
|-------------|----------------------|-----------------------|---------------------|----------------|
| 2_Belmont | 2 | 4 | 2 | 3 |
| 1_Mills | 1 | 3 | 2 | 2 |
| 2_Mills | 1 | 5 | 5 | 4 |
| 1_SanBruno | 1 | 2 | 2 | 2 |

Deliverables

- Prioritized GI evaluation matrix

Sub-Task 10.6. Prepare Project Concepts

Based on the priority projects identified in Sub-Task 10.3, the LWA team will work with each C/CAG member agency to identify at least two projects within each jurisdiction for development of project concepts. The goal of these project concepts is to provide:

- A summary of project goals, benefits, site and project characteristics, design specifics, cost estimates, and other information that will support communication of attributes and support preparation of funding requests and grant applications
- Sufficient information and design criteria to support future designs and project planning.

The LWA team has developed approaches to concept plans and templates that are regularly used for these purposes (see example in **Figure 7**), and understands the need for visually appealing and informative concepts to support effective communication to various city officials and state and federal representatives that review grant proposals. Based on these proven templates, the LWA

team will tailor 2-page templates for project concepts for C/CAG review. At a minimum, these concepts will include:

- A layout of the project at the proposed site and the contributing drainage area, including general design features overlaying a site map (see example insert).
- A conceptual representation of the project upon completion, incorporating a standard rendering or photograph of a similar project.
- A narrative that describes the purpose and defining characteristics of the project.
- Design criteria to support future design efforts.
- Cost estimates of different project components, including (but not limited to) excavation, materials, design, construction, and operation and maintenance.

Much of the information reported in the project concepts will be available based on products developed from previous tasks. Cost estimates will be based on cost functions the LWA team regularly uses for project designs throughout California, which will be verified and tailored as needed based on local considerations.

Once project concepts are complete, they will be incorporated within appendices of the SRP prepared in Sub-Task 10.9.

Deliverables

- Draft project concepts for each jurisdiction
- Final project concepts for each jurisdiction, incorporating C/CAG comments

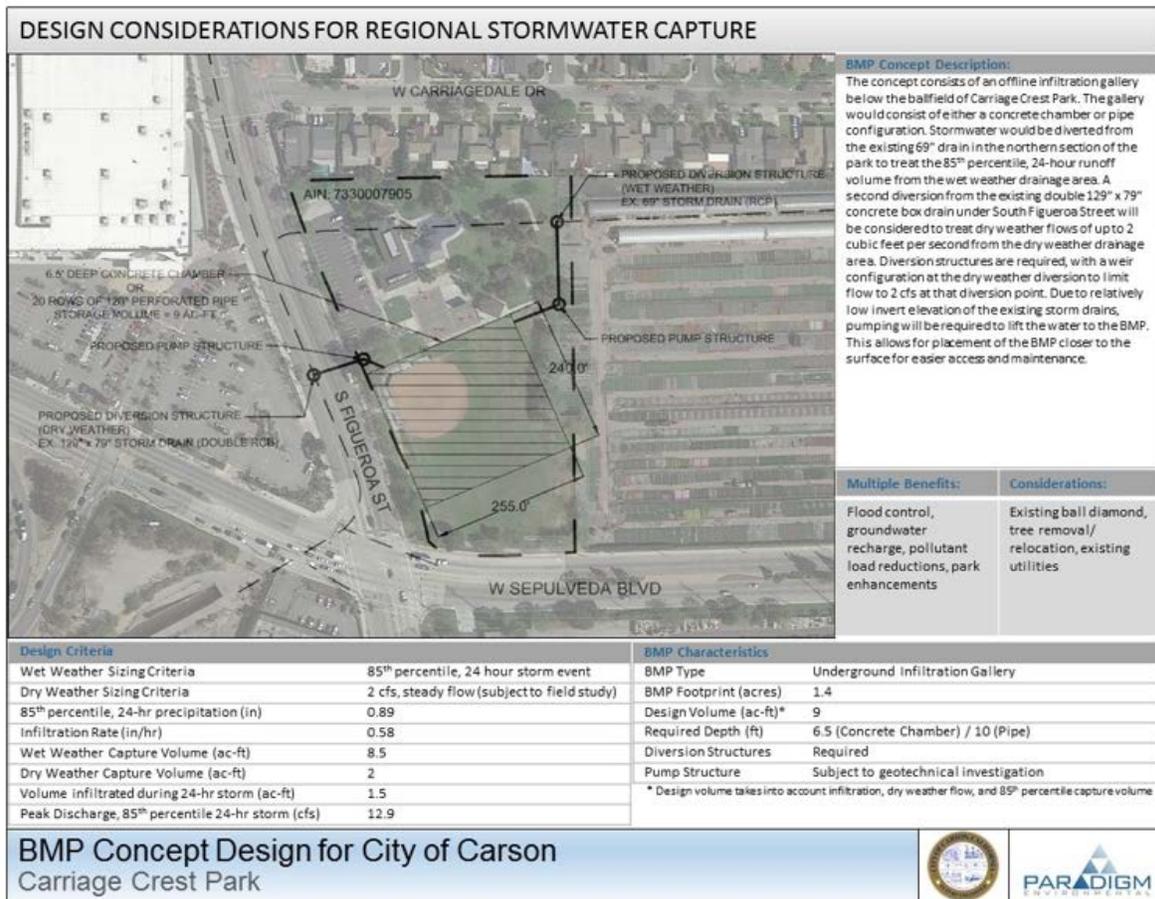


Figure 7. Example Project Concept

Sub-Task 10.7. Assist with Community Participation Process

The LWA team has extensive experience in leading and supporting stakeholder involvement in the development of water quality improvement processes and will assist in the coordination of the community participation process for the SRP. An effective community input process is essential to the success of watershed-scale stormwater management projects using public funds to implement green infrastructure that often alters an existing land use such as a public park. LWA will coordinate with C/CAG's public outreach consultant to identify information and develop approaches for communicating the technical information to non-technical audiences. Many of the graphical tools developed for the SRP will be particularly useful in this communication process. Additionally, the team will incorporate the feedback of the community by reflecting their concerns in the developed outreach materials, such as flyers, web content, brochures, or information packets on PCBs and mercury loading and the green infrastructure. Incorporating this information as well as key community stakeholders in the process will help to ensure that the process is successful and the voice of the community is reflected in the final SRP and GI plan and their support is integrated into the development process. In other projects, the LWA team has found it effective to develop open lines of communication with established watershed stewardship groups. These groups can facilitate communication with the community and can be advocates to political decision makers.

LWA can work with the C/CAG's public outreach consultant to communicate the goals and objectives for the SRP and GI plan development process, identify key stakeholders, develop approaches for type, number, and timing of public meetings, and formulate approaches to address any potential barriers among the public or political decision makers. LWA recommends an initial scoping meeting or campaign to create awareness for the SRP and GI plan and to describe the purpose, structure and general content that is envisioned. This information can also be taken directly to the community via existing forums in watershed stewardship groups, neighborhood groups. The LWA team can work with the C/CAG's public outreach consultant and C/CAG on identifying methods for obtaining and documenting feedback on alternatives to be considered in the planning process. Periodic status update through public meetings or other outreach methods (websites, social media (e.g., Nextdoor, a neighborhood based social media platform) are recommended to describe the progress on the draft plans or details and to solicit feedback and reactions to the draft ideas.

Deliverables

- Technical SRP and GI materials to support community outreach efforts
- As needed presentations for outreach meetings

Sub-Task 10.8. Develop Web-Based Mapping Tool

The LWA team will develop a web-based mapping tool to support development and implementation of the SRP, as well as subsequent MRP planning tasks. The tool will be configured with available GIS of the County, including such features as jurisdictional boundaries, storm drains, outfalls, catchments, aerial imagery (e.g., GoogleMaps), proposed locations of stormwater capture projects and other GIS developed through previous tasks, and other information determined relevant. This tool will be able to support various purposes, including:

- Transfer of information between the LWA team and C/CAG member agencies during development of the SRP by providing C/CAG GIS viewing capabilities.
- Storage of County GIS and products of the SRP to support future implementation and MRP planning efforts.
- Public outreach, participation, education, and engagement efforts by providing public access via linkage to C/CAG's or individual member agencies' websites.

This tool will be in the public domain and accessible to C/CAG via a weblink. The LWA team proposes using a web map server platform hosted using an Amazon Web Service Elastic Cloud (EC2) that allows for flexibility in scaling of both data storage requirements and processing power. Our team has already configured based on GIS and GoogleMaps currently available for the County (**Figure 8**). The platform incorporates available GIS maps and provides user accessibility via web browser through interactive features such as highlighting, printing, display of spatially relevant graphics/photos, access to GIS attribute data, production of legend graphics, and various information requests. This framework builds on existing open source technologies QGIS, OpenLayers, GeoExt and ExtJS 3 for development of graphical user interface (GUI) extensions. A sample of the system can be accessed at http://gis.paradigmh2o.com/maps/san_mateo (user: guest, password: iH5e3T). With the platform currently configured, this provides cost-savings to C/CAG in terms of further tailoring to meet specific needs of C/CAG or incorporate new datasets as needed. The LWA team will also evaluate the ability to utilize San Mateo County's public GIS portal for hosting or sharing GIS layers configured within the tool.

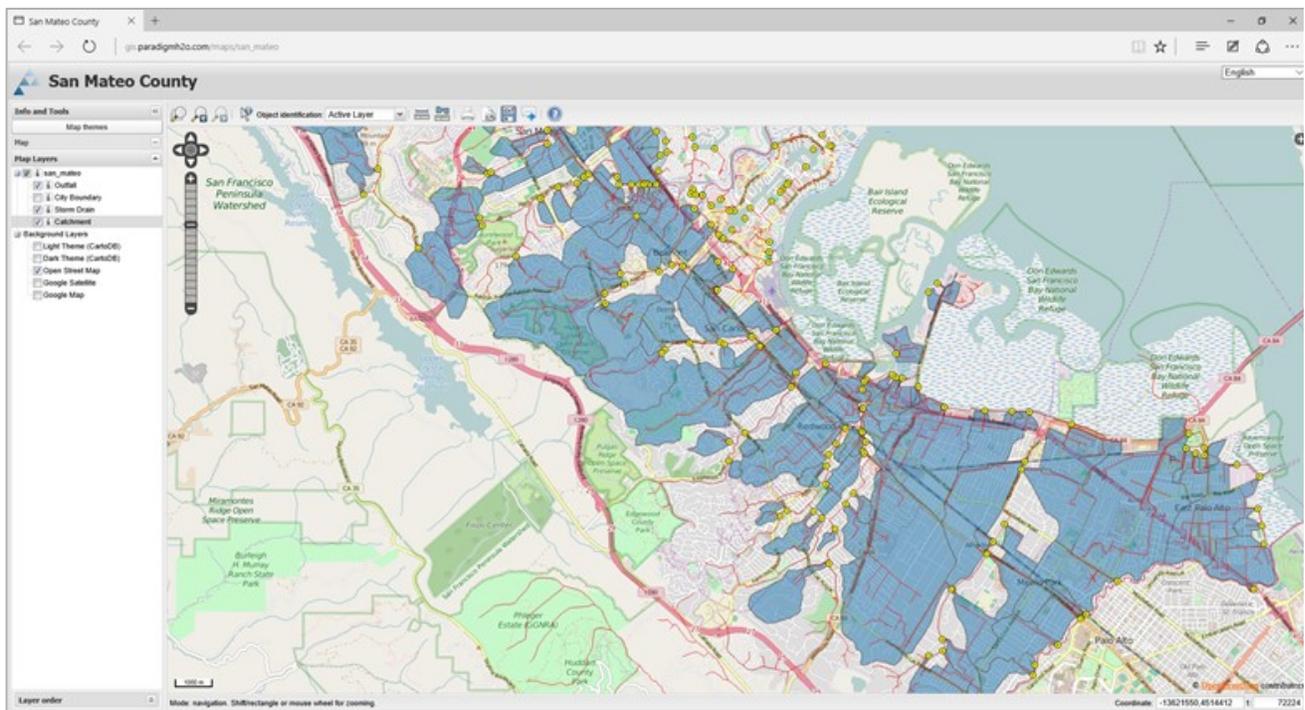


Figure 8. Web-based GIS Platform Configured for San Mateo County

Once the GIS system is configured, two versions of the tool will be developed to support various users of the system:

- A user- and password-protected version will be developed for use by C/CAG member agencies that include specific GIS and other information not selected for public distribution. This version will contain all data to be used for internal C/CAG or individual member agency planning purposes.
- A public version configured with a subset of GIS and information C/CAG selects for public distribution. This version can be linked to C/CAG or individual member agency websites for public access.

Deliverables

- Draft version of web-based GIS tool delivered via weblink.
- Meeting with C/CAG to provide a demonstration of the tool and its functionality.
- Final version of web-based GIS tool, incorporating C/CAG comments

Sub-Task 10.9. Prepare Stormwater Resource Plan

Based on the products from the previous tasks, the LWA team will develop the draft SRP for C/CAG, member agency, and public stakeholder comments. A first draft SRP will be delivered for C/CAG for internal review by member agencies. A second draft SRP will be delivered that incorporates C/CAG comments and is prepared for public/stakeholder comments. The final SRP will incorporate all comments received from the public/stakeholders, and any additional comments received from C/CAG.

Deliverables

- Draft I SRP for C/CAG member agency review.
- Draft II SRP for public/stakeholder review, incorporating C/CAG comments.
- Final SRP

Sub-Task 10.10. Develop Proposition 1 Grant Application

The LWA team will work with C/CAG member agencies to develop a competitive Proposition 1 Grant application based upon the aggregated projects in the Countywide SRP. The application will draw primarily from the SRP and will highlight the multi-benefit aspects of the projects.

Prior to drafting the grant application, the LWA team will assist C/CAG staff in setting up an account with State Water Board's Financial Assistance Application Submittal Tool (FAAST) portal and review the grant application forms to ensure that all required information or data has been produced as part of the SRP.

LWA recommends that C/CAG, through the Stormwater Committee, or other appropriate forum present the conceptual project approach to the Regional Water Board. In most grant applications processes, support of the Regional Water Board is critical to success of the projects. We anticipate that the Board staff will be strong advocates of sound projects that will provide on-the-ground examples of GI projects. Additionally, this grant application will strongly demonstrate C/CAG's commitment to GI and desire not to miss early opportunities to build GI projects.

The LWA team will draft a complete grant application for review by C/CAG staff, revise the application based upon the comments and finalize it for upload into the FAAST portal.

Sub-Task 10.11. C/CAG and BASMAA Coordination

The LWA team will coordinate with C/CAG and BASMAA, attending meetings, participate in workgroups, and provide briefings to the CCAG Stormwater and Technical Advisory Committees, and relevant BASMAA committees on the approach and development of the SMCWPPP Stormwater Resource Plan.

Deliverables

- C/CAG FAAST portal login credentials
- Conceptual project approach for presentation to Regional Water Board
- Draft Proposition 1 grant application
- Final Proposition 1 grant application

Schedule

Following this page provides a schedule for the remainder of fiscal year 2015-2016, which shows the overall duration of services as well as the duration of each task and sub-task. We have identified the windows for critical path activities and key milestones necessary to achieve C/CAG and MRP-related deadlines.

| Task | Schedule Fiscal Year 2015-16 (January 2016-June 2016) | 2016 | | | | | | | | | | | |
|-----------|--|--------------------------------|-------|----------|--------------------|-------|-------|-------|------------|------|------------|------|-------|
| | | January | | February | | March | | April | | May | | June | |
| | | 1-15 | 16-31 | 1-15 | 16-29 | 1-15 | 16-31 | 1-15 | 16-30 | 1-15 | 16-31 | 1-15 | 16-30 |
| 2 | Subcommittee Support | | | | | | | | | | | | |
| 2.7 | Subcommittee Assessment | | | | Conduct evaluation | | | | Draft Rec. | | Final Rec. | | |
| 3 | Training | | | | | | | | | | | | |
| 3.6 | Training Framework | | | | Conduct evaluation | | | | Draft Rec. | | Final Rec. | | |
| 5 | Green Infrastructure Planning | | | | | | | | | | | | |
| 5.1 | Develop coordinated approach for GI Plans | | | | | | | | | | | | |
| 5.2 | Support outreach efforts on GI planning | Ongoing task support as needed | | | | | | | | | | | |
| 5.6 | Coordination with C/CAG and BASMAA | Ongoing task support as needed | | | | | | | | | | | |
| 9 | Mercury and PCBs Load Reduction | | | | | | | | | | | | |
| 9.7 | Develop a building demolition management program | | | | | | | | | | | | |
| 9.9 | Coordination with C/CAG and BASMAA | Ongoing task support as needed | | | | | | | | | | | |
| 10 | Stormwater Resource Planning | | | | | | | | | | | | |
| 10.1 | Compile existing plans, mapping efforts, hydrologic data, design criteria, and other information needed to develop a Countywide Stormwater Resource Plan | | | | | | | | | | | | |
| 10.2 | Develop process for identifying and prioritizing stormwater and dry weather runoff capture/green infrastructure projects | | | | | | | | | | | | |
| 10.3 | Identify opportunities and projects | | | | | | | | | | | | |
| 10.4 | Develop a stormwater capture model and quantify runoff capture capability from proposed project sites | | | | | | | | | | | | |
| 10.5 | Develop methods to quantitatively evaluate multiple benefits for project sites | | | | | | | | | | | | |
| 10.6 | Prepare project concepts | | | | | | | | | | | | |
| 10.7 | Assist with community participation process | | | | | | | | | | | | |
| 10.8 | Develop web-based mapping tool | | | | | | | | | | | | |
| 10.9 | Prepare Stormwater Resource Plan | | | | | | | | | | | | |
| 10.10 | Develop Proposition 1 Grant Application | | | | | | | | | | | | |
| 9.9 | Coordination with C/CAG and BASMAA | Ongoing task support as needed | | | | | | | | | | | |

Budget

The proposed budget for the fiscal year 15-16 scope of work is provided in the summary table below. The budget is broken down by tasks, subtasks, and billing rates consistent with the rates set in the on-call contract with C/CAG. The detailed budget is provided in a spreadsheet.

| Task | Scope of Work Fiscal Year 2015-16 (6 Months) (January 2016-June 2016) | LWA Sub-Total | Paradigm Sub-Total | CD+A Sub-Total | Total Task Cost ¹ |
|-----------|--|---------------|--------------------|----------------|------------------------------|
| 2 | Subcommittee Support | | | | |
| 2.7 | Subcommittee Assessment | \$ 13,960 | \$ - | \$ - | \$ 13,960 |
| 3 | Training | | | | |
| 3.6 | Training Framework | \$ 20,500 | \$ - | \$ - | \$ 20,500 |
| 5 | Green Infrastructure Planning | | | | |
| 5.1 | Develop coordinated approach for GI Plans | \$ 11,440 | \$ 9,540 | \$ 28,977 | \$ 53,809 |
| 5.2 | Support outreach efforts on GI planning | \$ 3,350 | \$ - | \$ 5,874 | \$ 9,812 |
| 5.6 | <i>Coordination with C/CAG and BASMAA</i> | \$ 7,320 | \$ 3,200 | \$ 3,905 | \$ 15,135 |
| 9 | Mercury and PCBs Load Reduction | | | | |
| 9.7 | Develop a building demolition management program | \$ 20,360 | \$ 1,600 | \$ - | \$ 22,120 |
| 9.9 | <i>Coordination with C/CAG and BASMAA</i> | \$ 19,160 | \$ 8,000 | \$ 2,941 | \$ 31,195 |
| 10 | Stormwater Resource Planning | | | | |
| 10.1 | Compile existing plans, mapping efforts, hydrologic data, design criteria, and other information needed to develop SRP | \$ 370 | \$ 10,720 | \$ - | \$ 12,162 |
| 10.2 | Develop process for identifying and prioritizing stormwater and dry weather runoff capture/GI projects | \$ - | \$ 9,720 | \$ - | \$ 10,692 |
| 10.3 | Identify opportunities and projects | \$ 370 | \$ 10,320 | \$ - | \$ 11,722 |
| 10.4 | Develop a stormwater capture model and quantify runoff capture capability from proposed project sites | \$ 740 | \$ 38,140 | \$ - | \$ 42,694 |
| 10.5 | Develop methods to quantitatively evaluate multiple benefits for project sites | \$ 6,660 | \$ - | \$ - | \$ 6,660 |
| 10.6 | Prepare project concepts | \$ 370 | \$ 30,100 | \$ - | \$ 33,480 |
| 10.7 | Assist with community participation process | \$ 370 | \$ 980 | \$ - | \$ 1,448 |
| 10.8 | Develop web-based mapping tool | \$ 370 | \$ 3,440 | \$ - | \$ 4,154 |
| 10.9 | Prepare Stormwater Resource Plan | \$ 370 | \$ 19,160 | \$ - | \$ 21,446 |
| 10.10 | Develop Proposition 1 Grant Application | \$ 5,780 | \$ - | \$ - | \$ 5,780 |
| 10.11 | <i>Coordination with C/CAG and BASMAA</i> | \$ 4,160 | \$ 4,800 | \$ - | \$ 9,440 |
| | Totals | \$ 115,650 | \$ 149,720 | \$ 41,698 | \$ 326,209 |
| | ¹ Includes 10% sub markup | | | | |

| Task | Scope of Work Fiscal Year 2015-16 (6 Months) (January 2016-June 2016) | Task Lead | LWA | | | | | | | | | | | Total Hours | Direct Costs | LWA Sub-Total |
|---------------|--|-----------------|----------------|------------|-----------|--------------------|--------------------|-------------------|-------------------|------------------|----------------|------------|------------|-------------|----------------|---------------|
| | | | Vice President | Associate | Sr. Staff | Project Staff II-A | Project Staff II-B | Project Staff I-A | Project Staff I-B | Contract Manager | Admin. Assist. | | | | | |
| | | | \$260 | \$235 | \$210 | \$185 | \$165 | \$150 | \$135 | \$140 | \$75 | | | | | |
| 2 | Subcommittee Support | LWA | | | | | | | | | | | | | | |
| 2.7 | Subcommittee Assessment | | 6 | 16 | 10 | | | 40 | | | 3 | | 75 | \$ 120 | \$ | 13,960 |
| 3 | Training | LWA | | | | | | | | | | | | | | |
| 3.6 | Training Framework | | 20 | 8 | 60 | | | | | | 5 | | 93 | \$ 120 | \$ | 20,500 |
| 5 | Green Infrastructure Planning | CD+A | | | | | | | | | | | | | | |
| 5.1 | Develop coordinated approach for GI Plans | | | 16 | | 40 | | | | | 2 | | 58 | | \$ | 11,440 |
| 5.2 | Support outreach efforts on GI planning | | | 10 | | 4 | | | | | 1 | | 15 | 120 | \$ | 3,350 |
| 5.3 | Assist member agencies identify GI projects | | | | | | | | | | | | 0 | | \$ | - |
| 5.4 | Assist member agencies determine retrofit targets | | | | | | | | | | | | 0 | | \$ | - |
| 5.5 | Develop a tracking tool to document GI projects and assist agencies upload historic projects | | | | | | | | | | | | 0 | | \$ | - |
| 5.6 | Coordination with CCAG and BASMAA | | | 24 | | 8 | | | | | 1 | | 33 | \$ 60 | \$ | 7,320 |
| 9 | Mercury and PCBs Load Reduction | Paradigm | | | | | | | | | | | | | | |
| 9.3 | Evaluate alternative PCBs load reduction allocation approach | | | | | | | | | | | | 0 | | \$ | - |
| 9.4 | Develop, document, and implement an assessment/tracking methodology for mercury and PCBs load reduction | | | | | | | | | | | | 0 | | \$ | - |
| 9.5 | Assist identifying, quantifying, and tracking load reductions associated with GI projects | | | | | | | | | | | | 0 | | \$ | - |
| 9.6 | Develop initial phase of a reasonable assurance analysis | | | | | | | | | | | | 0 | | \$ | - |
| 9.7 | Develop a building demolition management program | | | 36 | | 60 | | | | | 5 | | 101 | \$ 100 | \$ | 20,360 |
| 9.9 | Coordination with CCAG and BASMAA | | | 60 | | 24 | | | | | 4 | | 88 | \$ 60 | \$ | 19,160 |
| 10 | Stormwater Resource Planning | Paradigm | | | | | | | | | | | | | | |
| 10.1 | Compile existing plans, mapping efforts, hydrologic data, design criteria, and other information needed to develop SRP | | | | | 2 | | | | | | | 2 | | \$ | 370 |
| 10.2 | Develop process for identifying and prioritizing stormwater and dry weather runoff capture/GI projects | | | | | | | | | | | | 0 | | \$ | - |
| 10.3 | Identify opportunities and projects | | | | | 2 | | | | | | | 2 | | \$ | 370 |
| 10.4 | Develop a stormwater capture model and quantify runoff capture capability from proposed project sites | | | | | 4 | | | | | | | 4 | | \$ | 740 |
| 10.5 | Develop methods to quantitatively evaluate multiple benefits for project sites | | | | | 36 | | | | | | | 36 | | \$ | 6,660 |
| 10.6 | Prepare project concepts | | | | | 2 | | | | | | | 2 | | \$ | 370 |
| 10.7 | Assist with community participation process | | | | | 2 | | | | | | | 2 | | \$ | 370 |
| 10.8 | Develop web-based mapping tool | | | | | 2 | | | | | | | 2 | | \$ | 370 |
| 10.9 | Prepare Stormwater Resource Plan | | | | | 2 | | | | | | | 2 | | \$ | 370 |
| 10.10 | Develop Proposition 1 Grant Application | | | | | 28 | | | | | 8 | | 36 | | \$ | 5,780 |
| 10.11 | Coordination with CCAG and BASMAA | | | 8 | | 12 | | | | | | | 20 | 60 | \$ | 4,160 |
| Totals | | | 26 | 178 | 70 | 228 | 0 | 40 | 0 | 21 | 8 | 571 | 640 | \$ | 115,650 | |

| Task | Scope of Work Fiscal Year 2015-16 (6 Months) (January 2016-June 2016) | Paradigm | | | | | | | |
|-----------|--|--------------------|-----------------------|---------------------------------|---------------------------|----------------|-------------|--------------|---------------------|
| | | Principal Engineer | Principal Hydrologist | Principal Water Quality Analyst | Sr. Water Quality Analyst | Staff Engineer | Total Hours | Direct Costs | Paradigm Sub-Total |
| 2 | Subcommittee Support | \$200 | \$185 | \$180 | \$165 | \$145 | | | |
| 2.7 | Subcommittee Assessment | | | | | | 0 | | \$ - |
| 3 | Training | | | | | | | | |
| 3.6 | Training Framework | | | | | | 0 | | \$ - |
| 5 | Green Infrastructure Planning | | | | | | | | |
| 5.1 | Develop coordinated approach for GI Plans | 20 | | | 16 | 20 | 56 | | \$ 9,540.00 |
| 5.2 | Support outreach efforts on GI planning | | | | | | 0 | | \$ - |
| 5.3 | Assist member agencies identify GI projects | | | | | | 0 | | \$ - |
| 5.4 | Assist member agencies determine retrofit targets | | | | | | 0 | | \$ - |
| 5.5 | Develop a tracking tool to document GI projects and assist agencies upload historic projects | | | | | | 0 | | \$ - |
| 5.6 | Coordination with CCAG and BASMAA | 16 | | | | | 16 | | \$ 3,200.00 |
| 9 | Mercury and PCBs Load Reduction | | | | | | | | |
| 9.3 | Evaluate alternative PCBs load reduction allocation approach | | | | | | 0 | | \$ - |
| 9.4 | Develop, document, and implement an assessment/tracking methodology for mercury and PCBs load reduction | | | | | | 0 | | \$ - |
| 9.5 | Assist identifying, quantifying, and tracking load reductions associated with GI projects | | | | | | 0 | | \$ - |
| 9.6 | Develop initial phase of a reasonable assurance analysis | | | | | | 0 | | \$ - |
| 9.7 | Develop a building demolition management program | 8 | | | | | 8 | | \$ 1,600 |
| 9.9 | Coordination with CCAG and BASMAA | 40 | | | | | 40 | | \$ 8,000 |
| 10 | Stormwater Resource Planning | | | | | | | | |
| 10.1 | Compile existing plans, mapping efforts, hydrologic data, design criteria, and other information needed to develop SRP | 4 | | | 32 | 32 | 68 | | \$ 10,720 |
| 10.2 | Develop process for identifying and prioritizing stormwater and dry weather runoff capture/GI projects | 18 | | | 16 | 24 | 58 | | \$ 9,720 |
| 10.3 | Identify opportunities and projects | 16 | | | 8 | 40 | 64 | | \$ 10,320 |
| 10.4 | Develop a stormwater capture model and quantify runoff capture capability from proposed project sites | 16 | 4 | 80 | 120 | | 220 | | \$ 38,140 |
| 10.5 | Develop methods to quantitatively evaluate multiple benefits for project sites | | | | | | 0 | | \$ - |
| 10.6 | Prepare project concepts | 20 | | | | 180 | 200 | | \$ 30,100 |
| 10.7 | Assist with community participation process | 2 | | | | 4 | 6 | | \$ 980 |
| 10.8 | Develop web-based mapping tool | 4 | | | 16 | | 20 | | \$ 3,440 |
| 10.9 | Prepare Stormwater Resource Plan | 40 | 4 | 40 | 16 | 4 | 104 | | \$ 19,160 |
| 10.10 | Develop Proposition 1 Grant Application | | | | | | 0 | | \$ - |
| 10.11 | Coordination with CCAG and BASMAA | 24 | | | | | 24 | | \$ 4,800 |
| | Totals | 228 | 8 | 120 | 224 | 304 | 884 | 0 | \$ 149,720.0 |

| Task | Scope of Work Fiscal Year 2015-16 (6 Months) (January 2016-June 2016) | CD+A | | | | | | | Total Hours | Direct Costs | CD+A Sub-Total | Task Cost (incl 10% sub markup) |
|-----------|--|-----------|---------------|---------------|---------------|------------------------|----------------|------------|-------------|------------------|-------------------|---------------------------------|
| | | Erickson | Kronemeyer | Goldade | Singh | Project Urban Designer | Urban Designer | | | | | |
| | | Principal | Assoc. Princ. | Assoc. Princ. | Senior Assoc. | | | | | | | |
| 2 | Subcommittee Support | | | | | | | | | | | |
| 2.7 | Subcommittee Assessment | | | | | | | 0 | \$ - | \$ - | \$ 13,960 | |
| 3 | Training | | | | | | | | | | | |
| 3.6 | Training Framework | | | | | | | 0 | \$ - | \$ - | \$ 20,500 | |
| 5 | Green Infrastructure Planning | | | | | | | | | | | |
| 5.1 | Develop coordinated approach for GI Plans | 32 | 59 | 16 | 16 | 48 | 56 | 227 | \$ 75 | \$ 28,977 | \$ 53,809 | |
| 5.2 | Support outreach efforts on GI planning | 6 | 10 | 4 | | 12 | 16 | 48 | \$ 100 | \$ 5,874 | \$ 9,812 | |
| 5.3 | Assist member agencies identify GI projects | | | | | | | 0 | \$ - | \$ - | \$ - | |
| 5.4 | Assist member agencies determine retrofit targets | | | | | | | 0 | \$ - | \$ - | \$ - | |
| 5.5 | Develop a tracking tool to document GI projects and assist agencies upload historic projects | | | | | | | 0 | \$ - | \$ - | \$ - | |
| 5.6 | Coordination with CCAG and BASMAA | 16 | | | | | | 16 | \$ 50 | \$ 3,905 | \$ 15,135 | |
| 9 | Mercury and PCBs Load Reduction | | | | | | | | | | | |
| 9.3 | Evaluate alternative PCBs load reduction allocation approach | | | | | | | 0 | \$ - | \$ - | \$ - | |
| 9.4 | Develop, document, and implement an assessment/tracking methodology for mercury and PCBs load reduction | | | | | | | 0 | \$ - | \$ - | \$ - | |
| 9.5 | Assist identifying, quantifying, and tracking load reductions associated with GI projects | | | | | | | 0 | \$ - | \$ - | \$ - | |
| 9.6 | Develop initial phase of a reasonable assurance analysis | | | | | | | 0 | \$ - | \$ - | \$ - | |
| 9.7 | Develop a building demolition management program | | | | | | | 0 | \$ - | \$ - | \$ 22,120 | |
| 9.9 | Coordination with CCAG and BASMAA | 12 | | | | | | 12 | \$ 50 | \$ 2,941 | \$ 31,195 | |
| 10 | Stormwater Resource Planning | | | | | | | | | | | |
| 10.1 | Compile existing plans, mapping efforts, hydrologic data, design criteria, and other information needed to develop SRP | | | | | | | 0 | \$ - | \$ - | \$ 12,162 | |
| 10.2 | Develop process for identifying and prioritizing stormwater and dry weather runoff capture/GI projects | | | | | | | 0 | \$ - | \$ - | \$ 10,692 | |
| 10.3 | Identify opportunities and projects | | | | | | | 0 | \$ - | \$ - | \$ 11,722 | |
| 10.4 | Develop a stormwater capture model and quantify runoff capture capability from proposed project sites | | | | | | | 0 | \$ - | \$ - | \$ 42,694 | |
| 10.5 | Develop methods to quantitatively evaluate multiple benefits for project sites | | | | | | | 0 | \$ - | \$ - | \$ 6,660 | |
| 10.6 | Prepare project concepts | | | | | | | 0 | \$ - | \$ - | \$ 33,480 | |
| 10.7 | Assist with community participation process | | | | | | | 0 | \$ - | \$ - | \$ 1,448 | |
| 10.8 | Develop web-based mapping tool | | | | | | | 0 | \$ - | \$ - | \$ 4,154 | |
| 10.9 | Prepare Stormwater Resource Plan | | | | | | | 0 | \$ - | \$ - | \$ 21,446 | |
| 10.10 | Develop Proposition 1 Grant Application | | | | | | | 0 | \$ - | \$ - | \$ 5,780 | |
| 10.11 | Coordination with CCAG and BASMAA | | | | | | | 0 | \$ - | \$ - | \$ 9,440 | |
| | Totals | 66 | 69 | 20 | 16 | 60 | 72 | 303 | 275 | \$ 41,698 | \$ 326,209 | |