# Safe, Clean Water Program

## Feasibility Study Guidelines

For Chief Engineer of the
Los Angeles County Flood Control District

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Date Adopted

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## 1.0 Background and Purpose

The definitions set forth in Sections 16.03 and 18.02 of the Los Angeles County Flood Control District Code shall apply to these Guidelines.

The objective of the Infrastructure Program is to plan, build, and maintain watershed-based Multi-Benefit Projects. In order for a Project to be eligible for consideration by the Watershed Area Steering Committee (WASC) and scoring by the Scoring Committee, a Feasibility Study for that Project must first be completed.

Section 18.07.B.3. of the Los Angeles County Flood Control District Code states:

> The Chief Engineer shall develop and adopt guidelines for the preparation of Feasibility Studies (Feasibility Study Guidelines), including required contents, and shall update those guidelines from time to time, consistent with the purposes and goals of the SCW Program, as the Chief Engineer deems necessary or appropriate for the effective operation of the Regional Program.

The purpose of these Feasibility Study Guidelines ("Guidelines") is to describe the minimum requirements for Feasibility Studies. If a Feasibility Study does not meet the minimum requirements described in these Guidelines, the proposed Project will not be eligible for consideration and scoring. These Guidelines may be periodically updated as deemed necessary or appropriate by the Chief Engineer of the LA County Flood Control District.

If a Feasibility Study or functionally equivalent Feasibility Study level information (see Section 5.0) has not been prepared for a proposed Project, a WASC may recommend that a Feasibility Study for the proposed Project be prepared through the Technical Resources Program, in a Stormwater Investment Plan (SIP). When included in an approved SIP, the District will provide Technical Assistance Teams to complete the Feasibility Studies in partnership with and on behalf of Municipalities, community-based organizations ("CBOs"), non-governmental organizations ("NGOs"), and others who may not have the technical resources or capabilities to develop Feasibility Studies. Each Feasibility Study will be uploaded through a web-based tool that also provides applicants with a preliminary score based on their inputs. Each WASC will determine which completed Feasibility Studies will be sent to the Scoring Committee for official scoring.

The requirements in the following section are intended to be used in combination with the Project Scoring Criteria (Exhibit A) and the SCW Regional Projects Module (Exhibit B) described in Section 4.0 below.

## 2.0 Requirements

A Feasibility Study is required before a Project can be submitted for consideration, scoring, and potential recommendation for incorporation into a SIP. At a minimum, a Feasibility Study must include:

1. A detailed description of the proposed Project, including:
    - A summary of the Project's primary objective(s), secondary objective(s), and any additional objective(s).
    - A description of the primary mechanisms by which the Project will achieve its objectives (e.g., runoff and/or pollutant reduction through infiltration, treat and release, capture and use, etc.).
    - A description and schematic of the Project layout including its anticipated footprint and key components such as, but not limited to: inlet, outlet, diversion point, recreational components, nature-based components, pumps, treatment facilities, underdrains, conveyance, above ground improvements, and other Project components.
    - An outline of the capture area for the Project on a map and a breakdown of acreage, land uses and percent imperviousness within the capture area.
    - Land ownership and related rights of way.
2. A description and estimate of the benefits provided (determined through best engineering estimates and modeling as appropriate). More information on how to estimate Project benefits are provided in Section 3.0.
3. An estimated schedule to design, obtain permits for, construct, operate and maintain the Project.
4. A review of the effectiveness of similar types of Projects already constructed, when available.
5. A monitoring plan to measure the effectiveness of the proposed Project once completed, including metrics specific to the identified benefits.
6. A lifecycle cost estimate and schedule required to design, obtain permits for, construct, operate and maintain the Project.
    - Life-cycle cost estimates must contain Project costs including but not be limited to: costs related to early concept design, pre-Project monitoring, Feasibility Study development, site investigations, formal Project design, intermediate and Project completion audits, California Environmental Quality Act (CEQA) compliance and other environmental impact studies, land acquisition, permitting, construction, full lifetime operations and maintenance, monitoring, etc. The only costs not to be included in the life-cycle cost estimate are the dismantling and replacement costs at the end of life.
7. A plan for how operations and maintenance of the Project will be carried out. The plan should include but not be limited to: estimated annual costs associated with maintenance (including: estimates for number of crew required, hours of maintenance per month/year, the staff expertise level, Projections of maintenance cost increases over the life of the Project); how Project maintenance will accommodate Project Labor Agreement (PLA) considerations (if applicable); and identification of the responsible party that has agreed to perform the operations and maintenance.

8. An engineering analysis of the proposed Project (e.g., estimates of site conditions, soil sampling, appropriate geotechnical investigations, preliminary hydrology report, site layout, utility search, environmental impacts, pertinent historical background for site location, etc.).
    - The minimum requirements for engineering analysis will depend primarily on the type of Project.
    - The engineering analysis should, at a minimum, support all benefits claimed.
    - It is understood that not all Projects will have completed CEQA and other environmental studies, so estimates and engineering analyses do not have to be as comprehensive as a full CEQA or other environmental study (unless those studies have already been completed and are available to support the Project).
9. An assessment of potential CEQA-related and permitting challenges and associated time requirements and costs.
10. For non-municipal Project applicant/developers (meaning entities that are not cities/municipalities, the LA County Flood Control District, or other government agencies) an initial letter of support from the Municipality in which the Project is proposed that includes concurrence with the plan for operations and maintenance and the responsible party that has agreed to perform the operation and maintenance.
11. A plan for outreach/engagement to solicit, address, and incorporate stakeholder input on the Project, which should also address issues related to displacement and gentrification.
12. As applicable, the Feasibility Study must include an acknowledgment that the Project will be fully subject to and comply with any County-wide displacement policies as well as with any specific anti-displacement requirements associated with other funding sources.
13. A plan to incorporate vector minimization into the Project design, operations, and maintenance. The California Department of Public Health's Checklist for Minimizing Vector Production in Stormwater Management Structures can serve as a basic guideline in developing the vector minimization plan. Projects creating vector-related public nuisances may be subject to abatement proceedings as specified in California Health and Safety Code sections 2060 et seq. It is recommended that Infrastructure Program Project Applicants have their vector minimization plans reviewed by the local vector control district or agency.
14. A description of how Nature-Based Solutions are utilized to the maximum extent feasible. If Nature-Based Solutions are not used, include a description of what options for Nature-Based Solutions were considered and why they were not feasible.
15. A summary of any legal requirements or obligations that may arise as a result of constructing the Project, and how those requirements will be satisfied.
16. For Projects involving LA County Flood Control District (LACFCD) infrastructure, facilities, or right-of-way, provide confirmation of conceptual approval from LACFCD.
17. Acknowledgment of eligible expenditures being only those incurred on or after November 6, 2018.
18. A summary of the other sources of funding that are being leveraged for Project costs (if applicable). If no other sources of funding are being utilized, provide a summary of what other sources of funding were explored and/or why funding could not be secured through these other sources.

19. If the Project is located within a Disadvantaged Community (DAC), a summary of how the Project will benefit that DAC and a discussion of measures on displacement avoidance.

The Feasibility Study should provide enough information about a proposed Project to allow the Watershed Area Steering Committee members to make an informed decision as to which Projects should move forward for consideration for funding. The Feasibility Study should provide enough information or estimates to allow each Project to be scored through the 110-point Infrastructure Program Project Scoring Criteria (Exhibit A).

## 3.0 Estimating Score-Based Benefits

To the extent possible, Feasibility Studies should provide estimates of the benefits provided by each Project. These include Water Quality Benefits, Water Supply Benefits, and Community Investment Benefits as well as a characterization of any Nature-Based Solutions employed by the Project, and how a Project may be leveraging funds and engaging the public.

Additional information for characterization of benefits are provided in the following subsections.

## 3.1 Water Quality Benefits

The scoring criteria for Water Quality Benefits is broken into two separate tracks, wet weather Projects and dry weather Projects. Only one track may be used for the purposes of scoring. Any Project may utilize the wet weather scoring section; however, only Projects designed for 0.25-inch rain events or below may utilize the dry weather scoring section. For Water Quality Benefit scoring, the management of stormwater includes activities that capture, infiltrate, divert, or treat and release stormwater or urban runoff.

At a minimum, a Feasibility Study must include the following:

**Wet Weather (all Projects, 0-inch storms and above)**

- An estimate of the design 24-hour BMP capacity volume, including a breakdown of the capacity volume calculation such as Project storage capacity, estimated infiltration rate (if applicable), footprint area, etc (i.e., typically the 85$^{th}$ percentile, 24-hour capacity).
- An estimate of the capital cost of the Project.
- A description of the diversion structure for the Project (if applicable), diversion rate(s) and conditions when diversion would and would not occur.
- An assessment of any available/anticipated monitoring data collected for the Project.
- An assessment of anticipated event-based Project performance (e.g., during the Project's 24-hour design condition) including a breakdown of the following:
    - Estimated peak inflow rate and total inflow volume.
    - Estimated portion of the peak inflow that would be retained by the Project through infiltration, capture, diversion, use, or other means.
    - Estimated outflow from the Project and bypassed flow with a breakdown of the portion released from each outlet (where multiple outlets are proposed) and portion of the outflow through each outlet that would be treated, untreated and the mechanism of treatment.
    - Estimated primary and secondary pollutant concentrations in the inflow to the Project.

- Estimated primary and secondary pollutant concentrations in the outflow from each outlet of the Project (where multiple outlets are proposed).
- Flow and pollutant balance based on the estimates above including calculations of the pre- and post-Project flows, pollutant loads and concentrations and resulting reductions of each.
- If the Project includes a diversion structure, the estimated portion of the flow volume at the diversion structure that would bypass the diversion/not be captured.
- Citations or description of methods to generate the estimates above.

- An assessment of the long-term pollutant reduction from the Project for the applicable primary and secondary pollutants. The assessment should be based on modeling similar to the Watershed Management Modeling System (WMMS) used to develop the MS4 Permit's enhanced watershed management and watershed management programs ("E/WMPs"). The assessment should include a calculation of the pollutant reduction expected to result from the Project over the most recently available 10-year model output period by comparing influent and effluent flows, concentrations and loads. The assessment should incorporate the latest applicable performance data regarding the efficiency of the BMP type utilized in the Project. Modeling results can be based on the best-case reduction among the pollutants in each class and should be expressed as a percentage and be consistent with the applicable TMDLs and E/WMPs for the pollutants in the Project's watershed. The assessment should also include justification of the selected modeling metric. The following table shows the potential modeling metrics for analysis of long-term pollutant reduction benefit.

| | | **Pick Any One Primary Pollutant Class and Any One Secondary Pollutant Class** | | |
|---|---|---|---|---|
| **Pollutant Class** | **Pollutant Name** | **Method 1 (% Concentration Reduction)** | **Method 2 (% Load Reduction)** | **Method 3 (% Exceedance Day Reduction)** |
| **Primary or Secondary** | Bacteria | ✔ | ✔ | ✔ |
| | Metals | ✔ | ✔ | |
| | Toxics | | ✔ | |
| | Nutrients | ✔ | ✔ | |
| | Chloride | ✔ | ✔ | |
| **Secondary** | Trash | | ✔ | ✔ |
| | Bacteria | ✔ | ✔ | ✔ |
| | Metals | ✔ | ✔ | |
| | Toxics | | ✔ | |
| | Nutrients | ✔ | ✔ | |
| | Chloride | ✔ | ✔ | |

Notes:
-The Secondary Pollutant Class includes all primary pollutants with the addition of trash (NOTE: the primary pollutant class cannot be the same as the secondary pollutant class).
-Primary and secondary pollutants are pollutants subject to TMDLs for the nearby downstream receiving waters of the project.
-Secondary pollutants may also include 303(d)-listed pollutants and pollutants that have been subject to exceedances during recent monitoring programs.
-Trash is not considered a valid primary pollutant. For estimate of trash reduction, the analysis can demonstrate equivalence with the Full Capture System definition for 100% reduction.

**Dry Weather (Only Projects designed for 0.25-inch storms and below)**

- An analysis (with or without modeling) showing that the Project is designed to capture, infiltrate, divert, or treat and release 100% (unless infeasible or prohibited for habitat, etc) of all tributary dry weather flows at the site location.
- A description of the method used to estimate dry weather flows at the site location.

## 3.2 Water Supply Benefits

At a minimum, a Feasibility Study must include the following:

- An estimate of (1) the annual average amount of stormwater or urban runoff captured by the Project for reuse onsite and (2) the annual average amount of stormwater or urban runoff captured by the Project to augment water supplies, whether infiltrated or diverted (such as to a spreading facility or to a sanitary sewer for recycled water).
    - The estimate should be based on modeling or other similar approach, with justification.
    - The Feasibility Study should specify whether the Water Supply Benefit claimed will result from offsetting potable demand, increasing water supply, or both (and how). Since not all reuse offsets demand (e.g., if the Project creates new demand), the Feasibility Study should provide an analysis of supply and demand impacts when claiming an offset of potable demand.
    - Stormwater that is treated and released to a storm drain or receiving water should not be considered as reuse.
    - Stormwater that is treated and released to a storm drain or receiving water should not be considered as augmenting the local water supply unless the Project is tributary to a groundwater recharge facility, and/or unless the Project would facilitate the continued recharge of water that would otherwise be prohibited for use in the water supply (eg. the infiltration of mixed or treated reclaimed or recycled water).
    - Where a Project's Water Supply Benefits include an increase in water supply through soil infiltration, the Feasibility Study should include an engineering analysis demonstrating that that the infiltrated water is reaching a managed, usable groundwater aquifer and confirmation that the agency managing the groundwater basin concurs.
    - For Projects that treat and use stormwater to directly offset potable water use through irrigation or similar means, projections of the irrigation demand and use should be included.
    - The estimate of annual average capture should account for the inflow to the Project from the Project capture area, the storage of the Project, and the overflow/bypass during storm events (when capacity is exceeded).
    - The annual average estimate should clearly document the basis for the annual average precipitation/hydrology (e.g., whether a specific year was used as a representative average year with justification, or whether the long-term average was calculated across many years). A minimum of 20-years should be used for the annual average calculations.

- The Feasibility Study must demonstrate that the diverted water would not otherwise be diverted/captured downstream of the Project site[1].
- The Feasibility study must identify whether and how the 85th percentile storm is being captured/diverted. If the Project will not capture the 85th percentile storm, the Feasibility Study must explain why.

- The nexus between water supply and the Stormwater and/or Urban Runoff that is captured/infiltrated/diverted by the Project should be clearly documented and justified.
- Total life-cycle cost of the Project based on annualized value. (See section 2.0 Requirements)

## 3.3 Community Investment Benefits

A Feasibility Study must include the following, as applicable:

- An explanation, with supporting analysis and information, of how the Project will improve flood management, flood conveyance, or flood risk mitigation.
- An explanation, with supporting analysis and information, of how the Project will create, enhance, or restore park space, habitat, or wetland space.
- An explanation, with supporting analysis and information, of how the Project will improve public access to waterways.
- An explanation, with supporting analysis and information, of how the Project will enhance or create new recreational opportunities.
- An explanation, with supporting analysis and information, of how the Project will create or enhance green spaces at schools.
- An explanation, with supporting analysis and information, of how the Project will improve public health by reducing local heat island effect and increasing shade.
- An explanation, with supporting analysis and information, of how the Project will improve public health by increasing the number of trees and/or other vegetation at the site location that will increase carbon reduction/sequestration and improve air quality.

## 3.4 Nature-Based Solutions

A Feasibility Study must include the following, as applicable:

- An explanation, with supporting analysis and information, of how the Project will implement or mimic natural processes to slow, detain, capture, and absorb/infiltrate water in a manner that protects, enhances or restores habitat, green space or usable open space
- An explanation, with supporting analysis and information, of how the Project will utilize natural materials such as soils and vegetation with a preference for native vegetation

[1] In the first year (SIPs for FY20-21), Projects that capture water that is already captured downstream can still be submitted and scored to receive water supply points as applicable, Public Works will continue to evaluate value added in capturing onsite and/or allowing downstream capacity to remain.

- An engineering estimate for how much impermeable area is removed after the construction of the Project. Compares the impermeable area of the site to before construction to after the Project is completed.
- If Nature-Based Solutions are not utilized, an explanation, with supporting analysis and information, of why it is not feasible to do so.

## 3.5 Leveraging Funds and Community Support

A Feasibility Study must include the following, as applicable:

- A discussion of how other funding sources are being leveraged to finance the Project, including documentation of such other funding sources (e.g., existing agreements, MOUs, grant awards). Other funding sources could include funds from the SCW Municipal Program.
- A discussion of whether the Project has community-based support and/or has been developed as part of a partnership with local non-governmental organizations or community-based organizations.

# 4.0 Feasibility Study and SCW Regional Projects Module

Exhibit B is an online web-based SCW Regional Projects Module and is available at https://portal.safecleanwaterla.org/projects-module/login. This interactive tool guides the user through the process of inputting all necessary Project data (for a Feasibility Study or otherwise) as well as data required for scoring by the Scoring Committee. It effectively represents a template for Feasibility Studies and incorporates all required information called out in these Guidelines. A complete submission will be equivalent to a Feasibility Study upon confirmation from the WASCs. Each user will have the ability to estimate their score and/or modify the Project inputs before submitting a Feasibility Study or Project for consideration by a WASC.

The Scoring Committee will use the same tool to evaluate Projects and generate an official score for WASC consideration. All Feasibility Studies and Projects that are submitted by a WASC to the Scoring Committee will be preserved in the SCW Regional Projects Module.

# 5.0 Functional Equivalence

Information about a proposed Project that was not developed in connection with a Feasibility Study, but that nonetheless meets the requirements of these Guidelines, shall be considered "functionally equivalent Feasibility Study level information". Where functionally equivalent Feasibility Study-level information exists regarding a proposed Project that addresses all the requirements in these Guidelines, the Infrastructure Program Project Applicant may utilize this information in lieu of preparing a Feasibility Study for the proposed Project. However, where functionally equivalent Feasibility Study-level information exists for only some of requirements of these Guidelines, the Infrastructure Program Project Applicant will need to supplement that existing information with a Feasibility Study that all includes all remaining required information detailed in these Guidelines.

Infrastructure Program Project Applicants electing to use functional equivalent Project-Feasibility Study level information must still enter that information into the SCW Regional Projects Module for scoring purposes using the Infrastructure Program Project Scoring Criteria.

## Exhibit A – Infrastructure Program Project Scoring Criteria

**All Regional Program Projects must meet the Threshold Score of 60 points or more using the following Project Scoring Criteria to be eligible for consideration.**

| Section | Score Range | Scoring Standards |
|---|---|---|
| **A.1 Wet + Dry Weather Water Quality Benefits** | 50 points max | The Project provides water quality benefits |
| | 20 points max | A.1.1: For Wet Weather BMPs Only: Water Quality Cost Effectiveness<br>(Cost Effectiveness) = (24-hour BMP Capacity)[1] / (Capital Cost in $Millions)<br>• <0.4 (acre feet capacity / $-Million) = 0 points<br>• 0.4-0.6 (acre feet capacity / $-Million) = 7 points<br>• 0.6-0.8 (acre feet capacity / $-Million) = 11 points<br>• 0.8-1.0 (acre feet capacity / $-Million) = 14 points<br>• >1.0 (acre feet capacity / $-Million) = 20 points<br>*[1]. Management of the 24-hour event is considered the maximum capacity of a Project for a 24-hour period. For water quality focused Projects, this would typically be the 85th percentile design storm capacity. Units are in acre-feet (AF).* |
| **- OR -** | 30 points max | A.1.2: For Wet Weather BMPs Only: Water Quality Benefit - Quantify the pollutant reduction (i.e. concentration, load, exceedance day, etc.) for a class of pollutants using a similar analysis as the E/WMP which uses the Districts Watershed Management Modeling System (WMMS). The analysis should be an average percent reduction comparing influent and effluent for the class of pollutant over a ten-year period showing the impact of the Project. Modeling should include the latest performance data to reflect the efficiency of the BMP type.<br><u>Primary Class of Pollutants</u><br>• >50% = 15 points<br>• >80%= 20 points<br>*(20 Points Max)*<br><u>Second or More Classes of Pollutant</u><br>• >50% = 5 points<br>• >80%= 10 points<br>(10 Points Max) |
| **A.2 Dry Weather Only Water Quality Benefits** | 20 points | A.2.1: For dry weather BMPs only, Projects must be designed to capture, infiltrate, treat and release, or divert 100% (unless infeasible or prohibited for habitat, etc) of all tributary dry weather flows. |
| | 20 points max | A.2.2: For Dry Weather BMPs Only. Tributary Size of the Dry Weather BMP<br>• <200 Acres = 10 points<br>• >200 Acres = 20 points |
| **B. Significant Water Supply Benefits** | 25 points max | The Project provides water re-use and/or water supply enhancement benefits |
| | 13 points max | B1. Water Supply Cost Effectiveness. The Total Life-Cycle Cost[2] per unit of acre foot of Stormwater and/or Urban Runoff volume captured for water supply is:<br>• >$2500/ac-ft = 0 points<br>• $2,000–2,500/ac-ft = 3 points<br>• $1500-2,000/ac-ft = 6 points<br>• $1000–1500/ac-ft = 10 points<br>• <$1000/ac-ft = 13 points<br>*[2]. Total Life-Cycle Cost: The annualized value of all Capital, planning, design, land acquisition, construction, and total life O&M costs for the Project for the entire life span of the Project (e.g. 50-year design life span should account for 50-years of O&M). The annualized cost is used over the present value to provide a preference to Projects with longer life spans.* |
| | 12 points max | B2. Water Supply Benefit Magnitude. The yearly additional water supply volume resulting from the Project is:<br>• <25 ac-ft/year = 0 points<br>• 25 - 100 ac-ft/year = 2 points<br>• 100 - 200 ac-ft/year = 5 points<br>• 200 - 300 ac-ft/year = 9 points<br>• >300 ac-ft/year = 12 points |

| Section | Score Range | Scoring Standards |
|---|---|---|
| **C. Community Investments Benefits** | 10 points max | The Project provides Community Investment Benefits |
| | 10 points | C1. Project includes:<br>• One of the Community Investment Benefits identified below = 2 points<br>• Three distinct Community Investment Benefits identified below = 5 points<br>• Six distinct Community Investment Benefits identified below = 10 points<br><br>Community Investment Benefits include:<br>• Improved flood management, flood conveyance, or flood risk mitigation<br>• Creation, enhancement, or restoration of parks, habitat, or wetlands<br>• Improved public access to waterways<br>• Enhanced or new recreational opportunities<br>• Greening of schools<br>• Reducing local heat island effect and increasing shade<br>• Increasing the number of trees increase and/or other vegetation at the site location that will increase carbon reduction/sequestration and improve air quality. |
| **D. Nature-Based Solutions** | 15 points max | The Project implements Nature-Based Solutions |
| | 15 points | D1. Project:<br>• Implements natural processes or mimics natural processes to slow, detain, capture, and absorb/infiltrate water in a manner that protects, enhances and/or restores habitat, green space and/or usable open space = 5 points<br>• Utilizes natural materials such as soils and vegetation with a preference for native vegetation = 5 points<br>• Removes Impermeable Area from Project (1 point per 20% paved area removed) = 5 points |
| **E. Leveraging Funds and Community Support** | 10 points max | The Project achieves one or more of the following: |
| | 6 points max | E1. Cost-Share. Additional Funding has been awarded for the Project.<br>• >25% Funding Matched = 3 points<br>• >50% Funding Matched = 6 points |
| | 4 points | E2. The Project demonstrates strong local, community-based support and/or has been developed as part of a partnership with local NGOs/CBOs. |
| | | |
| Total | Total Points All Sections 110 | |