This Workspace form is one of the forms you need to complete prior to submitting your Application Package. This form can be completed in its entirety offline using Adobe Reader. You can save your form by clicking the "Save" button and see any errors by clicking the “Check For Errors” button. In-progress and completed forms can be uploaded at any time to Grants.gov using the Workspace feature.

When you open a form, required fields are highlighted in yellow with a red border. Optional fields and completed fields are displayed in white. If you enter invalid or incomplete information in a field, you will receive an error message. Additional instructions and FAQs about the Application Package can be found in the Grants.gov Applicants tab.

## OPPORTUNITY & PACKAGE DETAILS:

| | |
|---|---|
| Opportunity Number: | R24AS00059 |
| Opportunity Title: | WaterSMART Small-Scale Water Efficiency Projects For Fiscal Year 2024 and Fiscal Year 2025 |
| Opportunity Package ID: | PKG00283695 |
| Assistance Listing Number: | 15.507 |
| Assistance Listing Title: | WaterSMART (Sustain and Manage America???s Resources for Tomorrow) |
| Competition ID: | R24AS00059 |
| Competition Title: | WaterSMART Small-Scale Water Efficiency Projects For Fiscal Year 2024 and Fiscal Year 2025 |
| Opening Date: | 11/01/2023 |
| Closing Date: | 01/14/2025 |
| Agency: | Bureau of Reclamation |
| Contact Information: | Christina Munoz |

## APPLICANT & WORKSPACE DETAILS:

| | |
|---|---|
| Workspace ID: | WS01455170 |
| Application Filing Name: | H2OC RainSmart Large Landscape Turf Upgrade Incentive Program-Small-Scale Water Efficiency 2025 |
| UEI: | N9LEV9CL4BP3 |
| Organization: | OCPW |
| Form Name: | Project Narrative Attachment Form |
| Form Version: | 1.2 |
| Requirement: | Mandatory |
| Download Date/Time: | Jan 12, 2025 09:28:17 PM EST |
| Form State: | No Errors |

## FORM ACTIONS:

## Project Narrative File(s)

*** Mandatory Project Narrative File Filename:** USBR_SmallScaleWEEG_FY25_H2OC RainSmart Large Landscap

Add Mandatory Project Narrative File | Delete Mandatory Project Narrative File | View Mandatory Project Narrative File

To add more Project Narrative File attachments, please use the attachment buttons below.

Add Optional Project Narrative File | Delete Optional Project Narrative File | View Optional Project Narrative File

# H2OC RainSmart Large Landscape Turf Upgrade Incentive Program

*Grant Applicant:*

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**Submitted on January 14, 2025**

*to:*

U.S. Department of the Interior, Bureau of Reclamation
WaterSMART Grants: Small-Scale Water Efficiency Projects for Fiscal Year 2025

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## Appendices

**Appendix A – Letters of Support**
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# 1.0 Mandatory Federal Forms

The following forms were submitted electronically via grants.gov:

SF-424 Application for Federal Assistance
SF-424A Budget Information – Non-Construction Programs
SF-424B Assurances – Non-Construction Programs
SF-LLL Disclosure of Lobbying Activities

# 2.0 Technical Proposal and Evaluation Criteria

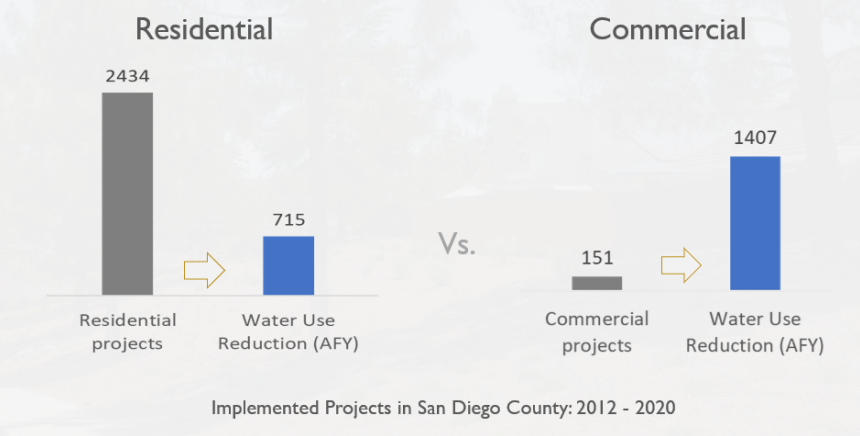
## 2.1 Executive Summary

**Date:** January 14, 2025
**Applicant Name:** County of Orange, Category A applicant
**Applicant City, County, State:** Orange, Orange County, California
**Project Name:** H2OC RainSmart Large Landscape Turf Upgrade Incentive Program
**Project Location:** All 34 incorporated cities and unincorporated areas of Orange County, California.

Project Summary:
Through the H2OC RainSmart Large Landscape Turf Upgrade Incentive Program (Project), the County of Orange (County) will provide additional incentive funding to homeowner's associations (HOAs) in Orange County, California, to complete 2 large landscape turf upgrade projects, replacing 50,000 square feet (SF) of turfgrass with very low to low water use climate appropriate plants, and conserving 6.75 acre-feet per year (AFY) of water. 82% of Orange County residents live within one of its 4,972 HOAs.[1] These HOAs manage numerous large landscape areas of non-functional turf which represent significant opportunities for increased water conservation and water quality improvements. Despite the long existence of turf removal incentives, barriers such as time constraints, challenges navigating programs, and complex decision-making processes have often prevented HOAs from completing turf removal projects. Now, on top of these hurdles, current turf removal rebates also require projects to include a stormwater feature. The additional technical expertise needed to design and construct a stormwater feature on a large landscape compounds the other barriers of time, stress, and decision-making complexities. Recognizing the substantially greater water savings and water quality benefits that can be achieved through large landscape turf conversions (> 10,000 SF), versus residential turf conversions (see Figure 1 below), the County seeks to provide HOAs with the additional incentives needed to make large landscape turf upgrade project implementation feasible. Numerous HOAs have already expressed interest in the County's large landscape turf upgrade program and the County expects it could convert over 12 million SF of grass in the coming years. The project supports the goals and objectives of the South Orange County Watershed Management Area Water Quality Improvement Plan, the South Orange County Integrated Regional Water Management Plan, the OC Plan, and the Preliminary Climate Action Plan for the County.

[1] California Association of Community Managers, Orange County HOAs at a Glance, 2016,

Figure 1: Water Savings from Residential vs Commercial Turf Replacement Projects




An analysis of rebate program participation over 8 years in unincorporated San Diego County showed that although commercial projects were just 6% of total applications, they provided 66% of the water savings achieved.

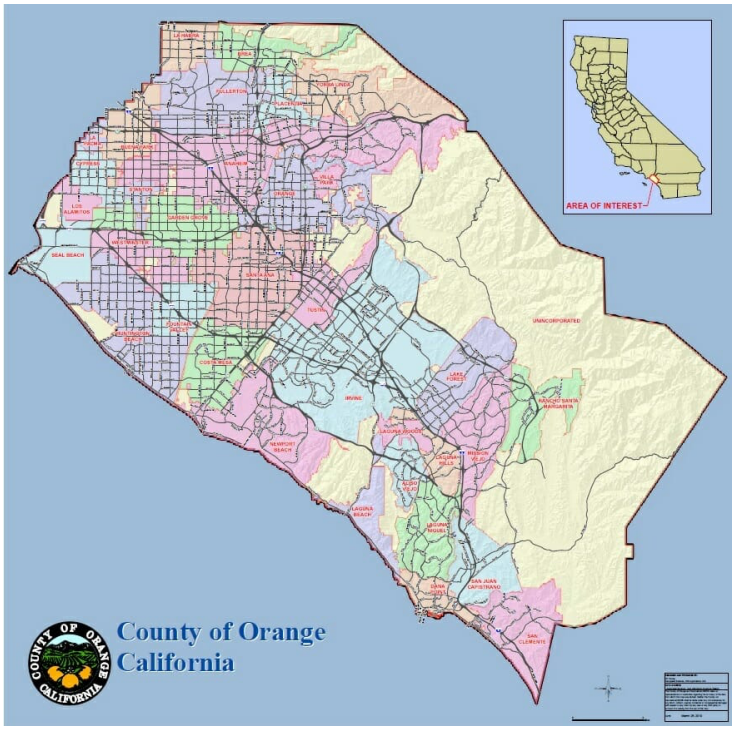
**State the length of time and estimated completion date for the proposed project (mm/yr).**
The County estimates a two-year (24-month) project length with a proposed completion date of 01/28.

**State whether or not the proposed project is located on a Federal facility or will involve Federal lands, and what work will occur on the Federal facility or Federal lands.**
The Program is not located on a Federal facility, nor will it involve Federal lands.

## 2.2 Project Location

The Program will be implemented within the boundaries of Orange County, California. Figure 2, right, depicts the geographical boundaries of the County, which spans 948 square miles and includes a population of 3.2 million.

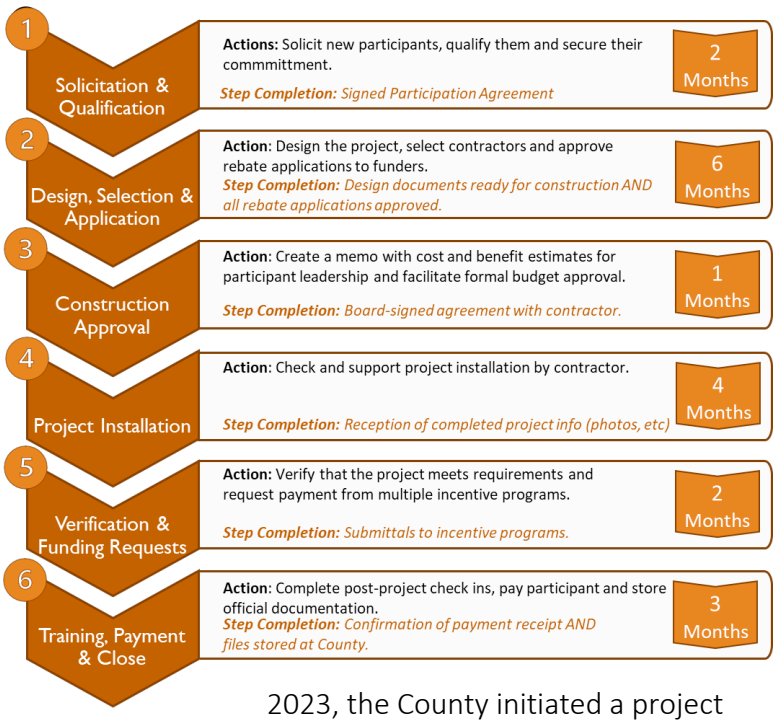
Figure 2: Project Location – Orange County, California



## 2.3 Project Description

The intent of the H2OC RainSmart Large Landscape Turf Upgrade Incentive Program is to provide HOAs with the additional incentives and assistance required to implement large landscape turf removal projects. The County's prototype follows the implementation of a similar program in San Diego County (San Diego), its adjacent neighbor to the south. Data collected by the Metropolitan Water District of Southern California (Metropolitan) in its service area indicates that there may be increased commercial turf removal activity in regions where additional assistance is offered to these customers, such as in San Diego (south of Orange County), where the County of San Diego Waterscape Rebate Program provides technical and financial support to HOAs to implement turf replacement projects. Looking for ways to achieve similar outcomes, in 2023, the County initiated a project prototype to demonstrate the viability of stacking additional incentives with existing water efficiency rebates in order to achieve HOA implementation of large landscape turf conversion projects in Orange County.

Figure 3: Six-Step Landscape Upgrade Program Process




A consultant team already under contract with the County (Environmental Incentives, Geosyntec, and Monarch Environmental) led the prototype project phase and initiated two projects with HOA partners in south Orange County. The County intends to expand the work of the prototype project across the entire county to complete 2 additional large landscape turf upgrade projects following the proven six-step process illustrated in Figure 3 above. The County, in concert with its consultant team, will provide start-to-finish technical assistance to help participants complete projects.

## Evaluation Criteria

### Evaluation Criterion A – Project Benefits (35 points)

Describe the expected benefits to the Category A applicant's water delivery system. Address the following: Clearly explain the anticipated water management benefits to the Category A applicant's water supply delivery system and water customers. Consider:

- Will the project result in more efficient management of the water supply?

Yes, reducing demand for imported water and keeping that water in storage will result in more efficient management of the water supply and provide greater flexibility to water managers, which will result in a more efficient use of water supplies. As noted by Metropolitan in its letter of support, "by safeguarding [potable water], the project ensures that our community's water supply is being efficiently managed, directly benefiting residents, businesses, and future generations. The Municipal Water District of Orange County notes in its support letter that, "with thousands of HOAs and commercial properties in the MWDOC
service area, programs like [the project] are critical to accelerating the transition from grass to climate-appropriate landscapes," which will increase local water use efficiency.

• Where any conserved water as a result of the project will go and how it will be used?
Water conserved as a result of the project will reduce demand for imported water supplies and be stored for use during future dry periods. As noted by Metropolitan, "Conservation programs play an important role in the region's water supply reliability. Today, about 2.5 million acre-feet of the record 3.4 million acre-feet Metropolitan holds in regional storage is water that has been conserved and stored instead of being consumed. That conserved water has been instrumental in staving off additional and more widespread calls for mandatory water cutbacks had the stored reserves reached critically low levels during droughts over the past 20 years. (An acre-foot is nearly 326,000 gallons, equivalent to the amount of water used by three typical household in a year.)" Annually, the project will keep 6.75 AF (supply for 20.25 households) of water in storage. Over the 30-year project life that equates to 202.5 AF of supply conserved or the amount of water necessary to supply 607.5 households.

Explain the significance of the anticipated water management benefits for the Category A applicant's water delivery system and customers. Consider:• Are customers not currently getting their full water right at certain times of year?• Does this project have the potential to prevent lawsuits or water calls?• What are the consequences of not making the improvement?• Are customer water restrictions currently required?• Other significant concerns that support the need for the project.
The project will reduce the Orange County's dependence on imported water supplied by Metropolitan and sourced from the State Water Project (California Bay-Delta system) and the Colorado River. The Colorado River Compact of 1922 serves as the cornerstone of the "Law of the River" that regulates the use and management of the Colorado River among the seven Colorado River Basin states and Mexico. Reducing the demand for imported water from the Colorado River will reduce Metropolitan's demand for Colorado River water and ultimately help it and the State of California comply with the Colorado River Compact and the "Law of the River."

Also, in November 2022, in response to the critical drought experienced by the Colorado River basin, 30 water providers that supply customers with Colorado River water signed a Memorandum of Understanding (MOU) agreeing to create a program to remove 30% of "non-functional" grass and replace it with "drought- and climate-resilient landscaping, while maintaining vital urban landscapes and tree canopy. The signatories represent water providers

from various states and the proposed project will help them achieve the desired outcome of the MOU.[2]

Broader Benefits: Describe the broader benefits that are expected to occur as a result of the project. Consider: •Will the project improve broader water supply reliability at sub-basin or basin scale?

Yes, the proposed project will improve broader water supply reliability at the sub-basin and basin scale by reducing demand for imported water and storing that water in reserves for use during future drought periods.

• Will the proposed project increase collaboration and information sharing among water managers in the region? Please explain.

Yes, the proposed project will increase collaboration and information sharing among water managers in the region. This is one of the first examples of a multi-benefit stacked incentives program in which water supply agencies and water quality agencies have joined together and co-funded nature-based solutions on private property. The broad collaboration and support the County is receiving on this project from HOAs, local water districts, wholesale water providers, and the scientific research community helps to ensure broad outreach and program marketing, rapid participation/program adoption, ease of program administration, and successful pre- and post-project data collection and measurement.The County expects the project to drive the implementation of future large landscape turf upgrade projects both by HOAs that complete a project through the project and by HOAs that have yet to complete a turf removal project. Data from San Diego show that more than half of project participants went on to complete additional projects and the success of those projects also encouraged broader participation by new HOA partners and individual residential homeowners within the HOA communities.

In 2022, Metropolitan Water District published a study indicating that for every 100 homes using a rebate to replace grass, an additional 132 homes nearby were inspired to replace their grass.[3] This demonstrated the multiplier effect of turf conversion projects. These projects, which have an estimated life of 30-years, create long-term water efficiency practices and increased water conservation.

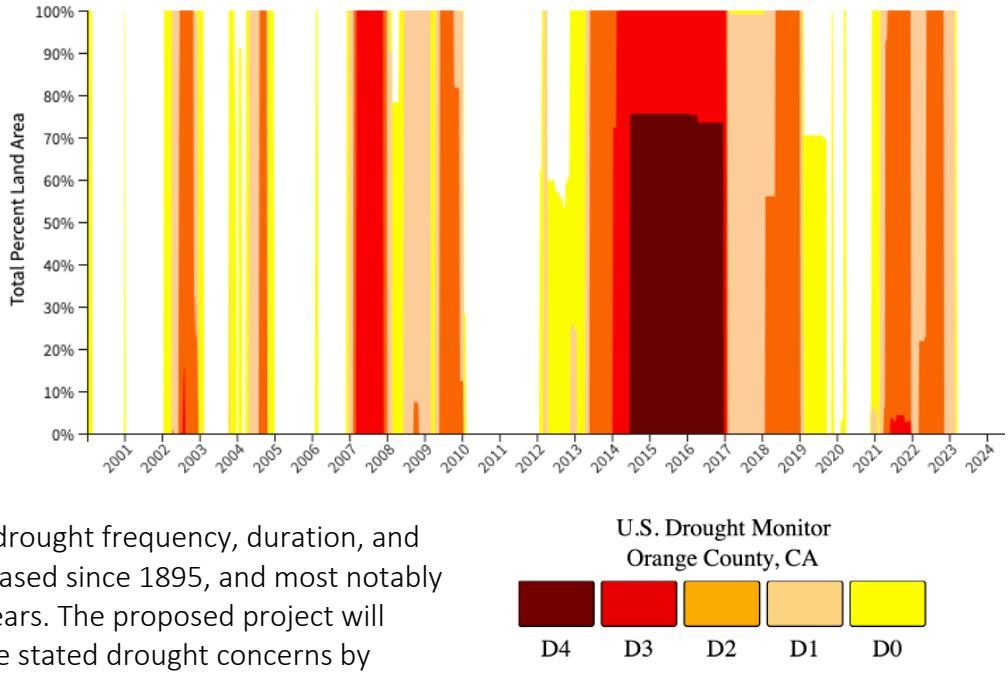
• Is the project in an area that is experiencing, or recently experienced, drought or water scarcity? Will the project help address drought conditions at the sub-basin or basin scale? Please explain.

Yes. Though recent weather conditions have alleviated drought conditions in the project area, rapid weather fluctuations make it likely that dry conditions could also return quickly. Over the past ten years, from 2014 - 2024, Orange County has been under drought conditions at least seven of those years (70%). And, for nearly three of those years, Orange County was under

[2] Memorandum of Understanding by and among Colorado River Basin Municipal and Public Water Providers, November 15, 2022: https://www.snwa.com/assets/pdf/mou-2022.pdf

[3] https://www.mwdh2o.com/press-releases/new-studies-show-metropolitans-grass-removal-incentives-are-driving-transformation-of-southern-californias-landscapes

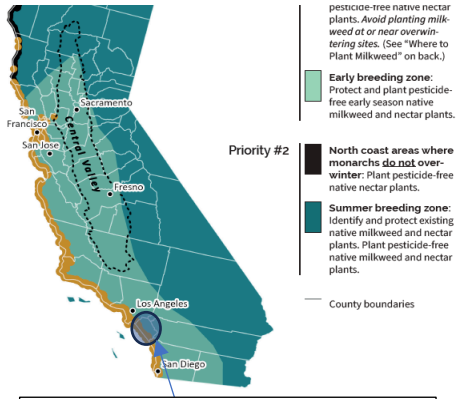
Figure 4 – Drought in Orange County 2000 - 2024




Exceptional Drought, D4, conditions, the most intense drought category under the U.S. Drought Monitor (USDM). USDM historical conditions for Orange County show frequent drought occurrence throughout Orange County's history. However, drought frequency, duration, and severity have increased since 1895, and most notably over the past 25 years. The proposed project will directly address the stated drought concerns by reducing demand for imported water and storing that water for use during the next drought. This provides water managers with greater flexibility in how they manage local water supplies. Water conservation plays such a significant role in increasing the drought resiliency of southern California that Metropolitan has referred to it as its "fourth aqueduct" and notes on its website, "without conservation, the effects of drought would be more swift and more severe. Every drop saved is another drop we can store for dry periods."[4] The water conserved by the implemented projects will remain in reserves for use during future drought periods.

• Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please explain. Yes, the large landscape turf upgrades completed through this project will benefit species. The turf removal upgrades completed by the project will convert turfgrass to more diverse, low water use, climate appropriate plants, which often include California natives. Turfgrass does not provide the food or nectar sources for endemic insects and pollinators that the conversion replacement plants provide. Two special status insects that will benefit from the landscape upgrades

Figure 5 – Priority Action Zones in California for Recovering Western




Program Area – Orange County, California

[4] https://www.mwdh2o.com/how-we-plan/weather-extremes/

proposed by the project include the Crotch's Bumble Bee, *Bombus crotchii*, and the monarch butterfly, *Danaus plexippus*. Both species have seen population declines over the past 20 years. Crotch's Bumble Bee was listed as a candidate species under the California Endangered Species Act in 2019. The State of California includes monarchs as a Species of Greatest Conservation Need in California's State Wildlife Action Plan and on the California Department of Fish and Wildlife's Terrestrial and Vernal Pool Invertebrates of Conservation Priority List. The U.S. Fish and Wildlife Service expects to issue a review decision in December 2024 for the listing of monarchs under the federal Endangered Species Act. As shown in Figure 5, above, Orange County is a Priority #1 Action Zone for recovery of western monarch butterflies.

• Will the proposed project positively impacts/benefit various sectors and economies within the applicable geographic area (e.g., impacts to agriculture, environment, recreation, and tourism)? Please explain.

The project will benefit commercial large landscape owners and the residents within those HOA communities through cost savings and improved aesthetics. In San Diego's program, it was estimated that on average, participants will save at least $7,000 annually on water. These savings will help HOAs invest in other community needs, such as recreation, safety, etc. It will directly benefit the municipal, environmental, and recreational sectors by reducing stormwater runoff volume through increased onsite retention, and improved water quality both within local streams and at local beaches.

• Will the project complement work being done in coordination with NRCS in the area (e.g., the area with a direct connection to the districts water supply)? Please explain.

While the project will not directly complement work being done in coordination with NRCS, it will help protect and preserve soil and water resources in Orange County, which aligns with the NRCS mission to help people better conserve, maintain, or improve their natural resources.

Evaluation Criterion B – Planning Efforts Supporting the Project (25 points)

Plan Description and Objectives: Is your project supported by a specific planning document or effort? If so, describe the existing plan. When was the plan developed? What is the purpose and objective of the plan? Plan Development: Who developed the planning effort? What is the geographic scope of the plan? If the planning effort was not developed by the Category A applicant, describe the Category A applicant's involvement in developing the planning effort. Support for the Project: Describe to what extend the proposed project is supported by the identified plan. Consider: • Is the project identified specifically by name and location in the planning effort? • Is this type of project identified in the planning effort? • Explain whether the proposed project implement a goal, objective, or address a need or problem identified in the existing planning effort? • Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.

The local planning effort that most directly supports the proposed project is the South Orange County Watershed Management Area Water Quality Improvement Plan (South OC WQIP). The applicant (County of Orange) in collaboration with the other Orange County Stormwater Program Permittees (cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, San Juan

Capistrano, and the Orange County Flood Control District) originally developed the South OC WQIP in 2018 to comply with the San Diego Regional Municipal Separate Storm Sewer Systems (MS4) Permit. The most recent plan revision was 2022 and Appendix F, the South OC Wet Weather Reasonable Assurance Demonstration (RAD) was last revised in January 2024. The South OC WQIP covers the geographic scope of the South Orange County Watershed Management Area (South OC WMA, e.g. San Juan Hydrologic Unit [901.00] which includes the Laguna Coastal Streams, Aliso Creek, Dana Point Coastal Streams, San Juan Creek, San Clemente Coastal Streams, and San Mateo Creek).

The purpose and objective of the South OC WQIP is to address the adverse impacts to surface waters that can arise from landscape urbanization. It identifies priority and highest priority water quality conditions (HPWQCs) in the South OC WMA for both coastal waters (pathogen health risk at beaches) and inland streams (channel erosion and associated geomorphic impacts and unnatural water balance/flow regime). The plan also identifies water quality improvement goals for each of the HPWQCs and other priority water quality conditions and describes strategies and schedules for achieving these goals.

Appendix F of the South OC WQIP, Wet Weather Reasonable Assurance Demonstration (RAD) for the Twenty Beaches and Creeks Bacteria Total Maximum Daily Load (TMDL) for the San Juan Hydrologic Unit, Amended January 31, 2024, identifies the proposed project by the name of "Absorbent Landscape Incentive Program" as a strategy to help achieve the wet weather runoff and pollutant load reduction goals of the overall plan. The South OC WQIP Wet Weather RAD identifies the proposed project as a priority over other potential projects/measures because it is cost-effective (leverages existing program infrastructure and marketing) and achieves important co-benefits such as water use reduction. Table 1, below, lists other plans supporting the project.

Table 1 – Additional Planning Efforts Supporting the Project

| Plan Title, Purpose, and Objective | Author | Date | Geographic Scope |
|---|---|---|---|
| South OC IRWM Plan<br>*Purpose and Objective: To identify and implement water management solutions on a regional scale* | County of Orange (Applicant) and South OC IRWM Group | 2018 | South OC WMA |
| Project type identified under *strategies* to meet objectives:<br>WS-5-S2-Promote the use/retrofit of low-volume irrigation tech in urban landscapes<br>WS-5-S4-Promote the replacement of non-functional turf with California Friendly plantings<br>WS-8-S6-Provide landscape water efficiency education to landscape owners and managers<br>WQ-1-S1, WQ-2-S1, WQ-3-S1 - Implement pollution, dry weather flow, and storm water prevention measures, including non-structural BMPs<br>FM-3-S2-Implement local improvements (e.g. rain gardens, cisterns, disconnect impervious areas) NR-1-S1-Manage developed areas to minimize downstream impacts NR-1-S2-Eliminate anthropogenic impacts to marine ASBS's NR-1-S4-Retrofit stormflow attenuation processes, devices and/or permeable surfacing into developments to restore natural hydrologic patterns NR-1-S5-Improve water quality of runoff from developed areas NR-1-S12-Implement "climate | | | |

<table>
<tr><td colspan="4">smart" conservation principles that consider climate projections and weather extremes.<br>Project will help meet plan goals (increase water supply reliability, improve water quality, integrate flood management, and protect and enhance natural resources) and objectives:<br>WS5: Reduce consumption from outdoor residential, commercial, industrial, and institutional landscapes WS8: Research, evaluation, planning and education with consideration for climate change WQ1, 2, 3: Control anthropogenic pollutants, anthropogenic dry weather flows, and wet weather flows<br>FM3: Improve sub-regional facilities and local storm drain systems<br>NR1: Benefit aquatic and riparian ecosystems with consideration for climate change on water availability</td></tr>
<tr><td>The OC Plan: IRWM for the North and Central OC WMAs<br>Purpose and Objective: To identify and implement water management solutions on a regional scale</td><td>County of Orange (Applicant) and North and Central OC IRWM Group</td><td>2018</td><td>North and Central OC WMAs</td></tr>
<tr><td colspan="4">Project type identified under strategies to meet objectives:<br>WS-1-D, WS-2-D - Maximize water conservation and water use efficiency strategies and efforts<br>WQ-1-A - Meet NPDES and TMDL water quality regulatory requirements<br>ECO-2-A - Increase functioning habitat that sustains viable populations of threatened and endangered species<br>ACC-3-C - Implement measures that respond to the uncertainty and availability of imported water<br>ACC-3-D - Implement measures that respond to hotter and drier summers<br><br>Project will help meet plan goals (provide adequate and reliable water supplies, protect and enhance water quality, integrate flood management, restore ecosystems and improve native habitat, improve the quality of life in Orange County, and address climate change) and objectives:<br>WS-1: Meet projected increase in water demands of 49,000 AFY by 2040 within the Orange County Basin area with consideration of cost-effective strategies.<br>WS-2: Meet projected increase in water demands of 1,800 AFY by 2040 within the La Habra Basin area with consideration of cost-effective strategies.<br>WQ-1: Improve water quality consistent with the Basin Plan.<br>ECO-2: Restore, enhance and expand habitat for threatened and endangered species.<br>ACC-3: Implement measures and plan for future changes to climate.</td></tr>
</table>

| | | | |
|---|---|---|---|
| Preliminary Climate Action Plan *Objective: To reduce GHGs, improve air quality, and prepare for natural disasters, protect vulnerable citizens and natural resources and boost funding for critical programs* | County of Orange (Applicant) | 2024 | Orange County |
| Project type identified under *strategies* to meet objectives:<br>NR1.2 — Advocate for reduced water consumption throughout the County.<br>NR2.1, 2, 3 — Control man-made pollutants, dry weather flows, and wet weather flows from developed areas to the maximum extent practicable.<br><br>Project will help meet plan *goals*<br>Natural Resources Sector Goal: Enhance natural resource stewardship by protecting the 42 miles of coastline, restoring natural habitats, ensuring accessibility to alternative water sources, developing Countywide water conservation targets, and implementing stormwater retrofits where feasible.<br>and *objectives:*<br>NR1 – Improve Water Supply Reliability and Efficiency<br>NR2 – Protect and Enhance Surface and Beach Water Quality | | | |

Evaluation Criterion C – Implementation and Results (20 points)

o Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

Task 1 – Project Management and Administration (Jan 2026 – Jan 2028)- *Lead: County Staff*
County staff will administer and manage the large landscape turf upgrade incentive program. As part of this process, the County will also complete the environmental and cultural compliance required. Key deliverables: Completed environmental and cultural compliance. Submitted and approved project reports.

Task 2 – Participant Solicitation (Jan 2026 – May 2026) *Lead: County Staff, Water District partners, Environmental Incentives (EI)*
The County intends to have signed participation agreements with the interested HOAs within the first 4 months of the project. Key deliverable: signed participation agreement from interested HOAs.

Task 3 – Design, Selection, & Application (Apr 2026- Jan 2027) *Lead: EI, Geosyntec Consultants, Monarch Environmental*
After participation agreements have been signed, the County consultant team will design the upgrades, select the appropriate contractors, and approve the rebate applications to funders. Key deliverables: design documents ready for construction and approved rebate applications.

Task 4 – Construction Approval (Sep 2026 – Nov 2026) - *Lead: Environmental Incentives, Geosyntec Consultants*
Create a memo with cost and benefit estimates for participant leadership (HOA Board) approval and will facilitate formal budget approval. Key deliverable: Board-signed agreement with contractor.

Task 5 – Project Installation (Oct 2026 – Jul 2027)- *Lead: Monarch Environmental, Construction Contractor*
Monarch Environmental will check and support the upgrade installation completed by the construction contractor. Key deliverable: Confirmation of project completion, e.g. photos, etc.

Task 6 – Verification and Funding Requests (Jun 2027 – Sep 2027)- *Lead: EI*
EI will verify that the upgrade meets all requirements and request payment of rebates and incentives. Key deliverable: Payment requests submitted to incentive programs.

Task 7 – Training, Payment & Close (Jul 2027 – Dec 2027)- *Lead: County staff, EI*
County staff and EI will complete post-upgrade check-ins, pay participant, and store official documentation. Key deliverables: Confirmation of payment receipt, and upgrade files stored at County.

Task 8 – Project Closeout (Jan 2028)- *Lead: County staff*
Complete all final grant reporting and closeout. Key deliverables: Final invoice and reports submitted to USBR.

o Proposals with a budget and budget narrative that provide a reasonable explanation of project costs will be prioritized under this criterion.
Please see the Budget Narrative Attachment for full budget and budget narrative details.

o Describe any permits and agency approvals that will be required along with the process and timeframe for obtaining such permits or approvals.
The project does not require any permits. The large landscape upgrades completed with the incentive funds provided by the project will require permits (Model Water Efficient Landscape Ordinance) and administrative or encroachment permits but, as an incentive program, the project itself does not require permits.

o Identify and describe any engineering or design work performed specifically in support of the proposed project. What level of engineering design is the project currently? If additional design is required, describe the planned process and timeline for completing the design.
The proposed large landscape turf upgrade incentive program already exists and does not require any engineering or design work prior to implementation. Should it receive funding, the County could execute the project immediately.

o Does the applicant have access to the land or water source where the project is located? Has the applicant obtained any easements that are required for the project? If the applicant does

not yet have permission to access the project location, describe the process and timeframe for obtaining such permission.
Yes, the County has access to the land where the project is located and no easements will be required. The project will be completed in partnership with local HOAs who have signed participation agreements with the County.

o Identify whether the applicant has contacted the local Reclamation office to discuss the potential environmental and cultural resource compliance requirements for the project and the associated costs. Has a line item been included in the budget for costs associated with compliance? If a contractor will need to complete some of the compliance activities, separate line items should be included in the budget for Reclamation's costs and the contractor's costs.
From a discussion with Leslie Cleveland of the USBR Southern California Area Office on November 4, 2024, the County expects the project to be eligible for a Categorical Exclusion under NEPA and for the compliance to take about a month to complete. The County included $1,000 in the budget for these costs.

Evaluation Criterion D – Nexus to Reclamation (5 points)

Describe the nexus between the proposed project and a Reclamation project or activity, including: Is the proposed project connected to a Reclamation project or activity? If so, how? Please consider the following: • Does the applicant have a water service, repayment, or operations and maintenance (O&M) contract with Reclamation? • If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?• Will the proposed work benefit a Reclamation project area or activity?

Water supplies connect the project to Reclamation. The County is not a Reclamation contractor, however, the HOAs that will participate in the proposed project receive their water supplies through water providers that obtain imported water supplies through the Municipal Water District of Orange County (MWDOC) and the Metropolitan Water District of Southern California (Metropolitan). These imported supplies come from the Colorado River Aqueduct (CRA) and the State Water Project (SWP). The water conservation achieved through the proposed project will reduce the amount of water imported to Orange County through the CRA and SWP, reducing stress on those systems. Additionally, some projects may be implemented within the service areas of Irvine Ranch Water District and the Orange County Water District. These agencies have Title 16 contracts with Reclamation. The project will be implemented within the Lower Colorado Region and within the Southern California Area Office activity area and will increase water use efficiency in that area. The applicant is not a Tribe.

Evaluation Criterion E – Presidential and Department of the Interior Priorities (15 points)
E.1.5.1 Sub-criterion No. E1. Climate Change
Please describe how the project will address climate change, including the following:
• Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.

The project addresses climate change and increases resiliency in a few ways. It will conserve 6.75 AFY of water that can then be saved for future drought years. It will convert 50,000 SF of turfgrass to climate appropriate, more biodiverse landscaping, which will require less ongoing irrigation, further improving the area's drought resilience. The landscape upgrades which improve soil health and the water-holding capacity of the soil, combined with the implementation of an onsite stormwater feature will lead to the onsite capture of both dry and wet weather flows. This will improve water quality in the County's rivers, streams, bays, and the Pacific Ocean and protect public health. Removing turfgrass and installing low water use plants also improves ecological resiliency by improving soil health, which improves the water-holding capacity of the soil and further increases drought resiliency, increasing biodiversity, and reducing stormwater runoff. The proposed project will also address water pollution and improve water quality as follows:

Wet weather runoff can be reduced through turf replacement, as sustainable landscaping generally results in a significant reduction in runoff volumes. A recent SCCWRP report which assessed the effectiveness of turf replacement for water quality improvements found that the studied sustainable landscape captured all runoff from a 0.5-inch storm- approximately the size of required stormwater capture for the design storm in the area[5]. Further, these projects also incorporate storm water retention features which vary in capacity. These are typically Bioretention Basins with or without an underdrain and are designed in accordance with the 2017 Technical Guidance Document (TGD) for South Orange County. These storm water features capture water from an area that is often much larger than the area treated in the sustainable landscaping project and with curb cuts they also treat adjacent impervious surfaces. In doing so, they keep significant amounts of pollutants, including bacteria, nitrogen, and phosphorous, out of local waterways. This protects local ecosystems, while also contributing to healthier landscapes and reducing needs for irrigation with treated water.

Calculation Details - Assumptions based on benefit estimations for the first three projects.

- Volume of annual wet weather runoff reduction and infiltration per project: 30,000 cubic feet (CF). 30,000 CF x 43,560 CF/1 acre-foot (AF) = 0.69 acre-feet (AF)
- Impervious surface area treated per project: at least 1 acre

Total Annual Wet Weather Runoff Reduction = (Wet Weather Reduction/project) x (# of projects) = 30,000 CF * 2 = 60,000 CF or 0.69 AFY * 2 = 1.38 AFY

Total Wet Weather Runoff Reduction (AF) Over 30-Year Project Life =
Total Wet Weather Runoff Reduction (AFY) x (Project Life) = 1.38 AFY × 30 years = 41.4 AF

• Does this proposed project strengthen water supply sustainability to increase resilience to climate change?

[5] Southern California Coastal Water Research Project. *Turf Replacement BMPs to Reduce Dry and Wet Weather Runoff*

Yes, the landscape upgrades will incorporate green or sustainable infrastructure techniques, to promote rainwater retention and infiltration such as infiltration strips, bioswales, and rain gardens.

Does the proposed project contribute to climate change resiliency in other ways not described above? Yes, the project will reduce imported water demand. The importation, treatment, and delivery of water to South Orange County is extremely energy intensive. The 2 turf conversion projects will save 6.75 AFY of potable water, 16,692.75 kWh/year of energy, and 11.84 metric tons CO2/year.

Energy Savings per Year:

- Energy Savings (kWh) = Water Savings (AFY) × Energy Intensity (kWh/AF)
- Energy Savings = 6.75 AFY × 2,473 kWh/AF = 16,692.75 kWh/year

$CO_2$ Reduction per Year:

- $CO_2$ Reduction (metric tons) = Energy Savings (kWh) × Emission Factor (metric tons $CO_2$/kWh)
- $CO_2$ Reduction = 16,692.75 kWh × $7.09 \times 10^{-4}$ metric tons $CO_2$/kWh = 11.84 metric tons $CO_2$/year

### E.1.5.2. Sub-criterion No. E2. Disadvantaged or Underserved Communities

•Use the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool (CEJST) to identify any disadvantaged communities that will benefit from your project.

Figure 6 – CEJST Map of Orange County, CA

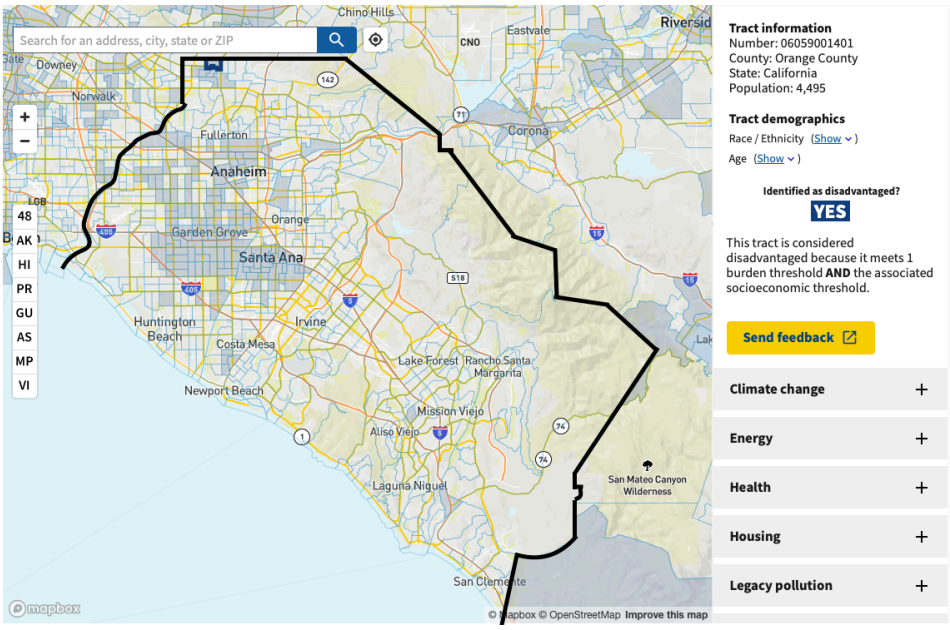


Figure 6 above shows the CEJST map of Orange County, California with disadvantaged communities highlighted in gray.[6] A few isolated DACs exist further south in the County with more DACs present to the north. The project will benefit the entire County including these DACs.

• If applicable, describe how the project benefits those disadvantaged or underserved communities, identified using the tool. The proposed project will increase water conservation, increase drought resiliency, reduce stormwater flows, and increase water quality and improve public health for all of Orange County, including the disadvantaged populations identified through the CEJST. Reducing dry weather flows across the County will improve the ability for all residents to use inland streams and creeks for hiking and other non-contact water related recreation. The improved water quality will also improve beach water quality and encourage greater recreational use of the County's beaches. Additionally, reducing the demand for imported water has the potential to yield long-term economic benefits by reducing the costs of water supplies (imported water is expensive), which may keep customer water rates lower.

### E.1.5.3 Sub-criterion No. E3. Tribal Benefits

• Does the proposed project directly serve and/or benefit a Tribe? Will the project improve water management for a Tribe?

The people of the Acjachemen Nation were the original inhabitants of the County of Orange and the project area. The project will increase water supply sustainability throughout Orange County, which includes water supply sustainability for all Tribal members living in the area, which includes members of federally and non-federally recognized Tribes both local to Orange County and from Tribal nations outside of this area.

• Does the proposed project support Tribal resilience to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety by addressing water quality, new water supplies, or economic growth opportunities?

The proposed project will benefit all residents and members of the County, including Tribal members.

• Does the proposed project support Reclamation's Tribal trust responsibilities or a Reclamation activity with a Tribe?

As noted in the U.S. Department of the Interior's Secretarial Order 3335, "the Federal trust responsibility can often be achieved best by empowering tribes." Though not federally-recognized, the Acjachemen Nation are the original landowners and represent valuable tribal interests in the Project area. Similar to the Bureau's goals of building new or better working relationships with Tribes, the County desires to build a working relationship with the Acjachemen Nation, has begun outreach to them, and would seek to find ways to engage the Tribe and ensure their voices and priorities are heard and addressed.

[6] https://screeningtool.geoplatform.gov/en/#9.47/33.693/-117.7699

## 2.7 Performance Measures

Actual water savings will be verified upon completion of a project through comparisons of pre-project and post-project water use data. The County intends to use 5 years of pre-project water use data and compare that to post-project water use data assessed at regular intervals, ideally 1-year post-project, 3-years post-project, and 5-years post-project. The water use data comparisons will be based on monthly average use data from customer water bills. Additionally, during post-installation inspection, the area of turf removed will also be verified.

## 3.0 Project Budget

**Table 1. —Summary of Non-Federal and Federal Funding Sources**

| FUNDING SOURCES | AMOUNT |
|---|---|
| **Non-Federal Entities** | |
| 1. County of Orange | $34,000.00 |
| 2. Program Participants | $5,000.00 |
| 3. Metropolitan Water District of Southern California | $100,000.00 |
| **Non-Federal Subtotal** | $139,000.00 |
| **REQUESTED RECLAMATION FUNDING** | $125,000 |

## 4.0 Environmental and Cultural Resources Compliance

**Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.**

The proposed project is a rebate incentive program. Ground disturbing activities will be limited to and only occur on customer-owned properties and will be limited to improvements to existing landscaping with turf replacement.

The proposed activities should benefit the environment and not cause any detrimental impacts to air, water, or animal habitat.

**Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?**

No, it is not anticipated that any species would be affected by any activities associated with the proposed project.

Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have.
No, there are no wetlands or other surface waters where the projects will occur that potentially fall under CWA jurisdiction as "Waters of the United States."

When was the water delivery system constructed?
N/A – the proposed project does not involve any work on a water delivery system.

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.
No, the proposed project will not result in any modification of or effect to individual features of an irrigation system.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.
No buildings, structures, or features associated with the project are listed or eligible for listing on the National Register of Historic Places.

Are there any known archeological sites in the proposed project area?
No, there are no known archaeological sites that would be affected by the proposed project.

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?
No, the project will not have a disproportionately high and adverse effect on low income or minority populations. Instead, the project will offer incentives to customers to help them achieve water savings. Some of the targeted large commercial landscapes fall within areas of multi-tenant, multi-family housing dwelling units where low income or minority populations may be more likely to live. The large landscape upgrades, in addition to conserving water and improving water quality also yield aesthetic benefits and would benefit all residents in that way also.

Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on Tribal lands?
No, the proposed project will not limit access to or ceremonial use of Indian sacred sites or result in other impacts on Tribal lands as the commercial large landscapes to be improved are not located in such areas.

**Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?**
No, the proposed project prohibits the use of invasive species and will likely reduce the presence of noxious weeds and non-native invasive species through the conversion of existing turfgrass landscapes to landscapes consisting of drought tolerant, watershed friendly plant species.

## 5.0 Required Permits or Approvals

No permits or approvals from outside agencies are required for the proposed project.

## 6.0 Overlap or Duplication of Effort Statement

The County submitted a proposal for funding for its large landscape turf upgrade incentive program under both Funding Groups I and II of the USBR WaterSMART WEEG Program for FY 2025. If successful, USBR funding will allow the County to expand existing large landscape upgrade incentive programs within Orange County. Also, any USBR funds received will not duplicate other federal grant funds received in the past by Metropolitan or MWDOC.

Additionally, no other grant funds from state or federal sources have been received for the project, nor have any currently been applied for. In the future, the County may seek additional state and/or federal funds should relevant funding opportunities become available. Any such future funds would support increased participation separate from the funds received under this proposal and would not duplicate efforts.

## 7.0 Conflict of Interest Disclosure Statement

No actual or potential conflict of interest exists at the time of application submission.

## 8.0 Uniform Audit Reporting Statement

The County was required to submit a Single Audit report for the most recently closed fiscal year of FY 22/23. The Employer Identification Number (EIN) associated with that report is 956000928. The report is available through the Federal Audit Clearinghouse.

# Appendix A
# Letters of Support

January 9, 2025

The Honorable M. Camille Calimlim Touton
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

**Re: WaterSMART Grants: Small-Scale Water Efficiency Projects for Fiscal Year 2024 and Fiscal Year 2025, Funding Opportunity No. R24AS00059**

Dear Commissioner Touton,

On behalf of the Forster Ranch Master Association (Forster Ranch), I am pleased to write in strong support of the County of Orange's (County) application for United States Bureau of Reclamation (USBR) funds from the FY 2025 WaterSMART Small-Scale Water Efficiency Grants Program. The H2OC RainSmart Large Landscape Turf Upgrade Incentive Program (Project) will provide incentive funding to homeowner's associations (HOAs) in Orange County, California, to complete large landscape turf removal projects and achieve water conservation.

Forster Ranch is an HOA for a large residential development located in San Clemente in south Orange County. The HOA manages the large common space areas within the overall development, which include large areas of non-functional turf. Forster Ranch participated in a pilot program for large landscape upgrades and received increased incentives and assistance to complete a 44,000 square foot turf replacement project that will save 5.5 acre-feet of water over 10 years. In addition to financial incentives, Forster Ranch received technical assistance for landscape design and project completion, rebate application support, and a post-project site visit and maintenance plan. Without the support provided by the pilot program, Forster Ranch would not have completed this turf removal project. Not only will the project reduce the HOA's water use but, it will also reduce irrigation runoff, improve irrigation efficiency, improve landscape sustainability, and yield long-term cost savings on water bills. Based on the success of its initial project, Forster Ranch plans to complete additional turf removal projects for common space areas it manages. Forster Ranch fully supports the County of Orange's proposal to partner with USBR to implement the Project and help other HOAs implement large landscape upgrade projects that would achieve similar benefits to those of the Forster Ranch project.

As a recipient of incentive support, Forster Ranch understands its value and strongly encourages USBR's full consideration of the County's application for funds for the H2OC RainSmart Large Landscape Turf Upgrade Incentive Program. We are excited about the Project which will move other HOAs in Orange County to implement large landscape turf removal projects and achieve both water supply and water quality benefits for the region. If you have any questions, please feel free to contact Kelly Lockett, Board President, at 949-485-8187 or via email at kellylocketthoa@gmail.com.

Sincerely,

Signed by:
Kelly Lockett
0188C443DB5B47A...

Kelly Lockett
President, Forster Ranch Master Association I
3147 Inclinado
San Clemente, CA 92673

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

*Office of the General Manager*

January 10, 2025

Ms. Camille Calimlim Touton
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC, 20240-0001

Ms. Touton:

Support for County of Orange H2OC RainSmart Large Landscape Turf Upgrade Program

The purpose of this letter is to express The Metropolitan Water District of Southern California's (Metropolitan) support for the County of Orange's H2OC RainSmart Large Landscape Turf Upgrade Incentive Program which will provide incentive funding to homeowner's associations and commercial properties in Orange County, California, to complete large landscape turf removal projects.

Metropolitan is the largest provider of treated water in the United States, serving 19 million Californians within our 5,200-square-mile service area. Metropolitan's mission is to provide adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

In partnership with local water agencies, Metropolitan is a leader in implementing a One Water approach for supply reliability. Metropolitan has invested more than $1.6 billion in drought-resilient resources such as conservation, recycling, groundwater recovery, and storage. Even with these efforts, Metropolitan recognizes the continued need to diversify Southern California's water resource portfolio to proactively plan for severe droughts, shortage on the Colorado River, projected long-term impacts of climate change, and interruptions in water supply.

The H2OC RainSmart Large Landscape Turf Upgrade Incentive project will play a vital role in conserving water by providing technical and financial assistance to commercial properties, which will yield substantial water savings per project. This project represents a key step toward conserving potable water, a precious resource in California. By safeguarding this resource, the project ensures that our community's water supply is being efficiently managed, directly benefiting residents, businesses, and future generations.

Given these reasons, Metropolitan supports the County of Orange's efforts to secure funding for the H2OC RainSmart project. Please contact Krista Guerrero at (213) 217-6768 or via email at kguerrero@mwdh2o.com if you have any questions.

Sincerely,

Brandon J. Goshi
Interim Manager, Water Resource Management
KG:rh

*Street Address:*
18700 Ward Street
Fountain Valley, California 92708

*Mailing Address:*
P.O. Box 20895
Fountain Valley, CA 92728-0895

(714) 963-3058
Fax: (714) 964-9389
www.mwdoc.com



January 3, 2025

The Honorable M. Camille Calimlim Touton
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

**Re: WaterSMART Grants: Small-Scale Water Efficiency Projects for Fiscal Year 2024 and Fiscal Year 2025, Funding Opportunity No. R24AS00059**

Dear Commissioner Touton,

On behalf of the Municipal Water District of Orange County (MWDOC) I am pleased to write in support of the County of Orange's (County) application for United States Bureau of Reclamation (USBR) funds from the FY 2025 WaterSMART Small-Scale Water Efficiency Grants Program. The H2OC RainSmart Large Landscape Turf Upgrade Incentive Program (Project) will provide incentive funding to homeowner's associations (HOAs) in Orange County, California, to complete large landscape turf removal and rainwater capture projects to achieve water conservation and non-point source pollution reduction.

MWDOC is a wholesale water provider and resource planning agency that oversees, administers, implements, and/or coordinates a suite of landscape-focused rebate programs across its territory to increase local water use efficiency. MWDOC supports the County of Orange's proposal to partner with USBR to implement the H2OC RainSmart Large Landscape Turf Upgrade Incentive Program to increase HOA participation in turf removal projects. With thousands of HOAs and commercial properties in the MWDOC service area, programs like this are critical to accelerating the transition from grass to climate-appropriate landscapes.

A USBR award would build on investments that MWDOC, the County, and our other local partners have already made towards water use efficiency in this region. MWDOC encourages USBR's full consideration of the County's application for funds for the H2OC RainSmart Large Landscape Turf Upgrade Incentive Program. We are excited about and remain committed to the Project which will help achieve our common goal of increased water conservation for southern California. If you have any questions, please feel free to contact me at (714) 593-5008 or jberg@mwdoc.com.

Sincerely,

Joseph Berg

Joseph Berg
Director of Water Use Efficiency

January 8, 2025

The Honorable M. Camille Calimlim Touton
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

**Re: WaterSMART Grants: Small-Scale Water Efficiency Projects for Fiscal Year 2024 and Fiscal Year 2025, Funding Opportunity No. R24AS00059**

Dear Commissioner Touton,

The Southern California Coastal Water Research Project (SCCWRP) supports the County of Orange (County) application for United States Bureau of Reclamation (USBR) funds from the FY 2025 WaterSMART Small-Scale Water Efficiency Grants Program. The H2OC RainSmart Large Landscape Turf Upgrade Incentive Program (Project) will provide incentive funding to homeowner's associations (HOAs) in Orange County, California, to complete large landscape turf removal projects and achieve water conservation. This is a proven strategy for water use reduction, on-site urban runoff retention, and runoff water quality improvement based on our research findings in other locations.

SCCWRP is a public research agency that develops and applies next-generation science to improve management of aquatic systems in Southern California and beyond. SCCWRP is comprised of the 14 most influential regulated and regulatory agencies focused on water quality and quantity throughout the southern California region. Our Board of Commissioners yearns for information such as the data and findings that will emanate from the County's proposal, thereby magnifying the potential impact of funding their proposal.

SCCWRP has been working with the County of San Diego's Waterscape Rebate Program to investigate whether turf replacement best management practices (BMPs) reduce dry and wet weather runoff. Results strongly indicate that turf replacement BMPs can both effectively eliminate irrigation-induced runoff and likely eliminate wet-weather runoff for rainfall events up to approximately 0.5 inches. The H2OC RainSmart Large Landscape Turf Upgrade Incentive Program can further reduce dry and wet weather runoff in southern California, in addition to saving water.

If you have any questions, please feel free to contact Dr Elizabeth Fassman-Beck, Engineering Dept Head, at 714.755.3260 or via email at ElizabethFB@sccwrp.org.

Sincerely,

K Schiff

Kenneth Schiff
Deputy Director

# Appendix B – References

# Orange County HOAs at a Glance

**82% of Orange County residents live in an HOA**

**Total county population:** 3,169,776*

**Number of HOAs:** 4,927

**Average number of homes in each HOA:** 173

**Aggregate number of homes in all HOAs (estimated):** 852,000

**Estimated number of county residents living in HOAs:** 2,590,080

**Average age of HOAs (estimated):** 20 years

**Average annual revenues generated by HOAs (estimated):** $367,000

**Aggregate annual revenue generated by HOAs (estimated):** $1.8 billion


*Information provided by:*

CACM
California Association of Community Managers

23461 South Pointe Dr., Ste. 200
Laguna Hills, CA 92653
(949) 916-2226 | www.cacm.org | info@cacm.org

*Total population from the U.S. Census Bureau's 2015 Population Estimates Program, based on the 2010 Census; estimated number of residents living in HOAs based on average of 2010-2014 Census reports of 3.04 persons per household (http://quickfacts.census.gov). All other data obtained from the 2016 California Community Association Statistics guide produced by Levy, Erlander & Company, CPAs (www.hoa-cpa.com).

**Memorandum of Understanding**
**by and among Colorado River Basin Municipal and Public Water Providers**
**November 15, 2022**

Over the past two decades, the Colorado River basin has experienced the worst drought in the last 1,200 years, which has reduced storage levels in Lakes Powell and Mead to unprecedented and critical levels. Water users throughout the basin must reduce demands to bring supply and use back into balance.

For over 20 years, communities have adapted to persistent and intensifying drought and reduced water supplies by achieving significant efficiencies in water use through direct and indirect conservation programs, including improved technology for indoor water fixtures, changes to landscapes and watering practices, conservation-oriented rates and fees, reuse and recycling programs, marketing and education campaigns, and efficient land use and development policies. Yet, climate change and the resulting hydrological shifts we are experiencing require all water users in the basin to redouble our efforts to conserve our water resources.

Together, since 2000 we have decreased annual water use by over a million acre-feet while also adding over five million people to our communities.

Much of this savings has been achieved through indoor and outdoor water use efficiencies. Recognizing that a clean, reliable water supply is critical to our communities, we can and must do more to reduce water consumption and increase reuse and recycling within our service areas. We pledge to be part of the solution.

Specifically, we commit to take the following actions:[1]

1. Continue and expand our programs to increase indoor and outdoor water use efficiency.

2. Introduce a program to reduce the quantity of non-functional turf grass by 30% through replacement with drought- and climate-resilient landscaping, while maintaining vital urban landscapes and tree canopies that benefit our communities, wildlife, and the environment.

[1] Certain water wholesalers may not have regulatory authority over the use of water by end users. In such instances, those parties commit to encourage their contractors, members, and water users to pursue these actions in order achieve the stated goals.

3. Increase water reuse and recycling programs where feasible, contingent on the dependability and security of our existing Colorado River supplies essential to support these efforts.

4. Implement best practices and sharing lessons learned to help one another accelerate our efficiency strategies. Water providers will select from the following approaches those tactics best tailored to preserve thriving communities, environmental health, and strong economies:

a. Transforming our outdoor landscapes and urban environments in a manner that improves climate resilience and promotes an ethic of wise water use through mandatory watering schedules and compliance enforcement, incentivized turf removal, and limitations on new turf;

b. Increasing efficiency of indoor fixtures and appliances;

c. Employing best practices for industrial processes and commercial operations, including minimization of evaporative cooling;

d. Adopting conservation-oriented rate structures to incentivize efficiency;

e. Accelerating water loss control by prioritizing supply considerations in asset management programs and exploring water loss control regulations to minimize water loss;

f. Improving coordination between land use and water planning efforts through improved processes, best management practices, and additional regulations, where appropriate; and

g. Employing other strategies tailored to the unique needs of each community.

5. Collaborate with other water users in the Colorado River basin to bring the supply and use of the river into balance. A robust agricultural economy, healthy watersheds, opportunities to recreate, and vibrant communities are all vital to our western way of life. No one sector, nor one state, can achieve sufficient use reductions independently. For the sake of current and future generations, we all must work together to achieve a balance of supply and use and thereby preserve a functioning and healthy river system.

6. Parties to this Memorandum of Understanding have signed below. Additional parties may join the Memorandum of Understanding without amendment by contacting Colby Pellegrino at Colby.pellegrino@snwa.com.

Aurora Water

Marshall Brown, General Manager

Denver Water

James S. Lochhead, Chief Executive Officer

Metropolitan Water District of Southern California

Adel Hagekhalil, General Manager

Pueblo Water

Seth Clayton, Executive Director

Southern Nevada Water Authority

John J. Entsminger, General Manager

Albuquerque Bernalillo County Water Utility Authority

Mark Sanchez, Executive Director

City of Mesa

Christopher Hassert, Water Resources Director

Scottsdale Water

Brian K. Biesemeyer, Executive Director

# New Studies Show Metropolitan's Grass Removal Incentives are Driving Transformation of Southern California's Landscapes

**July 5, 20**

As Southern California faces the most challenging drought in its history, two new studies highlight the value and wide-ranging success of Metropolitan Water District's Turf Replacement Program, which gives cash rebates to residents who swap their water-guzzling lawns for more water-efficient California Friendly® and native plants.
One study found that for every 100 homes that converted their yards using a rebate, an additional 132 nearby homes were inspired to convert their own grass without receiving a rebate to help fund the projects. This "multiplier effect" more than doubled the value of Metropolitan's investment in making Southern California more sustainable.
The second study found that less than 4 percent of participants who received a turf rebate to transform their yards later replanted grass.

**"Metropolitan has been working for decades to transform Southern California's landscapes to more climate-appropriate plants. These studies show those efforts are working and valuable water is being saved," Metropolitan General Manager Adel Hagekhalil said. "As climate change challenges all of our water supplies, we have to ask ourselves – are maintaining decorative lawns that no one ever steps on, what we call non-functional turf, really the best use of this precious resource?"**

Metropolitan's Turf Replacement Program provides residents and businesses with $2 per square foot of lawn converted in front or back yards (many local water agencies offer additional incentives as well). The rebates have helped facilitate the removal of more than 200 million square feet of grass, saving enough water to serve 62,000 Southland homes annually. Both of the latest studies were conducted by Dr. Andrew Marx, CEO of PlanetScape AI, in an effort to help Metropolitan better understand the overall water savings of its Turf Replacement Program.
The Multiplier Effect Study used aerial imagery to look at nearly 800 homes within 20 Southern California neighborhoods between 2012 and 2018 to determine how many of them converted their grass to drought-tolerant landscaping without a rebate and their proximity to homes that did receive a rebate.

**"Our rebates are not only saving water in the homes that have replaced their lawns, but these participants are showcasing to their neighbors just how beautiful this type of conversion can be. And we're seeing real results," said Metropolitan board Chairwoman Gloria D. Gray.**

The Reversion Study analyzed more than 2,000 yards that received a rebate from 2014-2018 to determine how many people replanted their grass after previously converting their yards to drought-tolerant landscaping. It found a small percentage did revert, with most of them only resulting in residents re-installing grass in a portion of their yard.
So far in 2022, Metropolitan has seen a month-by-month uptick in applications for turf rebates, from 223 applications in January, to 364 in April and 870 in May.

**"The studies quantify what we see walking around neighborhoods. One person converts to a beautiful California Friendly landscape, their neighbor sees it, is inspired, and does the same," said Metropolitan Water Efficiency Manager Bill McDonnell. "Summer is a perfect time to apply for a rebate, let your lawn die during the hot summer months and wait for the fall when it's cooler to plant natives."**

# Weather Extremes Threaten Our Water Resources

### Conservation Must Continue to Be a Way of Life

After three of the driest years on record, heavy precipitation this winter has boosted California's snowpack to healthy levels and are helping replenish our depleted reservoirs and groundwater basins.

Winter storms have provided enough short-term relief to our imported supplies from Northern California that Metropolitan will no longer require emergency restrictions for six of its member agencies and nearly 7 million people that had been in place since June 2022. Thanks to the wetter weather and increased State Water Project allocation, Metropolitan in March also began refilling its storage, including Diamond Valley Lake, for the first time in three years.

The recent swings in weather from dry to wet point to the variable and extreme weather conditions that have made managing our water resources increasingly challenging. Conditions in California will turn dry again, possibly as soon as next year, and our other source of imported water – the Colorado River – continues to face major constraints. More than two decades of drought and severely dry conditions have caused reservoirs on that system to drop to historic low levels, jeopardizing water supply and power generation that the Southwest relies on.

We must prepare for the next dry period by rebuilding our storage reserves, investing in local supplies and our water infrastructure and finding ways to continue reducing our water use. Together, we can build Southern California's water resiliency in the face of a changed climate.

## Conservation Makes Us Stronger

Southern California receives water from three aqueducts: The Colorado River Aqueduct, which we own and operate; the California Aqueduct, which carries our share of State Water Project supplies; and the Los Angeles Aqueduct, which serves the city of Los Angeles.

Today, we consider local resource development and conservation our "fourth aqueduct," supplementing our imported supplies and strengthening our resiliency to drought and climate change.

The great news is that Southern Californians have embraced a conservation ethic – per capita water use has dropped nearly 40 percent since 1990, despite an increase in population.

Without conservation, the effects of drought would be more swift and more severe. Every drop saved is another drop we can store for dry periods.

Metropolitan and our member agencies are here to help with water-saving tips and rebates to help residents and businesses make the transition from lawns to beautiful, sustainable landscapes. There are also rebates to pay for water-efficient indoor plumbing devices for homes and businesses. Visit bewaterwise.com for water-saving tips and information on rebates.

# Replenishing Our Storage in An Age of Climate Whiplash

Though recent weather conditions have relieved the most acute emergency for those dependent on the State Water Project, Southern California's water problems are far from over.

Rapid swings in weather means that dry conditions could return as early as next year. California remains under a statewide drought emergency and the future availability of our Colorado River supplies is uncertain.

We are taking advantage of this year's wetter conditions and increased State Water Project allocation to store as much water as possible in Diamond Valley Lake and other storage accounts so that they can be accessed by communities across our service area when the next inevitable dry period returns.

Thanks to these storms, and the efficient water use of Southern Californians, we expect this year to be able to nearly replace all the withdrawals we've made over the past three years.

As Metropolitan continues to make major investments to ensure future water reliability of the entire region, we ask residents and businesses to continue their commitment to making conservation a way of life.

# We Must Sustain the Colorado River

Southern California relies on the Colorado River for about 25 percent of its water supply. But the system is in the midst of a 23-year drought, the most serious in 1,200 years. To prevent the system's reservoirs from dropping to catastrophic levels, the federal government has directed the seven Basin states, including California, to develop plans to cut their use of the river beginning in 2023.

California and the six other Colorado River Basin states have presented Reclamation with two different proposals on how we will cut demands on the river. Reclamation is reviewing those proposals.

While the seven states have not yet reached agreement on how to reduce use in the near-term, these proposals are just a first step; there will be more opportunities to reach consensus throughout the environmental review process.

We are committed to working with our partners on the river to develop a consensus-based approach to managing drought conditions on the Colorado River.

Ensuring the sustainability of our Colorado River supplies will require the 40 million people and 6 million acres of farmland that depend on this water source to reduce reliance on the river.

# Ban on Decorative Turf for Business, Commercial Sectors

For more than a decade, Metropolitan has incentivized the removal of non-functional turf, or grass that serves no community or recreational purpose, and its replacement with more sustainable California Friendly and native plants. These efforts have had a transformative effect, resulting in the removal of more than 200 million square feet of grass, saving enough water to serve 62,000 homes a year.

That commitment to help the region transition to more climate-appropriate landscapes is stronger than ever.

Metropolitan's board in 2022 took a step forward to eliminate grass that is purely decorative by adopting a resolution that strongly recommends that cities and local water agencies across Southern California pass ordinances that prohibit the watering and installation of nonfunctional turf, largely in commercial sectors, as well as HOAs.

We encourage the public to continue to take advantage of our rebates to make the transformation at bewaterwise.com.

# Investing in Long-Term Solutions, Together

From 2019 through 2022, California experienced the driest three years on record, putting an incredible strain on our water resources and infrastructure and resulting in the most stringent water restrictions in Southern California's history.

Metropolitan and its 26 member agencies are working together to increase the resiliency of the entire region by building infrastructure, increasing local supplies and storage, expanding partnerships, advancing water-use efficiency and planning for the escalating impacts of climate change.

Metropolitan is also accelerating the development of our Pure Water Southern California water recycling project to create a climate change-resilient water supply, with a goal to begin initial operations in 2028.

It will take a comprehensive, collaborative and innovative approach to ensure we have the water we need for future generations as climate change continues to challenge how we manage our water supplies.

# Turf Replacement BMPs to Reduce Dry and Wet Weather Runoff

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SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT

Technical Report 1391

# EXECUTIVE SUMMARY

The County of San Diego Waterscape Rebate Program was developed as an incentive program to encourage commercial private properties to reduce runoff to the County's municipal separate storm sewer system (MS4). The program outcomes aim to minimize (or eliminate) dry-weather runoff, such as runoff generated from irrigation overspray, as it is a measurable component of the annual nutrient load. Commercial property comprises a large overall proportion of land area County-wide. Recipients of the incentive benefit from "concierge service" that includes a wide range of technical and financial support to design, contract, and install turf replacement BMPs, and ultimately apply for Metropolitan Water District's turf removal incentive programs.

The current investigation aimed to provide quantitative and qualitative evidence characterizing the effectiveness of turf replacement BMPs in minimizing runoff to help the County justify long-term investment in the incentive program, and to develop associated design guidelines to promote success. A pilot project initiated by the County with the Rancho San Diego (Homeowner's) Association (RSDA) in Spring 2021 provided 37,000 $ft^2$ of turf replacement for potential investigation by the Southern California Coastal Water Research Project (SCCWRP). Three turf replacement BMPs were field-monitored at the RSDA to investigate whether the BMP mitigates dry- (irrigation-induced) and wet-weather (natural rainfall) runoff. All of the turf replacement areas at RSDA contributed practical information on the design, operation, and maintenance of turf replacement BMPs.

The evaluation approach included visual observation during extended duration, controlled irrigation application with measuring changes in the moisture content of the soil within the BMP, since site conditions limited the practical ability to directly measure runoff. Visual observation of 10 controlled irrigation tests during the summer of 2022 were coupled with quantitative measurements of the soil moisture response to generate reference conditions against which wet weather and other irrigation event soil moisture patterns were compared. Soil moisture (tracked by subsurface water content reflectometers (WCRs) was correlated with the presence/absence of surface runoff to improve confidence that runoff is *not* being generated within a certain range of measured soil volumetric water content (VWC).

Key conclusions emerging from the investigation include:

- Turf replacement BMPs at RSDA can effectively eliminate irrigation-induced runoff. Visual observation during repeated extended duration (2-hour) applications of irrigation confirm that surface runoff was not generated from two of the three BMPs monitored (Moundtop 1 and Fieldcrest). Site conditions at the third BMP (Moundtop 3) compromised BMP effectiveness, leading to valuable information on physical

characteristics for which additional precautions or practices in design, implementation, and maintenance are suggested in order to promote BMP effectiveness.

- Turf replacement BMPs at RSDA likely eliminate wet-weather runoff for rainfall events up to approximately 0.5 inches. This hypothesis emerges from comparison of the soil moisture responses between the extended duration, controlled irrigation tests (where the absence of runoff was visually confirmed) and soil moisture responses compiled during 28 wet weather events. Coincidentally, the water quality design storm for Spring Valley is 0.52 inches[1], suggesting the BMP is a useful source control for wet-weather water quality loads. Strong conclusions cannot be drawn on the likelihood of runoff being produced by storms that exceed 0.5 in, since the conclusion is limited by visual observations linked to measured changes in soil moisture content during controlled irrigation tests.

  A turf replacement BMP is a passive landscape intervention, lacking any calculation of, or specific engineering design approach for retention capacity, contrary to the approach for structural BMPs designed to manage runoff water quality. Information is found in gray (e.g., public agency reports) and peer-reviewed literature on practices to enhance infiltration, water retention capacity, and plant health in urban landscapes. Investigation of these resources and practices is recommended in future work to inform design and construction recommendations and the potential to enhance capture of direct rainfall or run-on from adjacent source areas.

- Monitoring and observation during the RSDA pilot project contribute practical lessons that support compilation of design and maintenance guidance. Conditions that restrict infiltration capacity, such as the presence, position, and orientation of confining layers (e.g., clay soil or concrete), must be identified in-situ and require careful consideration for opportunities that might counteract potential problems. Creation of preferential pathways that prevent applied water from infiltrating near where it is applied should be avoided or mitigated. The spacing of irrigation dripper heads should consider the potential for applied water to move through the subsurface, acknowledging space is needed for water to spread laterally and downslope while infiltrating. The number and location of irrigation heads should likely be limited on sites with slopes exceeding 5% and where confining layers are present near the soil surface. Reliability of irrigation

[1] Snyder, T., Whipple, R., & Moneda, J. 2020. County of San Diego BMP Design Manual. County of San Diego Department of Public Works. https://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html