

**Long Beach Water Department
Lawn-to-Garden Program (L2G)**



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Bureau of Reclamation
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WaterSMART Grants: Water and Energy Efficiency Grants for FY 2023

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1. Technical Proposal and Evaluation Criteria

1.1. Technical Proposal: Executive Summary

Date	July 27, 2022
Applicant	Long Beach Water Department (LBWD)
City	City of Long Beach
County	Los Angeles County
State	California
Applicant Category:	Category A: Water District/local authority with water delivery authority
Project Summary	The L2G program was created with the goal of making the landscapes of Long Beach sustainable and water efficient, while also providing multiple benefits for the environment such as capturing storm water, reducing runoff and developing habitat for birds and butterflies. All L2G projects are eligible to receive incentives based on the square footage of turf grass to California friendly and native landscaping in order to dramatically reduce both water and maintenance expenses. LBWD will offer an incentive of \$3.00 per square foot of converted turf. The project is anticipated to result in the conversion of 400,000 Square Feet of turf to sustainable, water efficient landscaping, and an annual water savings of 56 AFY.
Project Schedule	The Project is scheduled to begin upon award of grant funds and will run for approximately 2 years through May 2025.
Federal Facility:	The Project will assist in the removal of State defined non-functional turf in commercial and public agency landscape areas. Federal facilities may have such installments that are eligible for Project funding.

1.2. Technical Proposal: Project Location

The L2G program will be made available to residential, commercial, institutional and industrial (CII), large landscape, and public agency owned property (customer sectors) within LBWD’s service area, including disadvantaged communities as identified through California Senate Bill 535. These census tracts were identified using the California Communities Environmental Health Screening Tool (CalEnviroScreen 4.0). CalEnviroScreen identifies California communities by census tract that are disproportionately burdened by, and vulnerable to, multiple sources of pollution. LBWD’s service area (outlined in black), previous L2G conversion sites, and disadvantaged Long Beach Communities (shaded in orange/yellow) are presented in Figure 1. Project participants have historically come from outside of the disadvantaged communities within LBWD’s service area. With funds received from USBR, LBWD will be able to offer a higher incentive value of \$3 per square foot to assist underserved residents that experience financial hurdles associated with the installation and material costs of turf conversions.

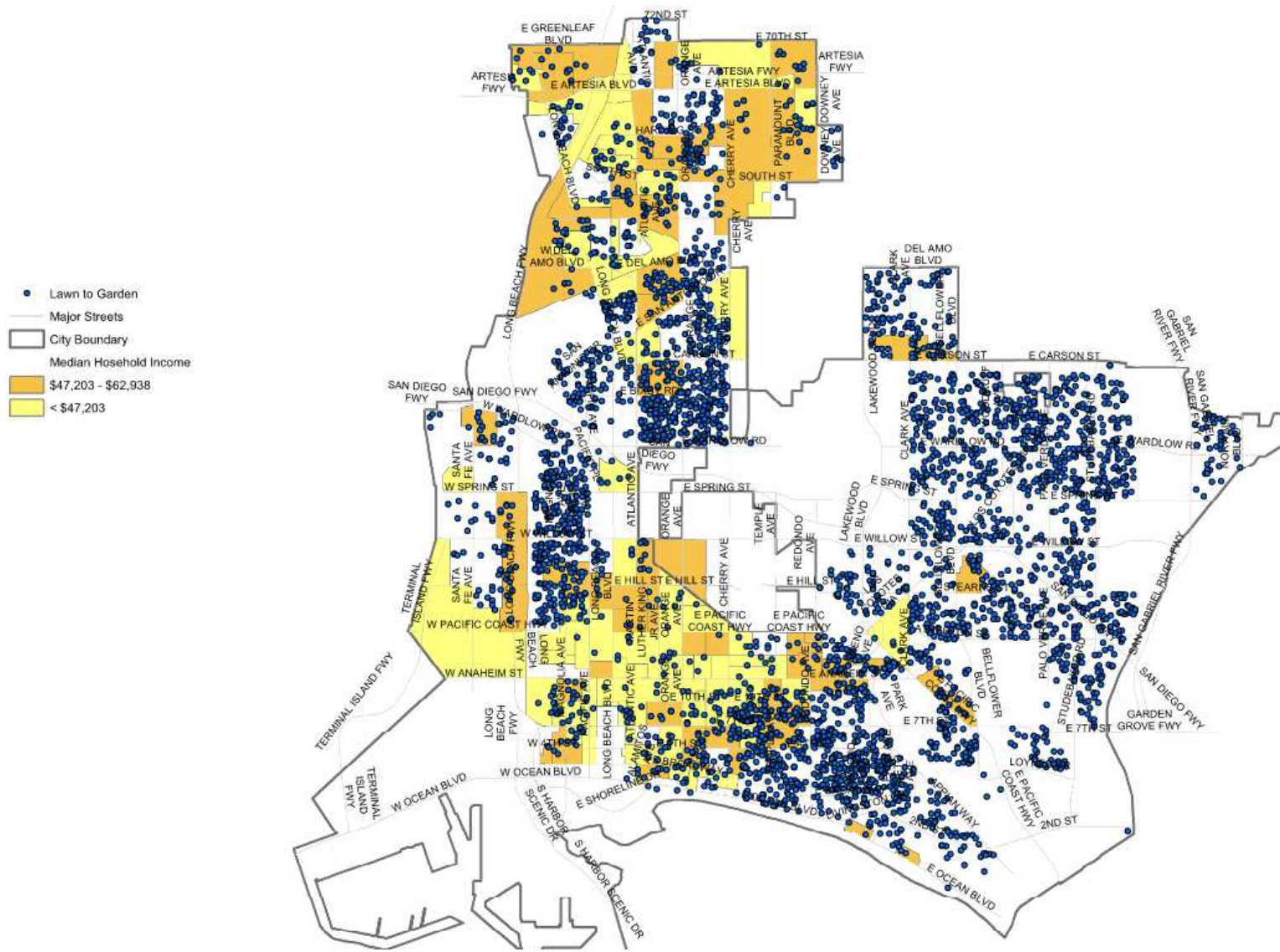


Figure 1. Project Location Map

1.3. Technical Proposal: Technical Project Description

The L2G program is an on-going rebate program curated by LBWD that incentivizes customers to remove turf grass and install a California climate friendly landscape with high efficiency irrigation emitters to dramatically reduce the amount of water needed for a sustainable, environmentally friendly landscape. Additional funding from the Bureau of Reclamation will enable the L2G program to continue to provide critical water saving opportunities to LBWD customers, including those in disadvantaged communities.

The intent of LBWD's L2G program is to encourage changes in the way potable water is used in an outdoor setting. The outdoor emphasis of this program is particularly important considering approximately 50% of residential water demand in the Long Beach Region is attributed to outdoor water use. Since the project is currently under implementation, there is no start-up time required. The project will promote outdoor water use efficiency across customer sectors by providing financial incentives (\$3.00 per square foot) to replace existing turf grass with California friendly plant material. Currently, residential customers may receive rebates to convert up to 5,000 sq. ft. through the L2G program. Commercial, institutional, or industrial customers may receive rebates to convert up to 50,000 sq. ft., while public agencies are eligible to receive rebates to convert up to 200,000 sq. ft. There is a 250 square foot minimum (\$750) for all projects. Customers must meet specific program criteria in order to receive rebates.

Long Beach Water Department developed the website lblawntogarden.com for its L2G Program to provide program information, an application landing site and landscaping resources for the public. The website includes dedicated web pages that were specifically developed to provide information to members of the public who are currently implementing turf replacement retrofits, or are considering whether to apply for rebates for such activities. Web pages on the website include the following:

- Program criteria
- Terms and conditions
- Rebate application forms
- Design ideas
- Online Design Tutorials
- Drought-resilient plant resources
- Frequently Asked Questions

In addition, collateral material is available to support the L2G program. The following includes a list of resources developed for educational purposes and L2G Program assistance:

- Customer guidelines and requirements for participation
- Internal protocols for administering the program
- A customer on-line training tutorial for planning tips and design techniques of a drought

- resilient gardens.
- Marketing materials and related collateral information (See Appendix C).

The L2G program launched 2011, and as of June 2022, approximately 3.2 million square feet of turf have been converted to drought-resilient landscaping.

1.4. Technical Proposal: Evaluation Criteria

1.4.1. Evaluation Criterion A: Quantifiable Water Savings

Describe the amount of estimated water savings.

The project will lead to an estimated water savings of **56 AFY** per year.

Describe Current Losses:

Water used outdoors is wasted as a result of inefficient irrigation due to overspray on water-thirsty turf. Reducing water use and increasing irrigation efficiency minimizes dry weather runoff that flows into storm drains and receiving waters, and reduces pollutants that contribute to the impairment of watersheds.

Describe the support/documentation of estimated water savings.

Estimates for the amount of water saved from converting turf to water-efficient landscaping were made using an Evaluation of the Synthetic Turf Pilot Program by Metropolitan Water District of Southern California (MWD)¹. The MWD study found water savings of 0.00014 acre-feet per year (AFY) per square foot when turf was converted from natural to synthetic; MWD estimates that conversion from turf to water-efficient landscaping is expected to save 0.00014 AFY per square foot.

This value was confirmed by California Urban Water Agencies (CUWA) in 2015 in Water Savings Study², which found that turf replacement projects with California Friendly landscaping in the Commercial, Industrial and Institutional sectors achieved a water savings of 0.00014 AFY. The CUWA water savings data is based on existing turf replacement programs from the North Marin Water District and Southern Nevada Water Authority (from MWD).

Applicants proposing turf removal should address the following:

A. How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.

¹ Metropolitan Water District of Southern California. 2007. Evaluation of the Synthetic Turf Pilot Program. Prepared for U.S. Department of the Interior's Bureau of Reclamation Southern California Area Office. Prepared by Metropolitan Water District of Southern California. August. Pg. 12.

² California Urban Water Agencies. 2015. CUWA Phase 1 Water Savings Study. Prepared by the California Urban Water Agencies. April. Pg. 10.

As mentioned above, estimates for the amount of water saved from converting turf to water-efficient landscaping were made using two scientific studies; an Evaluation of the Synthetic Turf Pilot Program by MWD and a 2015 Water Savings Study by CUWA which found that that conversion from grass turf to water-efficient landscaping is expected to save 0.00014 AFY per square foot. This program plans to provide incentives for conversion of approximately 400,000 square feet of turf to water-efficient landscaping. At a savings of 0.00014 AFY per square foot, this would result in water savings of approximately 56 AFY or 560 AF over a project lifespan of 10 years.

B. What is the total surface area of turf to be removed and what is the estimated average annual turf consumptive use rate per unit area?

The L2G program aims to convert 400,000 square feet of grass turf to California Friendly and native landscaping. The average consumptive use rate is estimated to be 25,500 gallons per year per an average of 1,000 sq. ft. residential home.

C. Was historical water consumption data evaluated to estimate average annual turf consumptive use per unit area? If so, did the evaluation include a weather adjustment component?

The consumptive use rate was calculated using the County of Santa Cruz's Estimated Total Water Use (ETWU) Calculator. The calculator uses the following equation:

$$\text{Annual gallons per hydrozone} = \text{ETo} \times \text{plant factor} \times 0.62 \times \text{hydrozone area} / 0.81 \text{ (or } .71)$$

Where:

- The plant factor is entered by the user for each hydrozone
- The 0.62 multiplier converts inches per year to gallons per square foot per year.
- Irrigation efficiency is assumed to be 0.81 for drip and 0.71 for spray, the minimum efficiency required by the County ordinance.

The calculator adds up the gallons allowed for each hydrozone to find the total gallons allowed for the whole landscape. The calculator is weather adjusted, ETo (Evapotranspiration) is a measurement of multiple weather attributes, but mainly evaporation and transpiration for warm season turf in perfect consumptive conditions. The ETo value was calculated using historical LBWD water use data from the past 11 years of L2G program implementation.

D. Will site audits be performed before applicants are accepted into the program?

Yes, LBWD will conduct a desktop audit for every application submitted for the L2G Program. Aerial Imagery and customer-submitted pre-conversion landscaping photos will be used to

verify customer eligibility. Site visits will be conducted by LBWD staff for applicants whose eligibility cannot be verified through a desktop audit.

E. How will actual water savings be verified upon completion of the project?

Water savings will be verified upon project completion through comparisons of pre- and post-project water usage obtained from the customers' billing information. Specifically, metered water use data comparisons will be performed within 12 months before installation and metered water use 12 months after installation. The water meter readings at the pre and post phases of project implementation will express the water savings with the subtraction of the average indoor household water use.

Criterion B.2: Increasing Energy Efficiency in Water Management

If quantifiable energy savings is expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.

Conveying water to Southern California is notoriously energy-intensive, compared to other major metropolitan averages in the nation. This is largely due to pumping requirements for major conveyance systems which move large volumes of water over long distances and over thousands of feet in elevation lift. Some of the inter-basin transfer systems that LBWD relies upon for potable water, such as the Colorado River Aqueduct (CRA), require large amounts of electrical energy to convey water. On average, approximately 2,000 kWh is required to pump one AF of water through the CRA to southern California³. Reduced reliance on imported water will avoid the extensive energy requirements associated with transporting water from Northern California and the Colorado River to Long Beach. Based on a 2005 report by the California Energy Commission⁴, 19% of California's electricity goes to water-related uses. To calculate the reduced energy costs associated with the project, the amount of energy required to treat and convey 56 AFY of water is multiplied by the 2,000 kWh/AF required to import water to Southern California; therefore, the project is estimated to result in 112,200 kWh of savings.

How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.

Estimated greenhouse gas emission reductions are based on CARB's Greenhouse Emission Reduction Calculator for the California Department of Resources, which estimates the project

³ Ernest Orlando Lawrence Berkeley Laboratory, California Institute for Energy Efficiency. 2000. Methodology for analysis of energy intensity of California Water Systems. Pg. 6.

⁴ California Energy Commission. 2013. *California's Water – Energy Relationship*. Pg. 8

will result in an annual reduction of 36.36 Metric Tons of CO₂e (364 tons of CO₂e over the project's estimated 10-year life span).

The emissions reductions are determined based on the California Electricity Grid Average Emissions Factor (2013), which estimates an emission rate of 0.000303 MTCO₂e per kWh. Based on the estimated energy savings of 112,200 kWh, the project will reduce emissions by approximately 36.36 metric tons of CO₂e per year.

Carbon dioxide (CO₂) emissions are not the only emissions related to the delivery of imported water from Northern California and the Colorado River. In addition to Green House Gases, air pollutants nitrogen oxides (Nox) and sulfur dioxide (So₂) are emitted during energy production, though in much smaller quantities. Using the U.S. Environmental Protection Agency's Emissions & Generation Resource Integrated Database (eGRID) data, we are able to calculate the Nox and So₂ emissions per acre-foot of imported water. So₂ emissions for energy used in California are 0.18 lbs. per MWh; Nox emissions are calculated at 0.41 lbs. per MWh energy use. With an energy demand 4.09 MWh per AF of imported water, we find a total of 0.74 lbs./AF of So₂ emissions (41.5 lbs total), and 1.68 lbs./AF (94 lbs total) of Nox emissions.

If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements and energy usage?

This project will achieve a significant reduction in the need for imported water, which will help reduce the high energy costs that are a result of transporting this water. The water that is conserved also avoids local energy costs for treatment, pumping and disposal. An energy savings of 112,200 kWh can be attributed to reduced pumping needs, based on the California Energy Commission⁵ report.

Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.

Energy savings are associated with reduced pumping costs from the point of diversion.

Does the calculation include any energy required to treat the water, if applicable?

The presented energy calculation is solely based on reduced pumping needs from the CRA to LBWD's service area.

Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.

⁵ California Energy Commission. 2013. *California's Water – Energy Relationship*. Pg. 8

The project will not result in reduced vehicle miles driven.

Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system).

The project does not have any renewable energy components.

1.4.2. Evaluation Criterion C: Sustainability Benefits ***Enhancing Drought Resiliency***

Does the project seek to improve ecological resiliency to climate change?

Through the water savings and energy reductions that the L2G program offers, the project will result in less demand from LBWD on its imported water resources, and the saved water supply will be available for other users elsewhere in the State of California. Fresh water will remain in the rivers and streams of origin if demand does not increase and is even further reduced by this project, helping to maintain or restore delicate ecosystems. This reduction in water use will also provide benefits to the local ecosystem since less water will be lost to groundwater absorption, wastewater collections, and ocean outfalls to the Pacific Ocean. Runoff from overspray and irrigation typically contains various pollutants (pesticides, motor oil, soils, and other dissolved substances) that enter the storm drain system untreated. Conversions made through the L2G program will minimize pollutant runoff associated with irrigation across residential, CII and municipal sectors.

Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels).

LBWD will reduce their import needs by 56 AFY of water from Metropolitan Water District (MWD) through the Colorado River Aqueduct and the Sacramento-San Joaquin Bay Delta, thereby allowing this water savings to remain in the system for other neighboring agencies to meet their allocation and distribution requirements during on-going drought conditions in California.

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 describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).

Through the water savings experienced by this project, LBWD will help to place less of a burden on the California Bay-Delta, which will assist in the alleviation of stress placed upon the delicate

ecosystem and its inhabitants in the Bay-Delta. The Bay-Delta is home to the Delta Smelt, which has been protected by the courts since 2007. In addition to the Delta Smelt, the Bay-Delta is home to other species, such as the spring- and winter-run Chinook salmon, that are threatened and therefore garner protected status. LBWD will help to improve the habitat for these vulnerable species by making more water available through the conservation achieved by the L2G Program.

Please describe any other ecosystem benefits as a direct result of the project.

In addition to the Bay-Delta ecosystem benefits, the L2G program will also lessen the impacts on the ocean outfall discharge. Since this will reduce the amount of water being used per-capita, the wastewater treatment systems and outfall discharges will also see a reduction. These conditions ultimately lead to less water being discharged through the ocean outfall to the Pacific Ocean.

Estuarial and other aquatic habitat may be protected by decreasing the irrigation water that brings pesticides, organic waste and other elements into the waterways via the storm drain system. By decreasing the amount of irrigation water that enters the storm drain system (bringing with it pesticides, organic waste and other elements into our waterways), the Region's surface water quality will be improved

Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?

Water conserved from this project will result in decreased imported water from strained resources in the Colorado River Basin and the Sacramento-San Joaquin Bay-Delta. The project will also contribute to increased local water supply reliability for the Long Beach region, making water supplies available during extreme dry periods. Water savings will remain in storage for other local uses, reducing demand for additional imported water.

Addressing a specific water and/or energy sustainability concern(s)

Explain and provide detail of the specific issue(s) in the area that is impacting water sustainability, such as shortages due to drought and/or climate change, increased demand, or reduced deliveries.

California is facing an extreme water crisis due to ongoing drought conditions in tandem with historic rises in temperature that are attributed to climate change. The 12-month period between October 2020 and September 2021 was the driest in over a century, while the summer in 2021 was the hottest summer ever on record. The dire water conditions required California

state officials to impose a 15% cutback on potable water use in July 2021. Recent water use in California has indicated that water use only decreased by 5% in August 2021, falling way short of the 15% goal.

Water conservation programs are even more vital considering the statewide drought emergency. On March 31, 2022, Governor Gavin Newsom issued an executive order imposing mandatory water restrictions, while also asking the State Water Board to prepare municipal water agencies for drought restrictive measures to account for a water shortage level of up to 20%. The Governor has also ordered state agencies to submit funding proposals to support the state's short- and long-term drought response.

Moreover, in June 2022, the commissioner for the Bureau of Reclamation informed states in the Colorado River Basin that they have 60 days to create an emergency plan to stop using between 2 and 4 million acre-feet of water in the next year. The Colorado River has been severely impacted by drought conditions throughout the Western United States, with water supplies being threatened for agriculture, fisheries, ecosystems, industries, and municipal retailers.

Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.

Among the tracts eligible for L2G funding, many are located along the 710 Freeway, which is heavily impacted by emissions related pollution from the Port of Long Beach and Port of Los Angeles. On October 13, 2021, President Biden directed both ports to move towards 24/7 operations in order to offset the supply chain disruptions associated with COVID-19. With significant increases in cargo ship movement, port emissions could increase by approximately 40%, further impacting the already impacted census tracts around the 710 Freeway.

Coupled with imminent fire danger, rising temperatures, and on-going electrical blackouts due to overwhelming demand on the electrical grid, the region is in dire need to secure energy and water sustainability. The L2G program will provide reduced energy demand by reducing the reliance on imported water supplies and limiting the energy consumption associated with pumping water down to Southern California from the CRA and the Sacramento-San Joaquin Rivers Delta.

Please describe how the project will directly address the concern(s) stated above. For example, if experiencing shortages due to drought or climate change, how will the project directly address and confront the shortages?

In addition to providing 56 AFY of water savings through water efficient devices, the project is also intended to promote long-term changes in norms and behaviors related to outdoor water

use, resulting in increased water use efficiency, less dependence on imported water, and an enhanced awareness and sense of responsibility toward the stewardship of Southern California's limited water supplies.

In a recent study conducted by MWD⁶, it was determined that for every 100 turf rebate participants, an additional 132 parcels converted their turf. These changes were associated with participants opting to apply for turf conversion programs after noting the benefits realized by neighbors who had received rebates for their conversions.

Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.

Conserved water will remain in the CRA, while also allowing MWD to meet its delivery obligations to its 26 member agencies in Southern California.

Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.

No additional mechanisms are required to put the conserved water to its intended use. LBWD will reduce its water import needs by approximately 56 AFY, thereby increasing water reliability for the Southern California region, while also reducing energy costs associated with pumping and conveying water through the CRA.

Indicate the quantity of conserved water that will be used for the intended purpose(s).

56 AFY will be conserved through the implementation of the L2G program, allowing MWD to strengthen its water supply and meet delivery obligations to other water retail agencies.

Other Project Benefits: Combating the Climate Crisis

A. Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.

California's on-going water crisis, coupled with rapid water supply demand due to increased population growth further emphasizes the need for water conservation programs like the L2G program. This program will allow California to mitigate the newest drought cycle, while also laying the foundation for a water-wise culture for the foreseeable future.

⁶ Metropolitan Water District. 2022. Conservation Program Update. Prepared by Metropolitan Water District. June. Pg. 11.

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

This project aims to directly respond to climate change impacts to the region by converting 400,000 square feet of grass turf to California Friendly, drought resilient landscape that will offset the need to import 56 AFY through the CRA and California Bay-Delta. Currently, imported water purchases from MWD account for about 40% of LBWD’s overall water supply. Therefore, this program will offset 56 AFY of current imported water demand and contribute an equal amount towards water supply reliability. Although this contributes a small portion of the overall water supply, the program also intends to affect long-term behavioral change in making smart choices to replace wasteful landscaping.

C. Will the proposed project establish and utilize a renewable energy source?

The project will not establish a renewable energy source.

D. Will the project result in lower greenhouse gas emissions?

Based on CARB’s Greenhouse Emission Reduction Calculator for the California Department of Resources, the L2G program will result in an annual reduction of 36.36 Metric Tons of CO₂e (363 tons of CO₂e over the project’s estimated 10-year life span), an annual reduction of 41.5 lbs of So₂ per year (415 lbs total), and annual reduction of 94 lbs Nox emissions (940 lbs total).

Other Project Benefits: Disadvantaged or Underserved Communities

A. Does the proposed project directly serve and/or benefit a disadvantaged or historically underserved community? Benefits can include, but are not limited to, public health and safety through water quality improvements, new water supplies, new renewable energy sources, or economic growth opportunities.

The L2G project will be made available to disadvantaged communities within LBWD’s service area. Project implementation will enable residents in these units to effectively meet the State mandated water conservation goal of a 15% reduction in potable water use, while also receiving much needed upgrades to water-hungry landscaping. LBWD will perform targeted print and social media outreach in the disadvantaged communities identified in Figure 1 to ensure that underserved rate payers within the LBWD service area have equal and equitable participation in the L2G program.

As shown in Figure 1 (page 5 of this application), historical participation in the L2G program has come from customers outside DAC areas. Historically, disadvantaged communities have had financial hurdles related to turf conversions due to high material and installation costs. With an increased incentive amount (\$3/sq. ft. through L2G, as opposed to lower amounts offered by

similar turf conversion programs in Southern California), LBWD will have the specific goal of attracting rate payers in underserved communities within LBWD's service area.

B. If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the disadvantaged community definition in Section 1015 of the Cooperative Watershed Act, which is defined as a community with an annual median household income that is less than 100 percent of the statewide annual median household income for the State, or the applicable state criteria for determining disadvantaged status.

The median household income throughout LBWD's service area (\$55,151) is lower than that of Los Angeles County (\$57,952) and California (\$63,783)⁷. The L2G program will be offered to DAC tracts that were identified using the CalEPA's CalEnviroScreen4.0 tool, a scoring system that takes into account population characteristics and pollution burdens of each evaluated census tract to identify the most at-risk disadvantaged areas in LBWD's service area.

C. If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985, which includes populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life.

The DACs identified in Figure 1 above align with other underserved communities identified in a recent community health assessment performed by the City of Long Beach, where zip codes associated with poor health, low income and other social disparities were found to be located on the west side of the City. The life expectancy for these areas was in some cases found to be almost eight years lower compared to areas in East Long Beach (Figure 2).

Life expectancy for African Americans in these areas is also significantly lower than other racial/ethnic groups. The life expectancy at birth for African Americans in Long Beach in 2017 was 71.5 years, which was more than seven years lower than the other measured racial/ethnic group.

⁷ City of Long Beach Department of Health and Human Services. 2019. 2019 Community Health Assessment. P.7. <https://www.longbeach.gov/globalassets/health/media-library/documents/healthy-living/community/community-health-assessment>

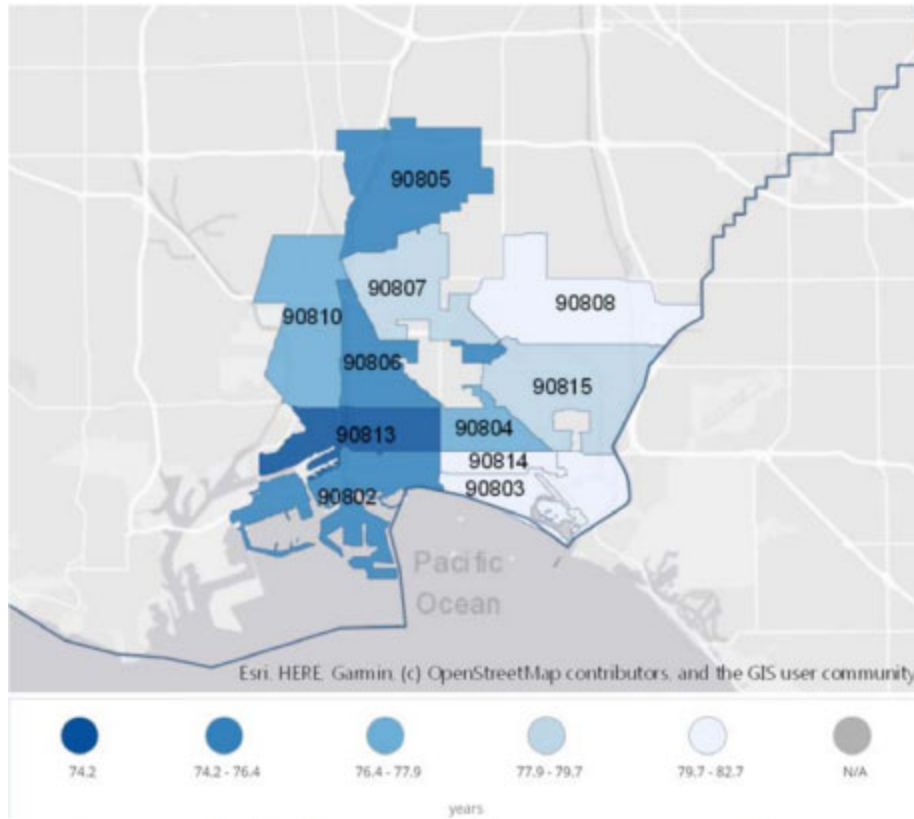


Figure 2. Average Life Expectancy in Long Beach, 2018

Table 1 below displays the percentages of people in each zip code that are living below the federal poverty level, as compared to the State of California.

Table 1. Poverty Rates by Zip Code, 2012-2016⁸

Geography	People Below Federal Level
90802*	25.0%
90803	8.3%
90804*	25.5%
90805*	24.0%
90806*	24.6%
90807	6.4%
90808	4.9%
90810*	19.0%
90813*	34.5%
90814	15.0%
90815	12.3%
Long Beach	20.3%
California	15.8%
* DAC Tracts	

The L2G program will target residents located within DAC boundaries through print and social media campaigns, where citizens in these homes, based on assumptions made by the poverty and life expectancy surveys, have systematically been denied a full opportunity to participate in aspects of economic, social, and civic life. The program will engage members of underserved communities to be included in meaningful actions that result in water savings for the State.

Other Project Benefits: Tribal Benefits

A. Does the proposed project directly serve and/or benefit a Tribe? Will the project increase water supply sustainability for an Indian Tribe? Will the project provide renewable energy for an Indian Tribe?

American Indians in Long Beach, which primarily belong to the Tongva Tribe, have the lowest median income (\$32,866) when compared to other racial/ethnic groups in the LBWD service, with 82% residing in DAC zip codes identified in Table 1. The L2G program will directly support water sustainability for Native Americans in these areas by landscape conversion opportunities that might otherwise be unattainable without rebates. This action will lead to less water loss and water consumption overall, leading to a decrease in the overall demand on the water supply system, thereby making it more sustainable going forward.

⁸ American Community Survey, 2012-2016

B. Does the proposed project directly support tribal resilience to climate change and drought impacts or provide other tribal benefits such as improved public health and safety through water quality improvements, new water supplies, or economic growth opportunities?

100% of all Long Beach American Indians reside in areas that are eligible for the L2G program, the L2G program will enable local tribal resilience to climate change and drought by limiting excessive water use and decreasing demand on imported water, which will create a reliable water supply for the region given on-going extreme drought and climate change crises.

Other Benefits

A. Will the project assist States and water users in complying with interstate compacts?

The L2G program will reduce the demand on imported water within LBWD's service area, which will allow LBWD's wholesale water supplier, Metropolitan Water District (MWD) to reliably meet its distribution obligations to its 26 member agencies across six Southern California Counties.

The project will also aid in the State's response to the on-going Colorado River crisis, where the commissioner for the Bureau of Reclamation has raised alarms regarding drought conditions in the Western United States, and informed states in the Colorado River Basin that they have 60 days to create an emergency plan to stop using between 2 and 4 million acre-feet of water in the next year.

B. Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?

The project will directly impact all LBWD customers. The water conserved through the project will promote a secure water supply for multiple sectors and users throughout the Southern California region.

C. Will the project benefit a larger initiative to address sustainability?

With California experiencing extreme drought conditions, the need to immediately reduce water use is paramount. The L2G program responds to the State's mandatory water use restrictions. LBWD, a major water supplier in LA County, imported approximately 40% of its water supplies from the Colorado River watershed and the Sacramento-San Joaquin Bay Delta in 2020. Supplies from the Bay-Delta have been restricted since 2006 due to drought and environmental regulations, while the delivery of Colorado River water has also been subject to limitations. More recently, deliveries from the Bay Delta SWP have been reduced to 20% of allocations, during a time when local supplies are stretched thin and demand for imported water is increasing. On October 19, 2021, Governor Gavin Newsom declared a statewide

drought emergency calling on Californians to reduce water use by 15% in order to conserve water reserves and complement local conservation mandates. The efforts of the proposed L2G program will help the Region meet the Governor’s water use reduction target, as well as potential future water conservation targets or objectives.

On a more local level, the City of Long Beach recently developed its own Climate Action and Adaptation Plan (CAAP), which calls for continuous development and improvement of water use efficiency and water use conservation programs while also enacting other means to maximize local water supplies and offset imported water. The project is also aligned with MWD’s “One Water” initiative, which seeks to inspire innovative practices to solve on-going challenges of managing all local water resources (potable water, groundwater, stormwater, wastewater, and recycled water).

D. Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?

The project will help mitigate the on-going water crisis associated with drought conditions throughout the state of California through local and impactful water conservation, which will make additional water supplies available to the rest of the Southern California region.

1.4.3. Evaluation Criterion D: On-Farm Irrigation Improvements

The project does not directly benefit any on-farm irrigation improvements.

1.4.4. Evaluation Criterion E: Planning and Implementation

1.4.4.1. Evaluation Criterion E.1: Project Planning

A. Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.

The project is consistent with the following district-wide plans:

- LBWD Water Resources Plan⁹:
 - Chapter 3.2.5 Water Conservation
- LBWD Urban Water Management Plan (UWMP)¹⁰
 - Chapter 6: Water Shortage Contingency Planning
 - Chapter 8: Water Shortage Contingency Planning

⁹ Long Beach Water Department. 2019. Water Resources Plan. <https://lbwater.org/wp-content/uploads/2020/04/LBWD-WRP-1.pdf>

¹⁰ Long Beach Water Department. 2020. 2020 Urban Water Management Plan. https://lbwater.org/wp-content/uploads/2022/04/LBWD_UWMP2020_Final_Errata_Revised.pdf

- Chapter 9: Demand Management Measures

B. Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect of the project that implements a feature of an existing water plan(s).

The Water Conservation Act of 2009 requires urban water agencies to actualize a reduction in per capita water use of 20%, relative to certain specified baseline conditions. LBWD's UWMP specifies meeting this target as a key element in the development of its management strategies. The project directly addresses the need for water conservation programs, serving as a measure for demand management as well as prohibitions on end uses for increasingly severe levels of water shortage.

C. If applicable, provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed WaterSMART Basin Study or Water Management Options Pilot (e.g., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes).

Not applicable.

1.4.4.2. Evaluation Criterion E.2: Readiness to Proceed

Identify and provide a summary description of the major tasks necessary to complete the project.

The project is essentially shovel-ready upon authorization of grant funding. The project will primarily be executed by homeowners and third-party contractors.

Interested residents will be able to apply for the program through the L2G website, which is already established and operational: lblawntogarden.com. Once applicant eligibility is verified, the customer will move forward with installation. During installations, the customer will document the turf conversions and submit documentation to LBWD with a corresponding itemized invoice covering the work. Upon project completion, LBWD staff inspect conversion sites and verify compliance with project guidelines prior to payment. The project will be open to applicants until available funds are expended, which is expected to be diminished by May 2025.

Describe any permits that will be required, along with the process for obtaining such permits.

No permits will be required to execute the project.

Identify and describe any engineering or design work performed specifically in support of the proposed project.

No engineering work is needed to support the turf conversions proposed under the L2G program.

Describe any new policies or administrative actions required to implement the project.

There will be no new policies required to implement the project.

Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete)

A project schedule is displayed below in Table 2.

Table 2. Proposed Project Schedule

Task	Anticipated Completion Date
Advertise Project to Eligible Customers	June 2023
Turf Conversions (at eligible properties)	July 2023 – May 2025

1.4.5. Evaluation Criterion F: Collaboration

Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?

The project is supported by the City of Long Beach and Metropolitan Water District. LBWD has extensive experience implementing the L2G program since 2011, having offered rebates previously supported by MWD’s SoCal WaterSmart program. The project will be executed independently by LBWD but will directly align with multiple water and energy conservation goals outlined by agencies throughout the Southern California Region. LBWD will also rely on various neighborhood and homeowner associations (HOAs) for this continuation of the L2G program to promote the project and ensure participation from the targeted DAC census tracts identified through CalEnviroScreen4.0.

What is the significance of the collaboration/support?

Regional support from MWD, in tandem with local community support from HOAs and neighborhood associations will ensure that L2G program is successful in contributing towards various local, state, and federal water conservation targets. The L2G program will be a step in fostering a water conservation mindset in LBWD communities, promoting a united and action-

oriented community focused that can now be active participants in mitigating the effects of the on-going drought and climate change predicaments.

Will this project increase the possibility/likelihood of future water conservation improvements by other water users?

Given that the L2G program will be offered to rate payers within LBWD’s service area, customers will be incentivized to form water conservation habits to maximize future reductions to their water bill. Once a behavior becomes a habit, it is more likely to continue, and helps to foster a culture of water-wise behavior beyond those individuals directly receiving rebates.

LBWD hosted an annual Lawn to Garden Fest prior to the COVID-19 pandemic and plans to begin hosting it again once it is safe to do so. Along with a resource festival at LBWD, the Lawn to Garden Fest included a self-guided tour of hand-selected Lawn to Garden participants. These homes included turf conversions to waterwise gardens of different plant palette designs as well as different stages of establishment. The self-guided tour and the resource fair allows interested residents to have peer-to-peer guidance from past participants, to attend workshops related to turf conversion, and to learn about other available City and local resources available to them throughout the turf conversion process.

Social norm-based observations have also shown to greatly impact project participation, as a recent MWD study determined that for every 100 turf rebate participants, an additional 132 parcels converted their turf based on observations, showing that there is potential for a “snowball” effect to exponentially increase program participation.

Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).

Letters of support from the Mayor of Long Beach, and from the Metropolitan Water District are included in Section 4 below.

1.4.6. Evaluation Criterion G: Additional Non-Federal Funding

State the percentage of non-Federal funding provided using the following calculation:

$$\frac{\text{Non – Federal Funding}}{\text{Total Project Cost}} = \frac{\$800,000}{\$1,200,000} = 67\% \text{ cost share}$$

1.4.7. Evaluation Criterion H: Nexus to Reclamation

LBWD’s potable water resources include groundwater pumped from the Central Basin and imported water obtained from the Colorado River and Delta purchased from MWD. MWD imports water from the Colorado River via the CRA which relies on Reclamation facilities to

deliver water to its member agencies in Southern California. Specifically, Reclamation owns and operates the Parker Dam which is used to operate Lake Havasu at sustainable levels and to ensure the delivery of Colorado River water to Southern California water agencies such as MWD and sub-agencies, such as LBWD. MWD diverts water from the Colorado River at Lake Havasu to its Southern California customers, including LBWD, via the CRA. Lastly, LBWD had a partnership with Reclamation and the Los Angeles Department of Water & Power (LADWP), and together operated the country’s largest seawater desalination research facility for exploring the feasibility of the “Long Beach Method” which could reduce desalination energy requirements by 20 to 30 percent. Currently, the desalination facility is not active and is not a cost-effective option for water supply reliability due to high energy costs, but it may become a more relevant water resource asset in the future. The L2G program serves to reduce the City’s demand on imported water, which will result in reduced burden to Reclamation facilities as well.

1.5. Technical Proposal: Performance Measures

LBWD keeps detailed and accurate accounts of water use in its service area. LBWD proposes to validate the water conservation achieved by the project by comparing the annual water usage at the turf conversion sites before project implementation and after project implementation. Water conservation attributable to the L2G program will be measured directly through consumptive water use measured before and after turf conversions. Specifically, the amount of water being used in these locations before and after implementation of the project will be tracked and recorded on an annual basis.

2. Project Budget

2.1. Budget Proposal and Funding Plan

LBWD proposes to fund the non-Federal share of the project costs through the following:

- LBWD general fund (allocated for FY23)

The cost sharing breakdown is provided below in Table 3. The proposed funds will be secured and allocated for the L2G program by LBWD prior to the grant award date.

Table 3. Project Funding Breakdown by Source

Funding Sources	Percent of Project Cost	Funding Amount
Non-Federal Entities		
LBWD General Fund	67%	\$800,000
<i>Non-Federal subtotal:</i>	67%	\$800,000
Other Federal entities		
N/A	0%	\$0
<i>Other Federal subtotal:</i>	0%	\$0

Requested Reclamation funding:	33%	\$400,000
Total project funding:	100%	\$1,200,000

The total project costs are displayed in Table 4.

Table 4. Total Project Costs

Source	Amount
Costs to be reimbursed with the requested Federal funding	\$400,000
Costs to be paid by LBWD	\$800,000
Value of third party contributions	\$0
TOTAL PROJECT COST	\$1,200,000

2.3. Budget Narrative

Personnel

Mr. Joseph Baquerizo will serve as the continuing project manager for the L2G program. Mr. Baquerizo has 7 years of experience running comprehensive water conservation programs. No additional funding is requested for salaries and wages associated with the project. LBWD will use operating funds to provide program implementation and marketing, and grant administration and reporting that will not be applied as direct costs to the project.

Fringe Benefits

Not applicable to this project.

Travel

Not applicable to this project.

Equipment

Not applicable to this project.

Supplies

Not applicable to this project.

Contractual

Not applicable to this project.

Third-Party In-Kind Contributions

Not applicable to this project.

Environmental and Regulatory Compliance

Not applicable to this project.

Other Expenses

It is anticipated that approximately 400,000 square feet of turf will be replaced with water-efficient landscapes by providing a rebate (\$3.00 per square foot) to residential and commercial customers within LBWD's service area. All federal and non-federal expenses outlined in Table 6 will be used to provide rebates to customers in LBWD's service area.

Indirect Costs

Not applicable to this project.

3. Pre-Award Costs

Not applicable to this project.

4. Environmental and Cultural Resource Compliance

5. Required Permits and Approvals

No permits will be required for LBWD to execute the project.

6. Overlap or Duplication of Effort Statement

There is no known overlap or duplication of effort associated with the project.

7. Conflict of Interest Disclosure Statement

No known actual or potential conflicts of interest exist at the time of this application.

8. Uniform Audit Reporting Statement

LBWD acknowledges the requirement for a Single Audit report and has/will continue to comply with this requirement

9. Letters of Support

LBWD has received letters of support from the Mayor of Long Beach, and from the Metropolitan Water District. These letters can be found in Appendix A.

10. Letters of Partnership

Not applicable to this project.

11. Official Resolution

A draft version of the docketed board resolution is included in Appendix B. An approved board resolution will be provided within 30 days.

12. Unique Entity Identifier and System for Award Management

The City of Long Beach maintains active registration in the System for Award management (SAM) under Unique Entity ID F5PEFL6NGJQ4. Registration is active until January 22,2023 and will be renewed upon expiration.

Appendix A: Letters of Support



MAYOR ROBERT GARCIA
CITY OF LONG BEACH

July 5, 2022

Josh German
WaterSMART Grants Program Coordinator
U.S. Bureau of Reclamation
P.O. Box 25007, MS 84-27133
Denver, CO 80225

Subject: Letter of Support for LBWD's L2G USBR WEEG Grant Application

Dear Mr. German,

On behalf of the City of Long Beach, I write in support of the Long Beach Water Department's (LBWD) application to secure grant funding for its Lawn-to-Garden (L2G) program through the Bureau of Reclamation's (UBSR) Water and Energy Efficiency Grants for Fiscal Year 2023.

The L2G program was created with the goal of making the landscapes of Long Beach sustainable and water efficient, while also providing multiple benefits for the environment such as capturing stormwater, reducing runoff, and developing habitat for birds and butterflies. All L2G projects are eligible to receive incentives based on the square footage of turf converted to sustainable landscaping. The program will provide the assistance necessary for our region to meet its demand management goals.

Water conservation programs are even more vital considering the statewide drought emergency. On March 31, 2022, Governor Gavin Newsom issued an executive order imposing mandatory water restrictions, while also asking the State Water Board to prepare municipal water agencies for drought restrictive measures to account for a water shortage level of up to 20%. The Governor has also ordered state agencies to submit funding proposals to support the state's short- and long-term drought response.

The L2G program will help the City of Long Beach meet the Governor's water-use reduction target. The L2G program is designed to promote long-term changes in norms and behaviors toward the use of water in urban landscapes, resulting in increased water-use efficiency and less dependence on imported water, since the City of Long Beach currently imports approximately 40% of its water supplies from sources originating hundreds of miles away.

Thank you for your consideration of this project. The City supports LBWD's L2G Program and its efforts to address the critical water management needs of the Long Beach community.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Garcia".

Mayor Robert Garcia
City of Long Beach



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

July 19, 2022

Josh German
WaterSMART Grants Program Coordinator
US Bureau of Reclamation
PO BOX 25007, MS 84-27133
Denver, CO 80225

Letter of Support for LBWD's Lawn-To-Garden USBR WEEG Grant Application

The Metropolitan Water District of Southern California (Metropolitan) is pleased to provide this letter in support of the Long Beach Water Department's (LBWD) application to secure grant funding for its Lawn-to-Garden program through the Bureau of Reclamation's (USBR) Water and Energy Efficiency Grants for Fiscal Year 2023.

Turf replacement incentives are a growing response to addressing the water supply reliability challenges in the western United States. The LBWD Lawn-to-Garden program offers Long Beach residents a financial incentive per square foot of turf lawn converted into a water efficient landscape. In addition to making the landscaping more water efficient, these converted landscapes offer multiple additional environmental benefits such as reduction in energy needed for imported water, capturing and retaining storm water onsite to prevent runoff, promoting the propagation of native plants, and creating habitat for native wildlife.

Long Beach is one of Metropolitan's 26 public member agencies that together serve 19 million people. LBWD has a successful history of continuously improving the administration of a turf replacement incentive, and the strategies and knowledge that LBWD gains from this project will be shared across the region. Metropolitan strongly encourages the Bureau of Reclamation to support and award this project to help conserve water and energy and help reduce the demand on imported water.

Sincerely,

A handwritten signature in black ink, appearing to read "William P. McDonnell".

William P. McDonnell
Manager, Water Use Efficiency

Appendix B: DRAFT Board Resolution

OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
411 West Ocean Boulevard, 9th Floor
Long Beach, CA 90802-4664

1 RESOLUTION NO. WD-1469

2
3 A RESOLUTION OF THE BOARD OF WATER
4 COMMISSIONERS OF THE CITY OF LONG BEACH
5 AUTHORIZING THE GENERAL MANAGER TO SIGN AND
6 SUBMIT ALL NECESSARY DOCUMENTS ASSOCIATED
7 WITH THE APPLICATION FOR THE UNITED STATES
8 DEPARTMENT OF INTERIOR, BUREAU OF RECLAMATION
9 FISCAL YEAR 2023 WATERSMART WATER AND ENERGY
10 EFFICIENCY GRANT FOR THE LAWN-TO-GARDEN
11 PROGRAM

12
13 WHEREAS, the United States Department of the Interior, Bureau of
14 Reclamation (USBR) WaterSMART Water and Energy Efficiency Grant establishes a
15 framework to provide Federal leadership and assistance to increase water conservation
16 and improve the efficient use of water and energy; and

17 WHEREAS, with WaterSMART grants, USBR provides cost-sharing funding
18 on a competitive basis to implement projects that will build long-term resiliency to
19 drought; and

20 WHEREAS, in order for the Long Beach Water Department to receive and
21 expend grant funding, the USBR requires the Board of Water Commissioners to adopt a
22 resolution identifying the official with the legal authority to enter into an agreement with
23 USBR, and authorize the official to commit the Long Beach Water Department to the
24 financial and legal obligations associated with receipt of the WaterSMART Water and
25 Energy Efficiency Grant financial assistance;

26 NOW, THEREFORE, the Board of Water Commissioners of the City of
27 Long Beach resolves as follows:

28 Section 1. Approves and supports the filing of an application with the

1 United States Department of the Interior, Bureau of Reclamation for Fiscal Year 2023
2 WaterSMART Water and Energy Efficiency Grant for the Lawn-to-Garden Program, and
3 further authorizes the expenditure of funds.

4 Section 2. Appoints the General Manager as agent of the Long Beach
5 Water Department to conduct all negotiations and execute and submit all documents,
6 including, but not limited to, applications, contracts, amendments, payment requests, in
7 compliance with all applicable laws, which may be necessary for the completion of the
8 aforementioned Project.

9 Section 3. Directs the General Manger to work with the USBR to meet
10 established deadlines for entering into a cooperative agreement.

11 Section 4. This Resolution shall take effect immediately upon its
12 adoption by the Board, and the Secretary to the Board shall certify the vote adopting this
13 Resolution.

14 I hereby certify that this Resolution was adopted by the Board of Water
15 Commissioners of the City of Long Beach at its meeting on
16 _____, 2022 by the following vote:

17
18 Ayes: Commissioners: _____
19 _____
20 _____

21 Noes: Commissioners: _____

22 Absent: Commissioners: _____
23 _____

24
25 _____
26 Secretary
27 Board of Water Commissioners
28