



# ECOS

ENVIRONMENTAL  
♦ COUNCIL ♦  
OF SACRAMENTO

Post Office Box 1526 | Sacramento, CA 95812-1526

February 14, 2022

Subject: Sacramento Area Turf Replacement Study

To: Sacramento Area RWA Water Agencies

The Environmental Council of Sacramento's Water Committee has begun a project to calculate the potential water savings from conversion of ornamental grasses (turf) to drought-tolerant landscaping in the American River water purveyor area (i.e. Regional Water Authority member agencies). We are interested in your input and participation in this study. This letter describes the study plan. For more information or to participate, please contact Katrina Harrison, PE, ECOS Water Committee member and Project Manager, at [kandchf@gmail.com](mailto:kandchf@gmail.com) or (408) 644-9108.

The Water Committee has met with representatives of the Department of Water Resources (DWR) to share methodologies and inquire about data sources. DWR staff has been helpful but has suggested relying on publicly available datasets. Therefore, Water Committee plans to calculate the area of current ornamental grasses using 2019 or 2020 publicly available fine scale (~1 foot pixel size wherever possible) aerial and infrared imagery. Aerial images include National Agriculture Imagery Program (NAIP), Bing imagery, Planet, and NearMap.

This imagery dataset will be analyzed using the machine learning, or neural net, algorithms of the software program eCognition to determine turf grass area. Land classifications will be digitized in several sample areas, and the computer model will be trained using those areas including calculating the Normalized Difference Vegetation Index (NDVI) as well as a Tree Grass Difference Index. The aerial imagery processing will be validated manually to develop a calculation of the accuracy and estimated error bounds of the analysis.

Following calculation of the area of turf grass, ECOS Water Committee members plan to use California Native Plant Society information on the evapotranspiration and density of different plant palettes - lawn versus drought-tolerant landscaping - to determine the difference in water use. This difference will be multiplied by the area to determine potential water savings.

We appreciate any insight or methodology suggestions you may have. We would like to share our draft results with study participants and will make the final product available to the Water Forum for its consideration in the ongoing Water Forum 2 discussions. If you have an interest in participating, please contact Katrina Harrison at [kandchf@gmail.com](mailto:kandchf@gmail.com) or Ted Rauh at [trauh@att.net](mailto:trauh@att.net). We would appreciate hearing from you before the end of February so that your input can be included in the study.

Thank you,

KH  
Katrina Harrison, PE  
Project Manager

TR  
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Chair, Water Committee

CC:  
Jessica Law, Executive Director, Water Forum  
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