

An aerial photograph of the Los Angeles coastline and city grid, showing the ocean on the left and the city extending inland to the right. The image is partially obscured by a dark teal overlay on the left side where the text is located.

Data-Driven Resource Optimization and Planning System (DROPS) for Los Angeles County

Scientific Studies Program

Fiscal Year 2025-2026

Los Angeles County-Wide (All WASCs)

Foothill Municipal Water District

Natalie Ouwersloot and Chris Tull



Study Overview

Implement the DROPS tool that integrates advanced data analytics with AI to site distributed stormwater capture and filtration projects.

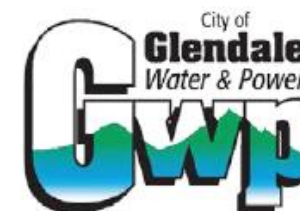
- Nexus to Stormwater and Urban Runoff capture and pollution reduction:
 - DROPS tool will identify critical areas for stormwater intervention
 - Helps in effectively managing stormwater runoff, reducing the risk of flooding
 - DROPS tool will optimize the location and design of green infrastructure
 - Green infrastructures act as natural filters, improving the quality of water that eventually reaches rivers and oceans
- Holistic approach to stormwater management safeguards both public safety and environmental health in Southern California





Study Team

- Study Developer: California Data Collaborative
 - Nonprofit organization and network of water professionals collaborating to support the planning and analysis needed to ensure a reliable and resilient water supply in California
 - ❖ Chris Tull, *Chief Data Officer*
 - ❖ Dr. Brianna Pagán, *Deputy Manager NASA Goddard Earth Sciences Center Data and Information Services Center*
- Partners:
 - Foothill Municipal Water District
 - ❖ Natalie Ouwersloot, *District Engineer*
 - Crescenta Valley Water District
 - Glendale Water and Power
 - Pasadena Water and Power
- Project stakeholders identified as end-use testers





Study Details

Stormwater capture is radically common sense!

Yet planning for green infrastructure is cumbersome and expensive

**How can we
prioritize precious
public dollars for
maximum impact?**





Benefits of the DROPS Analytical Tool

Existing stormwater feasibility studies are expensive and time consuming

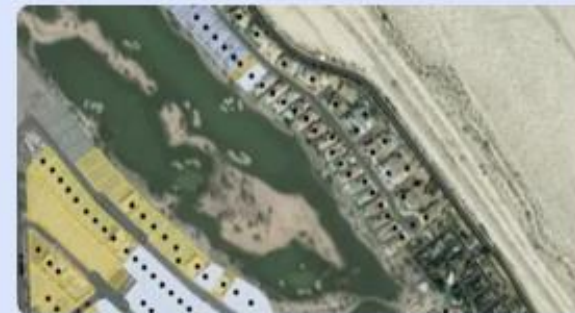


Paradigm Shift

Benefits of open, collaborative analytics



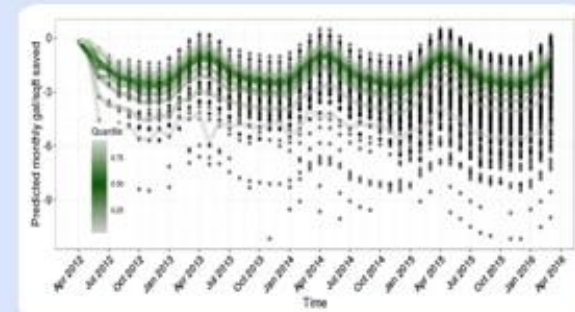
Identify potential sites for green infrastructure



Provide a low cost planning tool for first evaluation



Scaleable region-wide

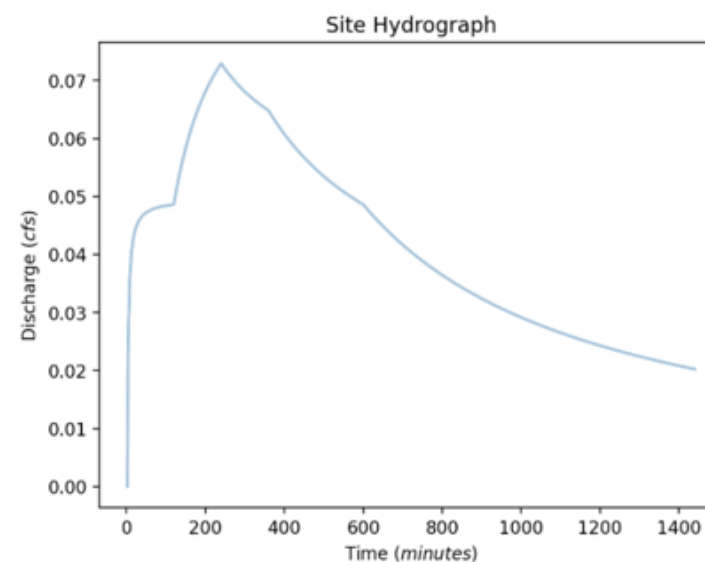
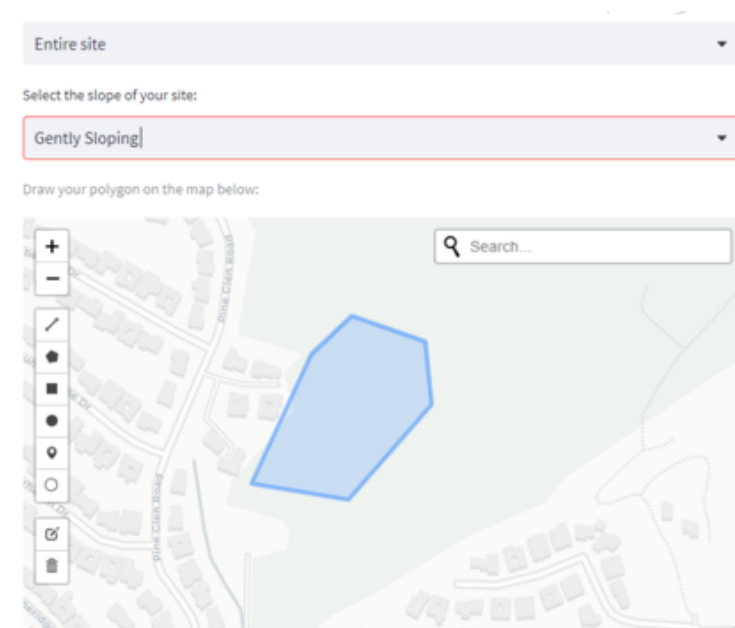


Flexibly add analytics



Vision for DROPS

- Easy to use - doesn't require hiring consultant for a feasibility study
- Build on or complement existing tools
- Pre-populated with relevant data
- Open-source so others can contribute and run with the product
- Accelerate identification of high-impact projects





Example: Wavelet Software for Water Efficiency

Water Town Water District Water Town Water District Data gap identified. Upload Data

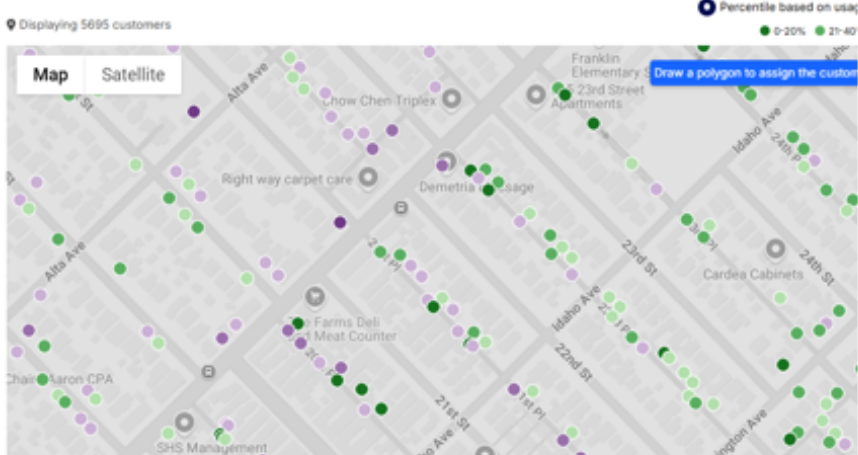
DASHBOARD **CUSTOMERS** REPORTS WATER USE OBJECTIVE SYNC DATA

All

Residential
Rate codes: BUSINESS IN RESIDENC, CHURCH, CITY LANDSCAPE, COMMERCIAL, DUPLEX, FIRE, FOURPLEX, HOUSE METER, LANDSCAPE RESIDENT, LANDSCAPE COMMERCIAL, LANDSCAPE PUB SCHOOL, MIXED USE, MULTI UNIT DWELLING, OUTSIDE CITY, PUBLIC SCHOOL, RECLAIMED WATER, SF MULTI UNIT DWELL, SINGLE FAMILY, STATE FREEWAY, TRIPLEX

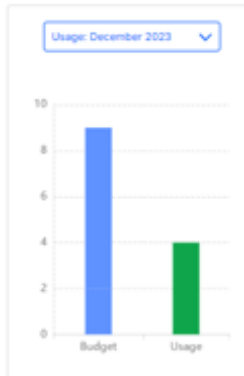
Commercial, industrial, institutional
Irrigation
Other

5,695 Total **All time** **20 Rate Codes** **25,194 AF** **100 %**
 Filtered Customers Date Range Rate codes Total Water Use for Selected Date Range % Total Water Use for Selected Date Rang



December 2023 Actual Usage vs Budget Calculator

● Outdoor Budget ● Indoor Budget ● Over Budget ● Under Budget ● Calculated Budget



Calculate Budget Scenarios To Simulate Usage

*For estimation purposes only

*Default values populated from customer data

Monthly Budget = Indoor Budget + Outdoor Budget
9.15 CCF = 2.415 + 6.735

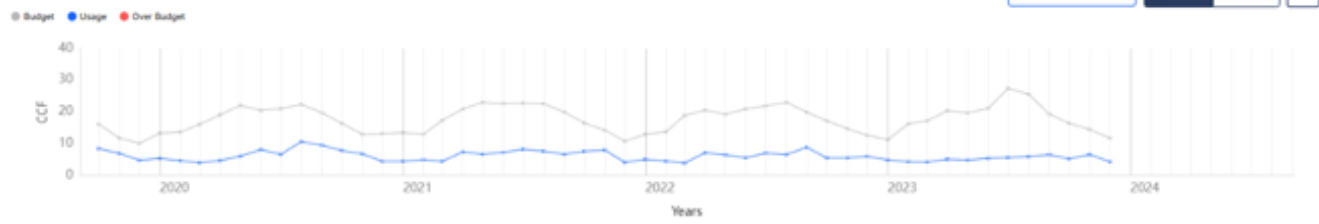
Outdoor Budget = ETAF × Irrigable area (sqft) × ET sum for mo.
6.735 CCF = 0.8 × 4,397 × 2.42

Indoor Budget = GPCD × Household size (ppl.) × Days in month
2.415 CCF = 4.7 × 2 × 31

Irrigable Area (sqft) Estimator



Annual Trends: Budget vs Usage





Cost & Schedule

Phase	Description	Cost	Completion Date
1	User research with County-wide water resources professionals	\$31,500	10/31/2025
2	Field Verification of DROPS tool with three select project sites	\$205,000	01/30/2026
3	Develop Version Two Open Source DROPS planning tool (include three iterative agile development sprints)	\$195,000	07/31/2026
4	Write Final Report	\$10,500	10/02/2026
TOTAL		\$442,000	

- Metropolitan Water District of Southern California – Future Supply Action funding of \$109,800 awarded for pilot program



Funding Request

WASC	Year 1	Year 2	Year 3	Year 4	Year 4
CSMB	\$49,111				
LLAR	\$49,111				
LSGR	\$49,111				
NSMB	\$49,111				
RH	\$49,111				
SCR	\$49,111				
SSMB	\$49,111				
ULAR	\$49,111				
USGR	\$49,112				
TOTAL	\$442,000				



Summary of Benefits

- Stormwater Management
 - Identify sites for low impact development (LID) projects
- Water Supply
 - Identify sites for efficient groundwater recharge
- Water Quality and Meeting TMDL Requirements
 - Stormwater captured onsite
- Offset Potable Irrigation Demands
 - Removal of nonfunctional turf
- DAC Community Benefits
 - Siting projects in DAC areas
 - Improved local water reliability keeps costs of water down
- Increased Collaboration
 - Providing access to a shared pool of data





Questions?

Chris Tull

Natalie Ouwersloot