

# The Urban Drool Tool

Investigating unnatural water balance  
and flow in Orange County



CODELABOC

California Data  
Collaborative

OC Public Works

# Overview

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## Managing Urban Drought:

- What?
- Why?
- How?

## The Tool:

- For the public
- For internal investigations

# What?

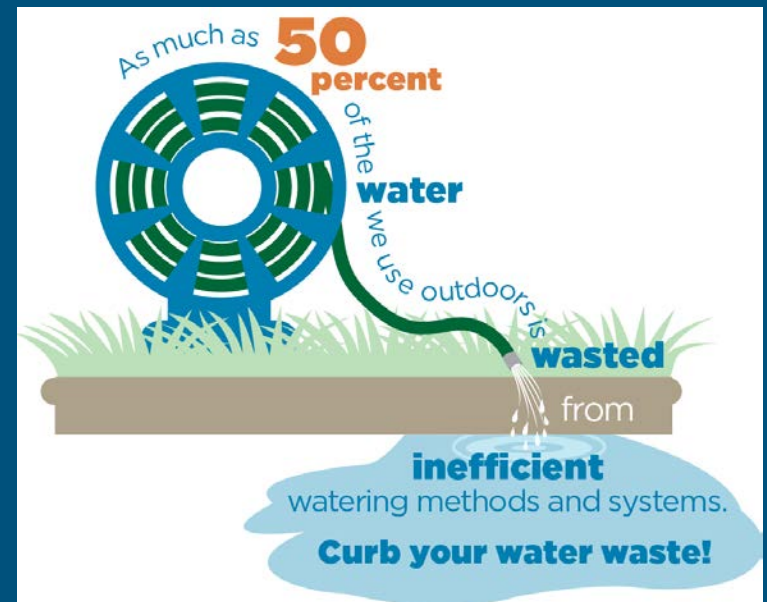
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## “Urban Drool”

- Unnatural, unpermitted, non-exempted dry weather flows
- Increases with imperviousness
- Carries urban increased pollutant loads
- Inefficient water practices exacerbate it

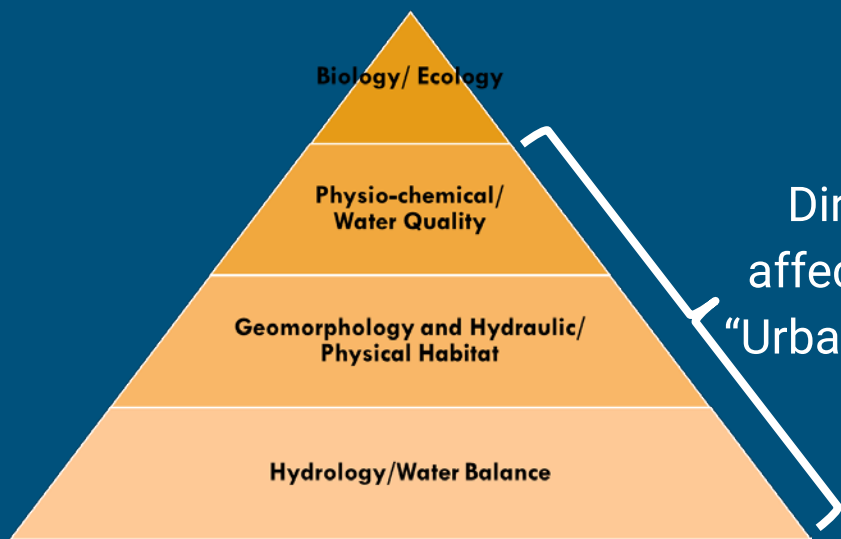
## Affects

- Water supply
- Water balance
- Water quality

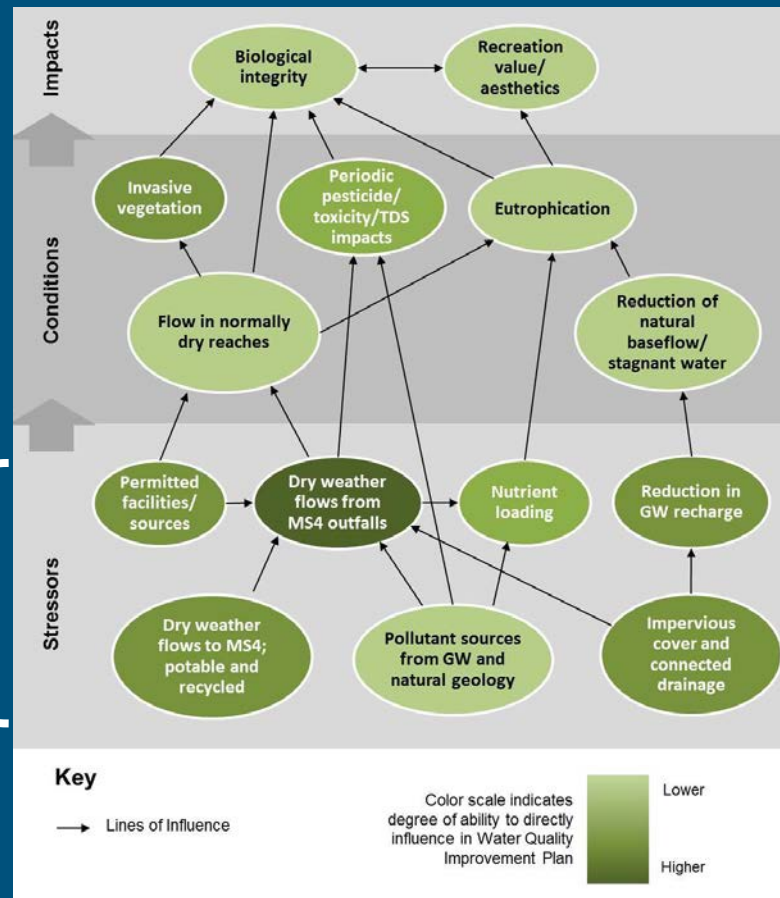


(US EPA WaterSense)

# Why?



Function-based framework for stream restoration adapted from Harman (2012)



Interrelation of conditions in inland stream systems in dry weather (WQIP, 2017)

# How?

## Non-structural BMPs

- Awareness/Education
- Incentives
- Street sweeping







## Structural BMPs

- Diversion
- Capture
- Treatment
- Infiltration



**moulton niguel**  
water district

Customer Service

-  **RAIN BARRELS & CISTERNS**  
Up to \$35 per Barrel  
Up to \$250 per Cistern
-  **WEATHER-BASED IRRIGATION CONTROLLER**  
Up to \$230 per controller
-  **SOIL MOISTURE SENSOR**  
Up to \$380 per sensor
-  **TURF REMOVAL PROGRAM**  
Up to \$2 per square foot

# The Making of the Tool

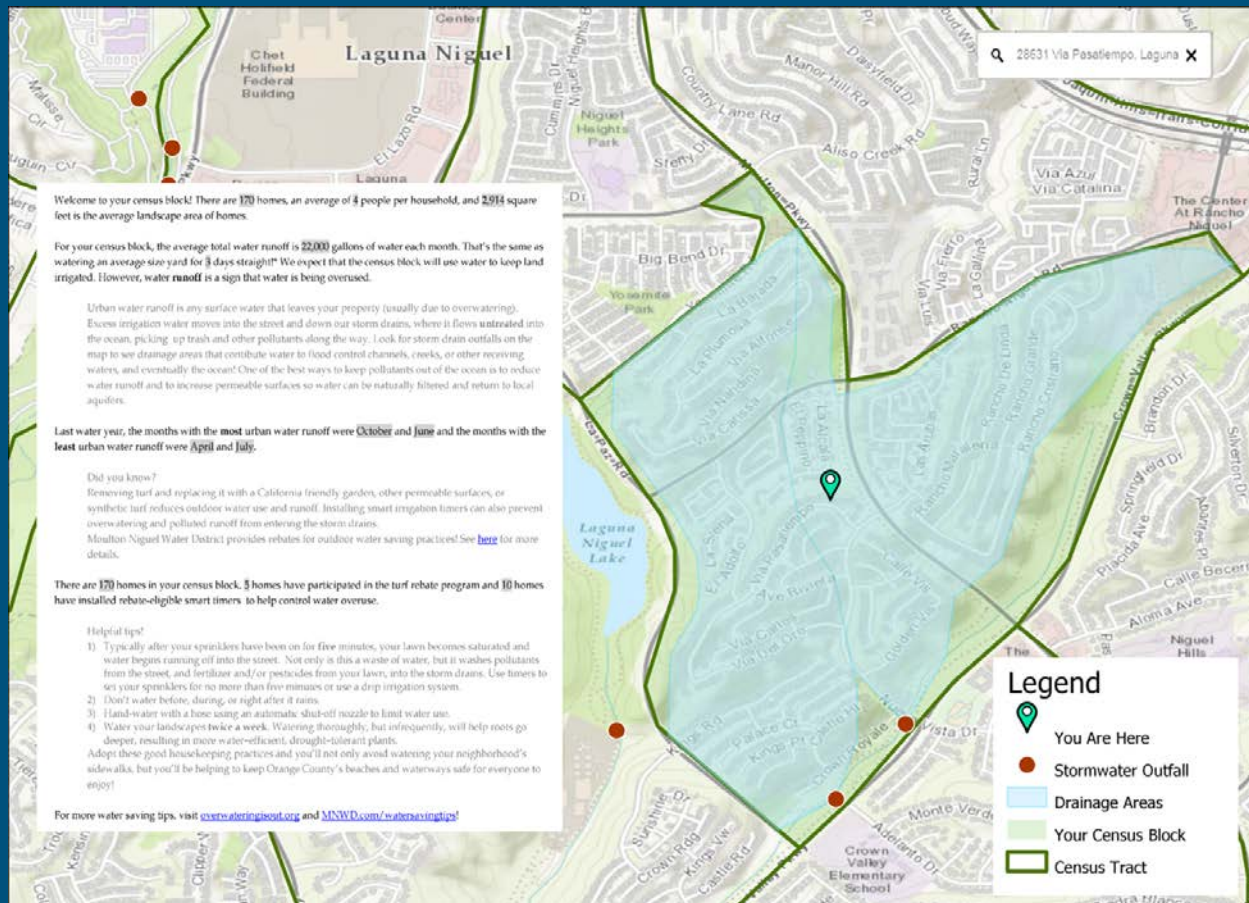
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# Public-Facing Application

Search for address

Get personalized data for the census block

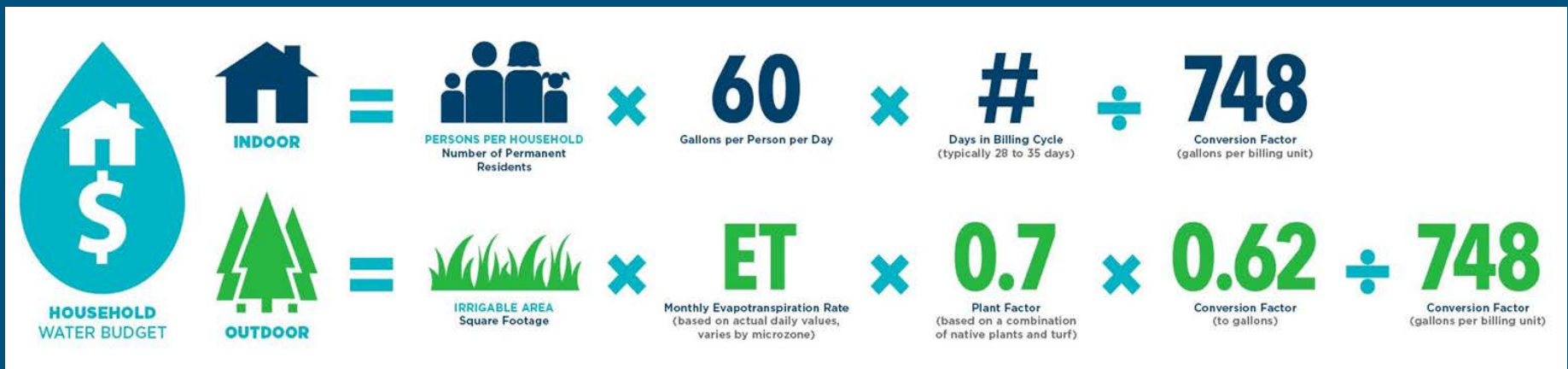
Visually see extent of water data and stormwater drainage areas



# Water Data by Census Block

## Data granularity

- Water usage data (~ 53,000 observations)
- Total usage over budget : Tier 3, 4, 5 usage
- Months of maximum and minimum usage
- Identify areas of inefficient usage
- Over budget customers: Typically customers with high outdoor water use





# Water Data by Census Block

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## Census block characteristics

- Number of homes

## Household characteristics

- Average household size
- Average irrigated area

## Rebate participation

- Turf replacement
- Smart timers

# Internal-Facing Application

Public tool layers - Outfall flow data - Water quality data - Asset management

**Contents**

Search

**Drawing Order**

- Urban Drool Tool
  - Stormwater Outfall
  - Census Tract
  - Outfall Tributaries
  - Receiving Waters
  - Water Quality\_OCPW
  - BMPs\_OCPW
  - BMPs\_Overwateringisout.org
  - LID Projects
  - Street Sweeping Schedule
  - Topographic

<b>UsageSum</b>	1255
<b>Monthly_Usage</b>	104.5833
<b>HH</b>	4
<b>IrrAvg</b>	5867.139
<b>MU</b>	Jul-16
<b>SMU</b>	Jun-16
<b>MinU</b>	Sep-15
<b>SMinU</b>	Feb-16
<b>WBIC</b>	6
<b>SNCT</b>	10
<b>TCT</b>	8
<b>Turf</b>	18
<b>Number of homes</b>	149

**Sam**  
Removed turf grass and replaced it with California friendly plants

**THESE NEIGHBORS ARE HELPING TO STOP OVERWATERING! ARE YOU?**

Put yourself on the map!

To help stop overwatering in my neighborhood, I have... \*

let my lawn go brown

optional: Upload photo  
Choose File No file chosen

Name \* John D Full Address \* 123 Main St., Irvine CA 92606 Email \* johnd@example.com

SUBMIT

Flow Magnitude Score  
Baseflow Score  
Developed Area Score  
Certainty Score

1:28,887 117.66W 33.49N

# A Targeted BMP Approach

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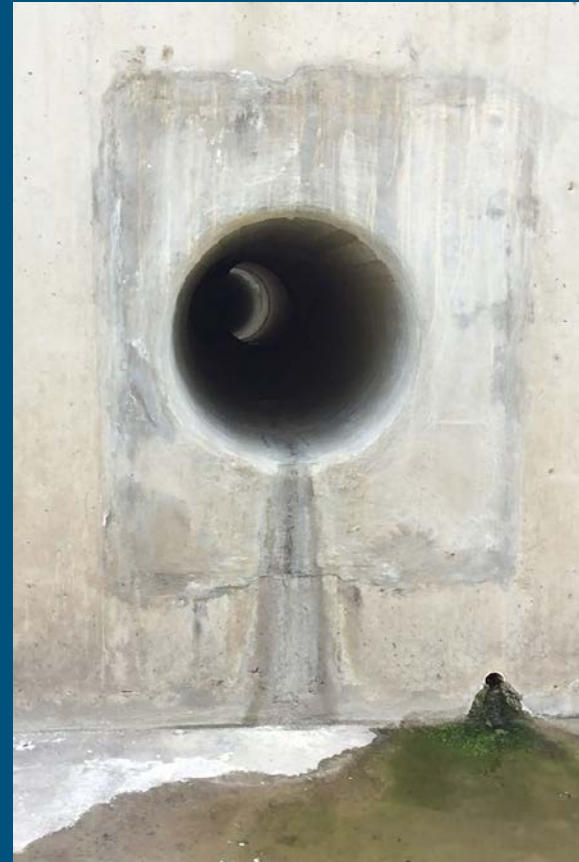


## Non-structural BMPs

- Awareness/ Education
- Incentives
- Street sweeping

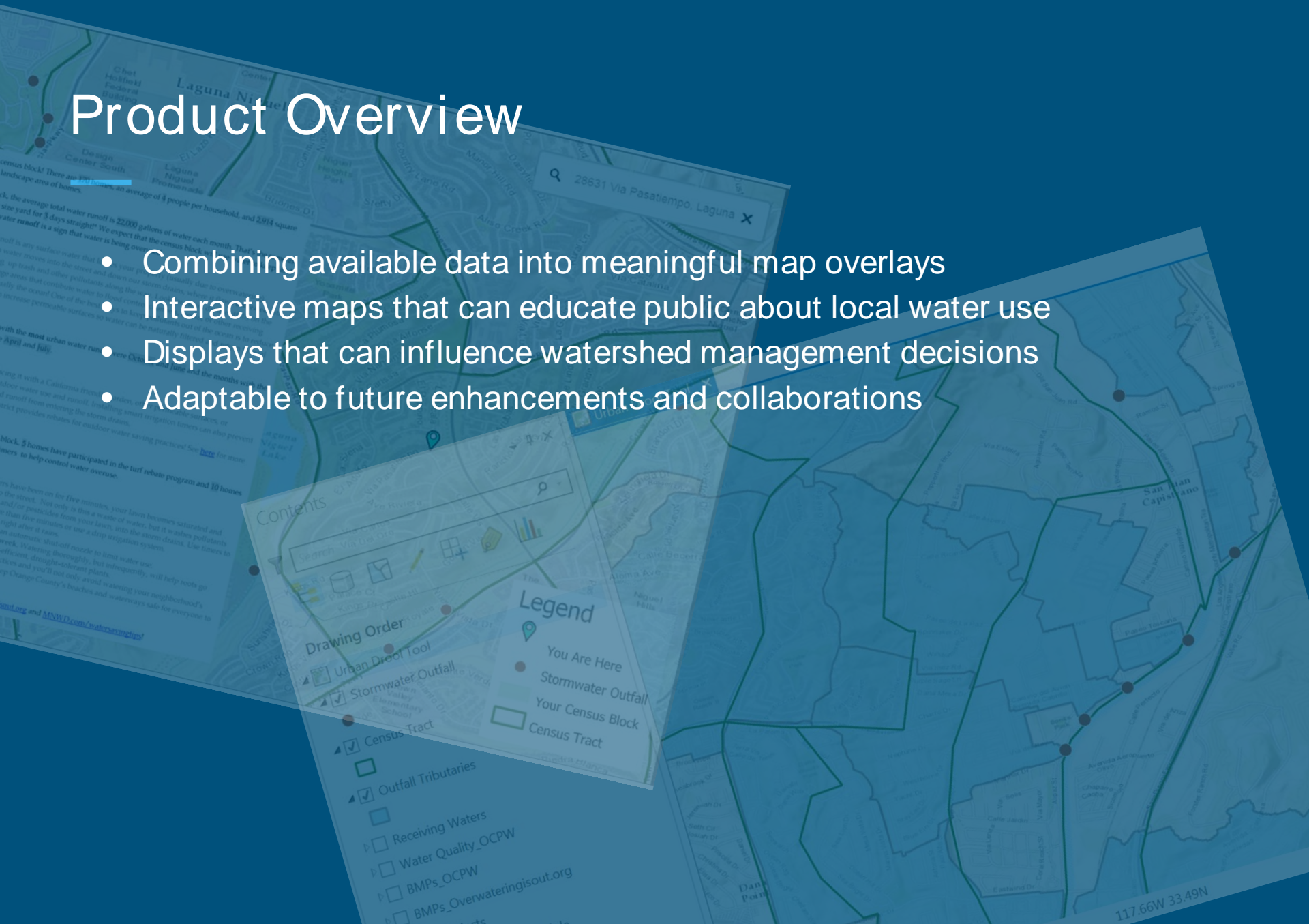
## Structural BMPs

- Diversion
- Capture
- Treatment
- Infiltration



# Product Overview

- Combining available data into meaningful map overlays
- Interactive maps that can educate public about local water use
- Displays that can influence watershed management decisions
- Adaptable to future enhancements and collaborations



# Next Steps

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Through the California Data Collaborative:

- Expanding to more Water Districts within Orange County
- Possibly expanding to other watershed management areas

# Contact

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