

# PANEL PRESENTERS



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### What is it and why do we need to do it?

State Regulations SB606 and AB1668

"Making Water Conservation a California Way of Life"

#### Performance Measures for CII water use:

- CII water use classification system with 19 categories
- Minimum size thresholds for converting mixed CII meters to dedicated irrigation meters (DIMs) or equivalent technologies.
- Technologies that could be used in lieu of requiring DIMs.
- CII water use best management practices (BMPs)







### What is the objective? . . . Benchmarking

# Use of a Commercial, Industrial, and Institutional Water Use Classification System

As previously described, insufficient information exists to fully understand the diversity and complexities of CII water use. When adopted and implemented, the CII water use classification system will facilitate data gathering by urban retail water suppliers for further understanding of service area-wide water use by CII water use category and corresponding effectiveness of various water conservation practices. It will also facilitate consistent reporting of CII water use on an urban retail water supplier level throughout the State.

Excerpt: WUES-DWR-2021-17

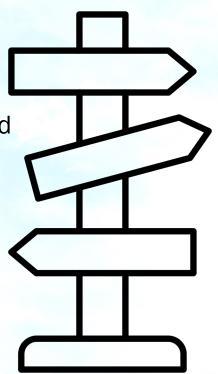






### **CII Water Use Classifications**

- 1. Water Recreation (e.g., public pools / water parks)
- 2. Recreation, non-water (e.g., athletic facilities, entertainment facilities, parks / cemeteries, golf course)
- 3. Food/Beverage (e.g., full service, fast food)
- 4. Laundry (e.g., laundromats, commercial / industrial laundries)
- 5. Lodging (e.g., hospitality, retirement homes)
- 6. Healthcare (e.g., hospitals, medical offices, medical and laboratory equipment and processes)
- 7. Offices
- 8. Public Services (e.g., government, prisons and correctional facilities)
- 9. Sales (e.g., retail, shopping centers / malls, grocery stores and food markets)
- 10. Services (e.g., auto, personal)



CII Water Use Classifications cont.

- 11. Religious Buildings
- 12. Education
- 13. Vehicle Wash
- 14. Industrial, non-manufacturing (e.g., temperature-controlled warehouses, non-temperature-controlled warehouses)
- 15. Manufacturing (e.g., aerospace, metal finishing industries; plating, printed circuit boards, metal finishing; food processing, beverage manufacturing; high-tech industry (server facility / data center); petroleum refining, chemical industries; pharmaceutical, biotech; power plants)
- 16. Utility
- 17. Mixed Use Commercial (e.g., strip malls, shopping centers, commercial spaces that are subject to frequent changes of tenants with different water use profiles to meet their corresponding business needs)
- 18. Dedicated Irrigation Meter
- 19. Others (cannot be adequately categorized into the above categories)



# Step 1 <a href="#">Identify/Locate</a>

 Identify and locate meters on all CII accounts in year 1 (2023)



Step 2A Measure

- Must map 20% annually of CII accounts per year
- Prioritize top 20% of water users



Step 2B Classify

- Must classify 20% annually of CII accounts per year
- Establish formal procedures for collecting classification info.



Step 3 <u>Implement</u>

- CII-DIM Water Use Standard
- Performance Measures (in-Lieu & BMPs)

### What resources can we expect?

- > DWR Guidance Document (?)
- > CalWEP CII Classification Guidance Document

#### **Objective**

Develop a How -To Guide for reclassifying CII accounts that standardizes the approach and outlines methodologies to improve benchmarking per sector and limit subjectivity between suppliers.

- ✓ First CalWEP task force meeting held Nov. 14, 2022.
- ✓ Guide will include 5 Test Cases:
  - City of Santa Barbara, Placer County Water Agency, Redwood City, Moulton Niguel Water District + Western Municipal Water District (GIS approach), City of Santa Rosa



# Poll

Please respond via smartphone

### How do we do it and how does it help us?

### Multiple approaches

- Staff
  - Intern
  - Junior Staff
  - Senior Staff
- Consultant
- In Billing System
- Excel Spreadsheet

### Multiple direct benefits

- Benchmarking Facility Types
- Inform Demand Forecasting
- Targeted and More Informed
   CII Water Audits

### How do we do it and how does it help us?

#### Additional benefits

- Cross connection
- Waste Water
   (ID commercial users by type of discharge)
- Field Customer Service
- Billing Dept. (ID mixed use meters)
- GIS database



### Santa Barbara, CA

**How:** Intern assisting with categorization

Progress: Categorized most of 2,700 CII Meters (not including DIMs); 60-100 per day

**Process:** Business License Database, List of Industrial Waste Discharge Permit Holders, Solid Waste Database (for Food/Beverage), Google Maps – aerial view and street view, GIS (County parcel data)

**Stumpers:** HOA common area, Museums, Gas stations (with convenience stores, vehicle washes, or auto services), Post-office/UPS, Parking lots/garages

Categories: Nearly identical to state, add grocery stores, no DIMS



#### Stumpers:

#### Automotive body shops

Services – Most automotive body shops use less than 10 HCF of water.
 which is comparable to other services (e.g.,, spas, salons, tattoo parlors)

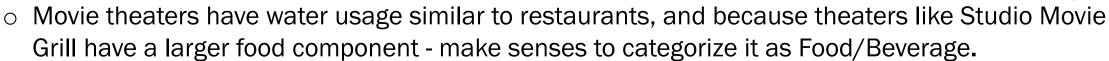


#### Car dealerships

Sales, Most have much higher water usage compared to retail stores, often due to car washes.

#### Funeral homes

- Services similar water usage to other services
- HOA common areas/community center
  - Other still unsure on how to categorize
- Movie theater that serves meals (example Studio movie grill)
  - Trick and would really depend on how the water is used.



- Daycares, Kindercare, and what if it's attached to a church? is it a service?
  - Education most daycares and developmental/educational programs have similar water usage to smaller public schools
  - If one meter serves the church and daycare defaulting to the main account holder.



Car Dealership

#### Stumpers: (Continued)

- Museums
  - Recreation
- Breweries/Vineyards with a restaurant
  - Food/Beverage
- Nurseries
  - Sales water use for nurseries has been similar to larger retail stores and gas stations with convenience stores
- Sewer lift stations
  - We have not come across this yet, but Utility?
- Recycling centers
  - Manufacturing the recycling process results in high water use
- Live-work properties
  - Plan to use our permitting/licensing database to try and determine the commercial aspect of the property.





MOXI Museum



### Santa Barbara Changes to the 19 Categories

- Laundry (e.g., laundromats, commercial / industrial laundries, dry cleaners)
- Lodging (e.g., hospitality, retirement homes)
- Healthcare (e.g., hospitals, medical offices, medical and laboratory equipment and processes)
- Offices (e.g., on-site services, banks)
- Public Services (e.g., government, prisons and correctional facilities, fire stations)
- Sales (e.g., retail, shopping centers / malls, convenience stores, gas stations with convenience stores)
- Sales Grocery (grocery stores and food markets, Trader Joe's)
- Services (e.g., auto, personal/beauty, veterinary, private lessons)
- Religious Buildings
- Education (e.g., school, daycare)
- Vehicle Wash (e.g., gas stations with car wash)

### San Antonio, TX



How: Senior staff leading categorization

**Progress:** Fully categorized more than 35,000 CII accounts using NAICS codes, Texas Water Development Board and DWR categories

Process: NAICS code, Internal database

Agency Benefit: Refine water demand forecast & conservation program design (more data for modeling efforts)



### Salt Lake City, UT

How: Consultant leading categorization

Progress: Classified NAICS 12,000-14,000 CII accounts and DWR

19 categories

Process: Used Parcel data, GIS database

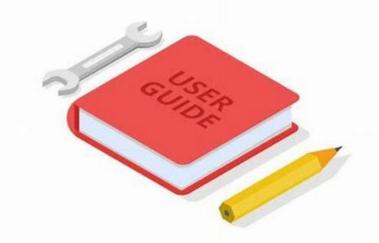
Agency Benefit: Informing the launch of their CII Water Audit & Rebate Program (allows targeting of largest water users by type)



### CalWEP CII Guidance Document

CalWEP CII Classification Task Goal:

Develop a How -To Guide for reclassifying CII accounts that **standardizes the approach** and **outlines methodologies** to improve benchmarking per sector and limit subjectivity between suppliers.





### CalWEP CII Guidance Document

#### Document outline as of December 2022:

- Introduction
- Benefits
- What to know before you begin
- Data
- Approaches
- Methodology
- Case Studies
  - 6 case study volunteers using different methods



# Poll

Please respond via smartphone

### Placer County, CA



How: Junior staff leading categorization

Progress: 2,700 CII Accounts, 1,133 classified

**Process:** Used billing system (NAICS codes), Google maps, group by customer name, search "school, church, etc.," staff verify out in the field

**Stumpers:** What goes in each category for certain properties – such as HOA commercial meters



### Placer County, CA

#### **CII Rate Class Counts**

Rate Class	Count
COMMERCIAL	1956
INDUSTRIAL	1
MUNICIPAL	177
TREATED LANDSCAPE	588
Total	2722

CII Water Use Classification	3.1.1.	Count
Water Recreation	3.1.1.1.	5
Recreation, non-water	3.1.1.2.	19
Food/Beverage	3.1.1.3.	10
Laundry	3.1.1.4.	1
Lodging	3.1.1.5.	33
Healthcare	3.1.1.6.	12
Offices	3.1.1.7.	38
Public Services	3.1.1.8.	105
Sales	3.1.1.9.	153
Services	3.1.1.10.	10
Religious Buildings	3.1.1.11.	35
Education	3.1.1.12.	59
Vehicle Wash	3.1.1.13.	0
Industrial, non-manufacturin	3.1.1.14.	8
Manufacturing	3.1.1.15.	1
Utility	3.1.1.16.	22
Mixed Use Commercial	3.1.1.17.	28
Dedicated Irrigation Meter	3.1.1.18.	589
Others	3.1.1.19.	5
	Total	1133





#### Stumpers:

#### Placer County and the City of Auburn Public Works

 Public service, offices, sewer lifts, dedicated irrigation meters, recreation non-water

#### **Smith Chiropractor**

Healthcare office with garden in back

#### HOA

With and without Dedicated Irrigation Meters (DIMs)

#### Rest area

Public service, other

#### Banks

Sales, mixed use commercial, office

#### Pacific Gas & Electric (Energy Provider)

Utility, office

#### Gas stations

Sales, mixed use commercial, vehicle wash

#### Fairgrounds with restaurants and preschool on property

 Recreation non-water, offices, food/beverage, education, mixed use commercial











A nonprofit staffed by data experts and governed by water managers





THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA





















ONTEC







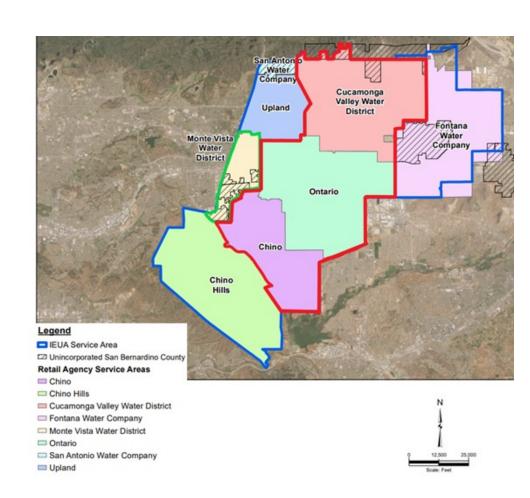






### **Experience with CII Classification**

- Project: Inland Empire Utilities Agency wanted to use water customer demand data to understand sewer flows by customer type to update their water rates
- 7,900 CII customers across 3 agencies
- After classification, 3,808 customers were matched "one-to-one" with a single commercial category to allow for benchmarking water use by category
  - The rest were messy and didn't support easy benchmarking







### Approach:

- Try to get as far as possible using batch methods rather than manually classifying each meter one by one.
  - 1. Examine the data
  - 2. Identify tricks and heuristics
  - 3. Classify broad swaths of CII customers
  - 4. Create a data quality score
  - 5. Manual classification and quality control where needed

### Approach:

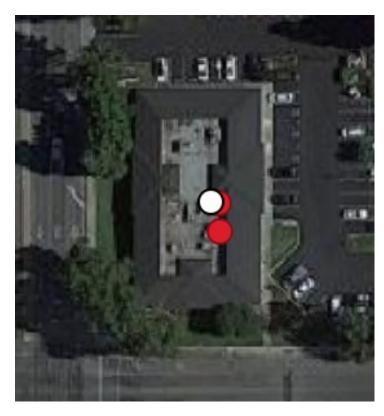
#### Data:

- NAICS business code data from third party
- Parcel land use codes
- Geocoded customer locations
- Google Maps, Streetview, Earth
- Data quality score
  - 1. 1-1 or 1-many match with NAICS data?
  - 2. 1 meter per parcel?
  - 3. NAICS and zoning map to same DWR class?
  - 4. **High-confidence zoning:** showrooms, auto yards), lodgings (hotels and motels), restaurants, gas stations, big box stores and supermarkets, schools, churches
  - 5. **Low-confidence:** strip malls, shopping centers, office buildings, business parks, and industrial lofts

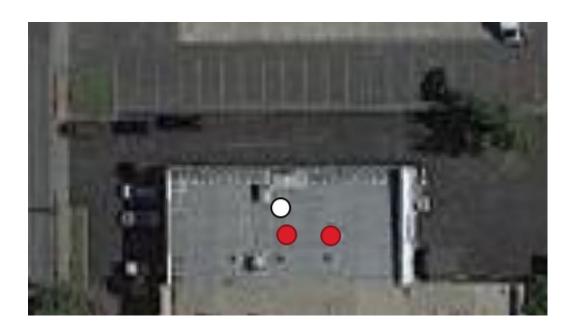




### Lesson: Don't always trust purchased NAICS data!



- One meter
- Two NAICS points
- Businesses check out in streetview
- Class: Healthcare



- One meter
- Two NAICS points (Motor Vehicle Supply + Consumer Lending)
- Streetview: Retail store!
- Class: Sales?



## CALIFORNIA DATA COLLABORATIVE

### Lesson: Lots of judgement calls and 'fuzzy' categories Collaborative



- Five meters
- 22 businesses
- Class: Almost certainly Mixed Use Commercial for all meters
- Not necessary to validate in field?



## Lesson: Lots of judgement calls and 'fuzzy' categories COLLABORATIVE



- ??? Meters
- ??? Businesses
- Some meters map 1-1 with businesses but others may not

CALIFORNIA

- Class: Mixed Use
   Commercial for some
   meters, others might have
   specific categories
- Field validation probably helpful!

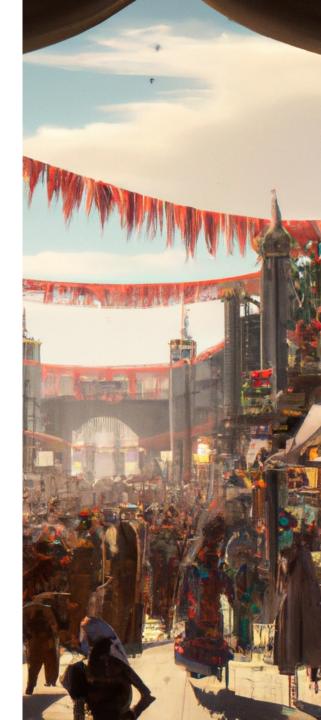


### Planning for the future

- Store the data as if you plan to use it!
  - Excel spreadsheets are easy but quickly become virtual clutter

- Billing system
- Master GIS database

Other software system?





### Resource Cheat Sheet

### CalWEP CII Water Use Classification and MUM Conversion System Resources

https://calwep.org/commercial-industrial-institutional/

# DWR and State Water Board Release Primer on 2018 Water Conservation and Drought Planning Legislation

https://water.ca.gov/News/Blog/2018/Nov-18/DWR-and-State-Water-Board-Release-Primer-on-2018-Water-Conservation-and-Drought-Planning-Legislation

#### Recommendations to the State Water Resources Control Board Memo

https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/2018-Water-Conservation-Legislation/RecommendationsSummary-Final-Memo-9-29-22.pdf

#### Urban Water Use Efficiency Standards, Variances and Performance Measures

https://water.ca.gov/Programs/Water-Use-And-Efficiency/2018-Water-Conservation-Legislation/Urban-Water-Use-Efficiency-Standards-Variances-and-Performance-Measures

#### Water Use Objective Exploration Tool

https://www.waterboards.ca.gov/water\_issues/programs/conservation\_portal/regs/objective-exploration.html