CII
TOOL SERIES

A Practical Guide to Classifying CII Water Users in California

CALIFORNIA
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A Chapter of the Alliance *for* Water Efficiency

PARTNERS FOR A WATER-EFFICIENT CALIFORNIA

A Practical Guide to Classifying CII Water Users in California

NOVEMBER 2024

Acknowledgments

The completion of this guidance document would not have been possible without the expertise, dedication, and hard work of the CalWEP Research and Evaluation Committee members. We would like to express our sincere gratitude to the following individuals who contributed significantly to the writing and development of this document:

- **Michelle Maddaus**, Maddaus Water Management, CalWEP Research and Evaluation Committee Chair
- **Madeline Wood**, City of Santa Barbara
- **Linda Higgins**, Placer County Water Agency
- **Deb Lane**, formally with the City of Santa Rosa
- **Justin Finch** and **Peter van Daalen Wetters**, Moulton Niguel Water District

We would also like to extend special thanks to **Stephanie Duer** from Salt Lake City, Utah, and **Martha Wright** from San Antonio Water Systems, Texas, for their invaluable insights and contributions. Your collective efforts have been instrumental in shaping this document and advancing the goals of water efficiency and sustainability.

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SECTION 1: INTRODUCTION

INTRODUCTION

This guidebook is designed to help water suppliers comply with the "Making Conservation as a California Way of Life" framework (WUE Regulation), focusing specifically on the classification of Commercial, Industrial, and Institutional (CII) water users in accordance with Section 972 of the WUE Regulation. The guide provides a standardized approach for classifying CII accounts, offering methodologies to enhance water use benchmarking across sectors, and reduce subjectivity between suppliers. Following this guide will help water suppliers meet regulations, find high water users, and create better water-saving strategies.

Goals and Objectives

The primary objectives of this guidebook are to:

1. Help water suppliers meet Section 972 requirements mandating annual classification of CII water users.
2. Provide clear instructions for classifying CII water accounts using ENERGY STAR categories, along with additional classifications for laundries, irrigation meters, water recreation, and car washes.
3. Support accurate benchmarking to identify high water users and opportunities for targeted water conservation measures.
4. Establish a clear timeline and methodology for suppliers to achieve and maintain at least a 95 percent classification rate of all CII water users.

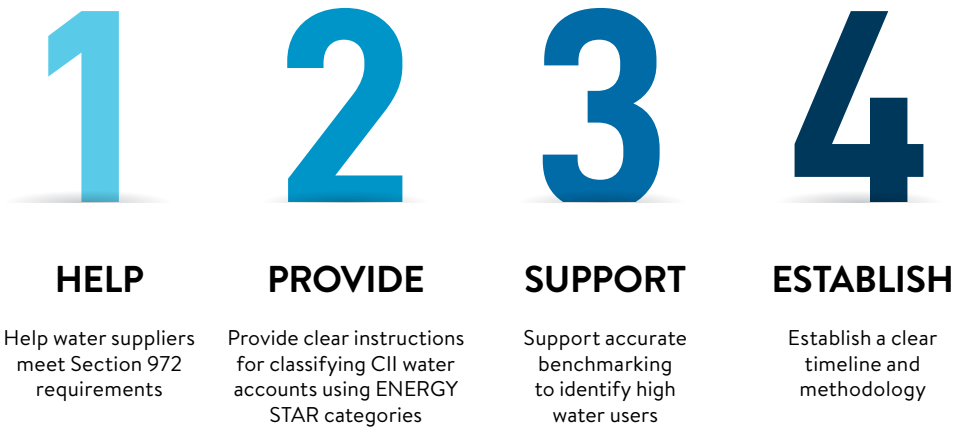


Figure 1: Primary objectives

California's Long-Term Framework Requirements

Section 972 of the WUE Regulation outlines the performance measures that each urban retail water supplier must meet to comply with the state's long-term water conservation goals. Specifically, suppliers must annually classify all CII water users based on their end-use of water in accordance with the ENERGY STAR Portfolio Manager's broad categories. Additionally, suppliers must identify specific CII categories, such as laundries, landscapes with dedicated irrigation meters, water recreation facilities, and car washes where the car wash operation accounts for the majority of the water use.

CII Classification Categories

The WUE Regulation identified 22 CII classification categories to capture diverse water use patterns across various sectors. These categories, based on the ENERGY STAR Portfolio Manager and additional criteria, help water suppliers accurately assess water use trends and benchmark performance. Proper classification within these categories enables suppliers to target high water users and implement appropriate conservation measures.

The 22 categories for the classification of Commercial, Industrial, and Institutional (CII) water users are as follows:

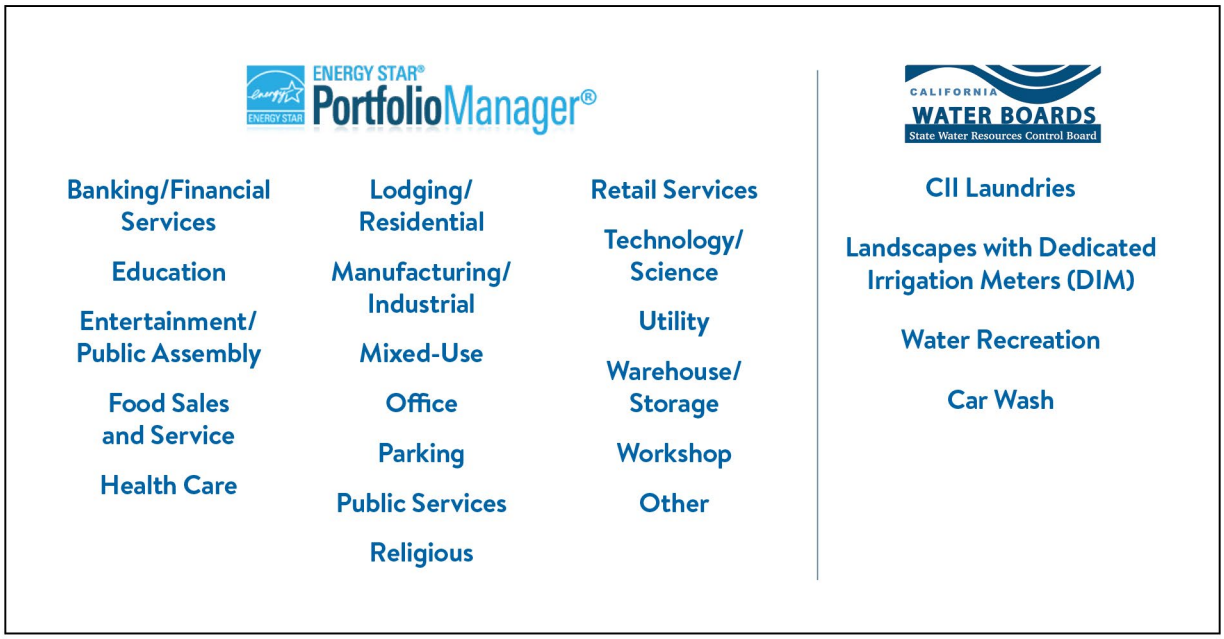


Figure 2: 22 CII Classification categories

These categories are designed to capture a wide range of CII water use types, allowing water suppliers to classify accounts accurately, benchmark water use, and implement targeted conservation strategies.

1.1 TIMELINE FOR COMPLIANCE

Water suppliers must adhere to the following timeline to comply with Section 972:

- **By June 30, 2027:** Classify all existing CII water users.
- **By June 30, 2028, and annually thereafter:** Maintain a minimum classification rate of 95 percent of all CII water users.
- New Suppliers or Consolidated Systems: Compliance begins five years after a system qualifies as an urban retail water supplier or consolidates with an existing supplier.

Figure 3: Timeline of requirements related to CII classification

What is Benchmarking?

Benchmarking involves measuring a business's water use, comparing it to other similar businesses, and setting targets for improvement to ensure efficient water use. By establishing a baseline of typical water use within each classification category, suppliers can identify outliers, set performance standards, and develop targeted strategies to improve water efficiency. Effective benchmarking is a critical component in managing water resources and reducing waste.

This guidebook provides the necessary steps and tools to help water suppliers meet these deadlines, ensure compliance, and contribute to California's long-term water conservation objectives.

Why Classify? Benefits of CII Classification

CII account classification is required by the WUE Regulation and is intended to yield water use benchmarking per classification category. However, there are additional benefits that can be gained from undertaking classification when coupled with other standard activities/field operations, making the overall investment worthwhile.

1. **WUE Regulation Compliance:**

   Classifying CII water users is a key step in adhering to the WUE Framework's legislative requirements. These requirements include creating a classification system that addresses significant uses of water by CII customers. By implementing this classification, water suppliers can gain insights into water use patterns across different sectors, which reveals potential opportunities to target high water users for conservation efforts. This targeted approach not only ensures compliance with WUE Regulation but also promotes efficient water use to support California's overall conservation goals.

2. **Cross Connections:**

   The classification of CII water users provides critical insights into the use of potable and recycled water by different CII customers. This knowledge helps suppliers reduce the risk of cross-connection contamination, ensuring safer water supplies. Additionally, it aids in improving backflow compliance and management, protecting public health, and maintaining water quality standards.

3. **Wastewater and Sewer Management:**

   Classifying CII users allows suppliers to identify wastewater discharge volumes, quantities, and strengths, which is essential for sewer infrastructure planning and best management practices (BMPs). Understanding the characteristics of wastewater discharge from CII users can help determine necessary improvements to sewer lines and facilitate decisions related to the use of recycled water or direct potable reuse, contributing to more sustainable water resource management.

4. **Field Customer Service, Street, and Valve Crews:**

   With detailed knowledge of CII classified customers, particularly those with mixed-use meters, field crews can improve meter and valve isolation practices. This understanding allows crews to anticipate potential service interruptions during maintenance or repairs, leading to more efficient maintenance, better leak detection, and more effective emergency response procedures, ultimately enhancing service delivery and customer satisfaction.

5. **Billing and Customer Accounts:**

   Accurate classification of CII water users improves the ability of billing and customer service staff to respond to general customer inquiries, particularly those related to leak detection, continuous use alerts, and water service interruptions. By understanding the characteristics of mixed-use and classified accounts, staff can provide better support and ensure accurate billing, reducing disputes and enhancing customer trust.

6. **Demand Forecasting:**

   The classification of CII users aids in potable and recycled water demand forecasting. With a better understanding of the types of CII businesses and their specific water use patterns, suppliers can more accurately predict changes in demand, both seasonally and over the long term. This information supports more effective water management strategies and resource planning.

7. **Fine-Tuning Audit Programs and Targeted Outreach:**

   Data collection and insights gained from CII classification enable suppliers to understand water use within the general CII sector and at the customer level more accurately. This understanding allows suppliers to refine their audit programs and develop targeted water use programs. Targeted outreach helps suppliers implement more effective conservation measures, ultimately improving water use efficiency for CII customers.

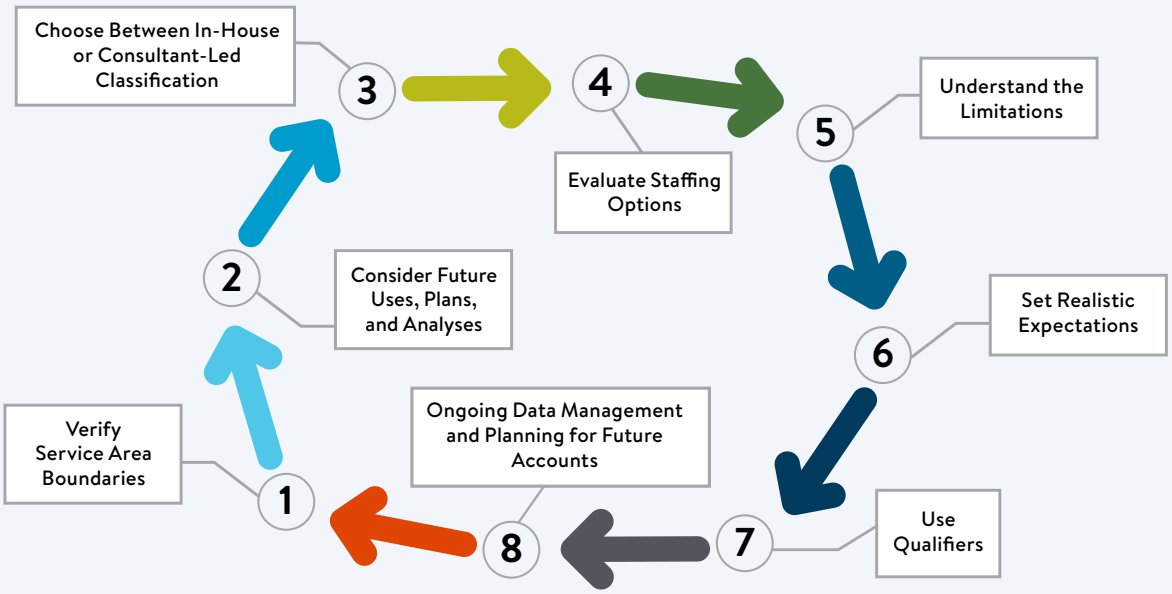
8. **GIS Database Utilization:**

   CII classification provides valuable data layers for internal Geographic Information System (GIS) staff, which can be applied to a range of applications. Spatial analysis of classified customer information supports trend analysis, water usage pattern recognition, and the implementation of general water conservation programs. Maintaining this classification within a GIS database creates a robust foundation for managing changes to CII accounts and meeting future compliance requirements. Spatially mapped CII polygons (shapefiles) representing customer businesses also provide digital records that can be used for tracking turfgrass removal, identifying over-budget water use, and locating sources of runoff.

These benefits illustrate how a well-implemented CII classification system enhances compliance, operational efficiency, and resource management, helping suppliers achieve their conservation goals effectively.

1.2 BEFORE YOU BEGIN: CHECKLIST FOR CII CLASSIFICATION

Before starting the CII classification process, ensure you have considered the following key elements to establish an effective and accurate classification system:



The matrix provides a comprehensive list of these benefits and calls out different areas of operations and/or customer support to link with classification to reap multiple benefits.

☐ Verify Service Area Boundaries

- Confirm that service area boundaries align with the boundaries provided in your Urban Water Management Plan service area maps.
- Check with your local agency formation commission (LAFCO) for public agencies, then verify internally with GIS. Be aware that political boundaries and water service area boundaries may not always match.
- Ensure there is no overlap with neighboring water service area boundaries.

☐ Consider Future Uses, Plans, and Analyses

- Determine whether your utility aims to conduct detailed analysis of CII customers or anticipates future needs to refine categories.
- If so, invest in coding with the full six-digit NAICS (North American Industry Classification System) codes for more granularity. For example, a general "Education" category may not be sufficient if you need to distinguish between K-12 schools, colleges, trade schools, etc.
- If the primary goal is to meet legislative requirements, consider using the 22 categories listed in the regulation, such as "Lodging" or "Healthcare."

☐ Choose Between In-House or Consultant-Led Classification

- **In-House:** Offers more control over the process and quality but requires significant resources and staff time, particularly for utilities with many CII customers.
- **Consultant:** Leverages external expertise and experience; however, consultants may lack familiarity with the unique characteristics of your service area, customers, and billing systems, which could affect accuracy.

☐ Evaluate Staffing Options

- For small to medium-sized utilities, consider hiring an intern with a relevant background to handle the manual classification process. This approach provides valuable learning opportunities for the intern and can reduce automation error and discrepancies.
- Encourage interdepartmental collaboration to improve implementation and maintenance of NAICS classification. Engage Customer Service, Billing, Resource Protection, and Conservation staff to support the classification process and bi-annual updates.

☐ Understand the Limitations of Existing Classification Systems

- Recognize that NAICS codes are primarily designed for tax and business revenue analysis and may not perfectly align with water account classifications.
- Focus classification based on the activity at the location where water is used. For example, an office for a fast-food chain would be coded differently than a stand-alone fast-food restaurant.
- Avoid applying multiple classification per meter; use a single code representing the predominant water use. For mixed-use meters, consider using the "Mixed-Use Commercial" classification.
- CalWEP has developed, with the help of its' members Los Angeles Department and Power and Moulton Niguel, a cross walk between the 22 categories established in the WUE regulation and the NAICS codes. (Download Crosswalk in MS Excel format.)

☐ Set Realistic Expectations for the Classification Process

- Understand that NAICS classification systems can help segment customer groups by water use sector or meter averages, but there will be inherent limitations.
- Prepare for potential grouping errors, coding inaccuracies, and challenges related to data handling. For larger utilities, automated coding may be necessary despite potential inaccuracies. Smaller utilities may benefit from manual coding with organized databases and data-tracking.

☐ Use Qualifiers for Data and Analysis

- Include qualifiers for all data and analyses derived from NAICS classifications to account for errors or variations. Consider potential issues like incorrect codes, misgrouped meters, or outdated code years.
- Implement checks and balances to maintain data accuracy, such as regular reviews and updates of codes and classifications.

By following this checklist, you can ensure a thorough and effective approach to CII classification, enabling better compliance, water use management, and planning for future conservation efforts.

SECTION 2: DATA SUPPORT GUIDELINES

To effectively support agencies in the CII classification process, it is essential to utilize a variety of data sources and tools to ensure accuracy and efficiency. Here is a streamlined approach to help agencies get started:

1. **Leverage Available Data Sources:**

   Several resources are available to assist with CII classification, ranging from free, accessible tools to paid services. Agencies can begin by using online images, maps, and county appraisal district databases to gather information. Official information and supporting documentation for NAICS codes can be found on the U.S. Census Bureau's website (www.census.gov/naics), which includes descriptions for each 2 to 6-digit code and "cross-references" to help clarify the correct code for more nuanced business types.

2. **Use Local Government Databases:**

   Municipalities, counties, or other government entities may have business license or tax databases that contain NAICS codes, often self-identified by the business registrant. While these databases provide a good starting point, the codes may not always correlate with water use, and matching these large datasets with utility data can be challenging without a common attribute, such as a property number. Mapping software can help geographically connect service addresses and database records to improve accuracy.

3. **Utilize Search Engines and Street-View Tools:**

   For a more direct method of identifying business activities, agencies can use search engines and street-view map imagery, such as Google Maps. Street-level business signs and other visual clues can provide valuable information about the business type. The date stamp on street-view images (month and year) can help verify the currency of the data, particularly when classifying newer accounts.

4. **Consider Third-Party Data Services:**

   Parcelquest, and CoStar offer services to add NAICS or business activity data to utility databases. Though costly and sometimes less accurate, these services can speed up classification for large utilities. It's advised to request a sample to check data accuracy before committing.

5. **Develop a Data Management Protocol:**

   Creating a strong data management system is key for keeping CII classifications up to date. Tools like Excel are affordable and work well for small to medium-sized utilities. Excel can help track and organize data, like CII accounts, using columns to

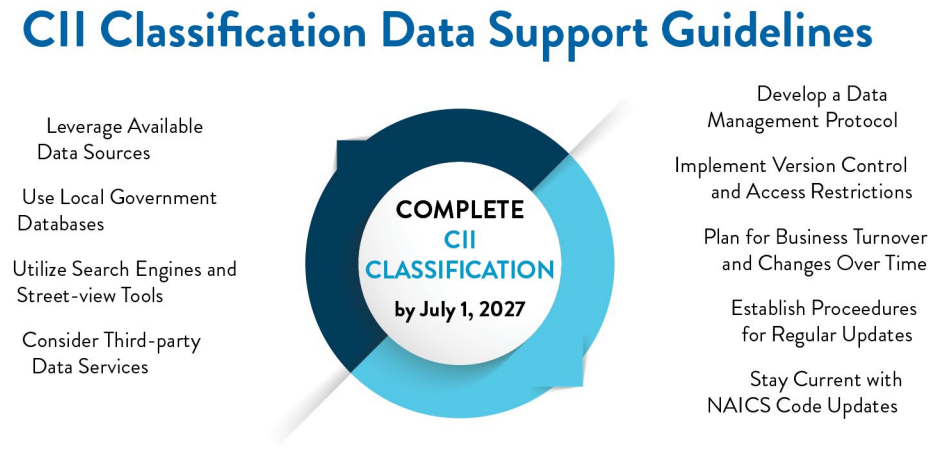


Figure 4: CII classification data support guidelines

monitor classification progress and assign codes. Color-coding (e.g., green for completed, blue for review, red for challenges) can make it easier to manage. The **Filter** function can be used to sort data based on properties like water use or NAICS code, and **PivotTables** can track progress.

Each utility will have different needs for data management. Some might add a field to their billing system, but this risks other staff changing classifications without oversight.

Alternatively, utilities can set up a secondary system, such as an Access database or cloud-based tool, for NAICS data. These systems offer more flexibility but can be expensive and require specialized skills. When choosing a system, consider the abilities of current and future staff to manage it.

6. **Implement Version Control and Access Restrictions:**

   To prevent data errors and maintain data integrity, implement version control best practices, such as password protection, permissions restrictions, and maintaining logs of changes. Limiting access to authorized personnel ensures data quality, and implementing version numbers with date stamps help avoid confusion in non-cloud-based systems.

7. **Plan for Business Turnover and Changes Over Time:**

   Understand that water accounts may be registered under either the business occupying the space or the property owner, leading to potential discrepancies when businesses change. For meters where the property owner is the account holder, business turnover may occur with no indication to the water utility as the property owner will continue to keep their account open. The customer's name is more likely to contain words such as 'holdings,' 'properties,' or a non-descript LLC name. Apply NAICS codes based on the most likely water use, and consider using broad codes (e.g., "Lessors of Nonresidential Buildings") when multiple business types share a meter. While using codes for broader categories can make it difficult to parse trends in use, it protects other more direct categories from being muddied by water use of a property that has frequently changing business types. For utilities serving high-density urban areas, the property can be coded based on the more demanding water user. There is a risk that the water user may close and be replaced with less water demanding business, leaving the property incorrectly coded. Regular reviews and date-stamping codes can help identify changes over time and maintain data accuracy.

8. **Establish Procedures for Regular Updates:**

   Create a plan to regularly update CII classifications bi-annually, as required by WUE Regulation. Work with departments, such as Billing, to develop a system for monitoring business changes and apply timestamps when accounts are coded to facilitate periodic reviews. As the codes are utilized, it will become clearer where gaps and error exist with a utility's data. classification methodology can be adjusted to account for the issues. Maintaining a log of coding protocol and changes in approach will allow a utility to get the most from their coded CII accounts. New accounts can be coded upon creation or flagged for coding. During analysis, accounts sometimes stand out as outliers in a category (either high or low) which can indicate there has been a change in property use.

9. **Stay Current with NAICS Code Updates:**

   The U.S. Census Bureau updates NAICS codes approximately every five years. Agencies should keep a record of which version of the code list is being used and utilize crosswalk spreadsheets to convert data across different versions if needed. This practice ensures consistency in data comparison across utilities using different code editions.

By following these guidelines, agencies can enhance their classification processes, maintain data accuracy, and support compliance with regulatory requirements.

SECTION 3: APPROACHES FOR VARIOUS CII ACCOUNT AMOUNTS

Approaches for Various CII Account Amounts

Small Agencies (15 - 3,000 CII Accounts)

For agencies with 15 to 3,000 CII accounts, classification is usually done in-house. Data from systems like CIS, billing, GIS, Google Maps, web searches, and site visits can be used. Agencies with city data, like business licenses, have more info for analysis. Sorting data in Excel by lot number and rate class helps group similar accounts, such as identifying irrigation meters as Dedicated Irrigation Meters (DIM). Multiple accounts, like those for schools or city departments, can be grouped by customer numbers or names.

Medium Agencies (3,000 - 20,000 CII Accounts)

For agencies with 3,000 to 20,000 CII Accounts, the classification process should start by listing all current classifications for non-residential properties. Staff should create a crosswalk to compare these with WUE regulation to find gaps or areas for consolidation. If WUE regulation don't meet all needs, additional subclassifications may be added, and it's important to define each classification clearly.

An initial meeting with the project team, management, billing staff, and other stakeholders should be held to agree on classifications and definitions. This helps ensure everyone's needs are met and reduces the chances of revisiting classifications later. During the meeting, establish the process for updating classifications, billing codes, and notifying customers of rate changes.

Once the classifications are agreed upon, use a stable identifier like lot number, APN, or address for the update, avoiding customer account numbers since they can change.

Next, gather external data sources and match them to each meter to assign revised classifications. For discrepancies, staff should review by calling customers, researching online, or conducting site visits. This step can be time-consuming depending on the system size and data available. Special cases may need individual review with management and billing staff.

If new categories are needed, review the final list with stakeholders. Analyze any accounts that may undergo a rate change and follow the process to notify customers. New meters installed after the data download must also be classified before use. After finalizing classifications, the updated system can be implemented.

Large Agencies (More than 20,000 CII Accounts)

For agencies with over 20,000 connections, the classification process requires a more structured approach, involving sophisticated tools and multiple data sources to manage the large volume of accounts effectively.

Meter Types

For agencies managing multiple types of meters, understanding the specific characteristics of each is crucial:

- **Mixed-Use Meters (MUM)** should be classified based on the primary, non-irrigation water use of the meter.
- **Dedicated Irrigation Meters (DIM)** are straightforward, because they are designated solely for irrigation purposes.
- **Advanced Meter Infrastructure (AMI)** allows for fields to be added to the AMI system, enabling long-term modernization and minimizing the need for manual adjustments. AMI meters can also lead to more Best Management Practices (BMPs) compliance.
- **Single Site with Multiple Meters** should be carefully benchmarked to ensure multiple meters are aggregated correctly for accurate data representation. See the *Santa Barbara Case Study* for more information.

Billing Systems

Understanding the nuances of the billing system is essential for accurately classifying CII accounts. Begin by examining the full scope of data contained within the billing system. Often, more information is available in raw data reports than is visible through the standard billing interface. Assess what data points are available to identify CII accounts, customers, parcels, service connections, and other relevant attributes. Also, determine which data points distinguish between different types of water use, such as potable versus recycled water, or MUM versus DIM.

If land-use categories are included in the billing system, these can be helpful for preliminary classification. Assessor's Parcel Numbers (APNs) can also be used to correlate accounts to land-use codes from local municipalities or regional planning agencies. Review other account types, such as Single-Family Residential or Multi-Family Residential, to identify connections serving HOA common areas or other uses permitted under the CII DIM Standard. Ensure all authorized, unbilled usage (e.g., billing exemptions for public agencies) is accounted for. Volumes of unbilled usage are recorded in the annual water audit under the UMAC (water loss category on Utility Management and Customer) or UUAC (Utility, Usage, Accounting, and Customer) (i.e: Fire Departments may not be billed or metered).

Query the database using the best identifier for CII service connections and include data points on parcel or property identifiers, land-use data, water type, and consumption patterns. Prioritize users based on guidelines, verify data through desk and field checks, and develop or update customer intake forms to include CII classifications for new accounts.

Classification Subcategories

Using subcategories can help identify unique uses and outliers in the benchmarking process, address unusual patterns of water use, and support the effective design and implementation of BMPs. For instance, large, uncommon end users such as airports, cemeteries, and golf courses may skew data if included within broader classifications. Subcategories that reflect specific operational needs, like municipal facilities, can also improve day-to-day management and reporting.

3.1 TOOLS FOR CLASSIFICATION

Various tools can enhance the classification process:

- **GIS Mapping:** Spatially map CII customer accounts and classify them as needed using ArcGIS software. Convert NAICS business data into a "Business Point" GIS object and use tools, like the Google Maps Platform, for geocoding. This can be completed concurrently with CII-DIM landscape area measurement process.

  Geocoding is the process of converting addresses (like "1600 Amphitheatre Parkway, Mountain View, CA") into geographic coordinates (like latitude 37.423021 and longitude -122.083739), which you can use to place markers on a map or position the map.

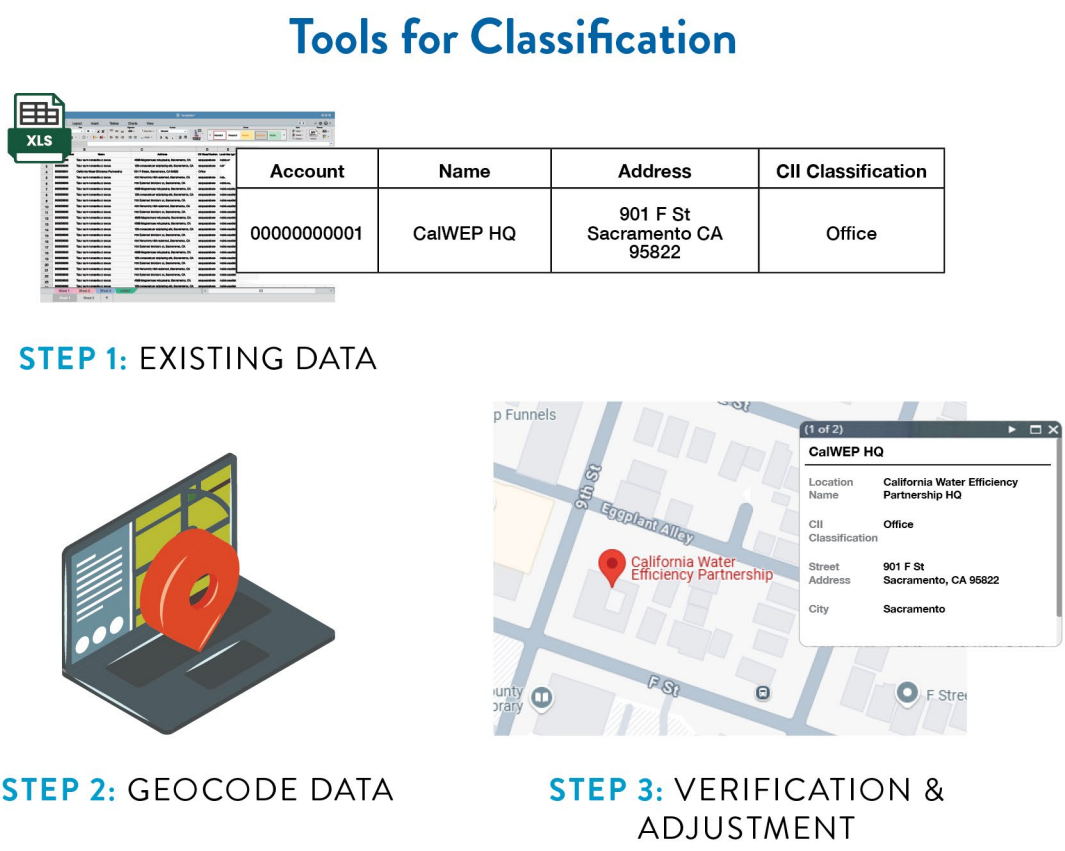


Figure 5: Tools for classification

TOOLS *continued on page 16*

- **Data Conversion and Analysis**: Use statistical programming languages such as R, combined with geocoding API keys from Google, to read address data from an Excel CSV file and convert it into geographic coordinates. Import these coordinates into GIS software to create geocode point layers.

Figure 6: An aerial image showing customer addresses geocoded

- **Verification and Adjustment:** Manually adjust any overlapping latitude/longitude points, especially for accounts with multiple or unique suites at the same street address. Verify that each business point is located within the correct CII meter service area and establish the relationship between meter service areas and business points. As you initially build your classification lists (like Excel), you should set it up to intentionally transition to GIS format at a later date.

SECTION 4: METHODOLOGY FOR CII CLASSIICATION

Classifying all commercial, industrial, and institutional (CII) accounts can be a substantial task, regardless of the utility's size. For most utilities, this process will be manual and time-consuming, as it may be the first time they are undertaking such a classification. The key factor to remember is that the classification should be driven by the nature and volume of water use, which may require creating subcategories beyond the 22 classification codes required in the regulation. Utilizing 6-digit NAICS codes is one effective way to achieve this, as they provide a wide range of categories that can encompass all CII accounts within a service area.

To get a feel for the classification process, it is best to begin with straightforward accounts. Start by classifying simple categories such as chain restaurants (e.g., "Food/Beverage" or NAICS 722513 - Limited-Service Restaurants), K-12 schools ("Education" or NAICS 611100 - Elementary and Secondary Schools), or hotels ("Lodging" or NAICS 721110 - Hotels and Motels). Utilize available data sources for verification, and over time, you will develop a routine method. Sorting account lists by customer name can help classify large sets of accounts quickly. For utilities or agencies with access to consumption data, another effective approach is to sort accounts by water use and start coding the largest users. High-use accounts are often easier to identify in terms of business activity, and this method enables the coding of a substantial quantity of water quickly. You may find that, after classifying only 15% of CII accounts, you have accounted for 90% of total consumption from the previous year.

To further expedite the process, use common search terms like "hotel," "motel," or specific chain names to filter accounts that should be coded under categories like "Lodging" (NAICS 721110 - Hotels and Motels).

As discussed in earlier sections, NAICS codes are adapted for water use purposes, and accounts should be coded based on the activity occurring where water is being consumed, rather than the business type alone. For instance, a downtown office of a fast-food chain should be coded as "551114 – Corporate, Subsidiary, and Regional Managing Offices," while a standalone restaurant owned by the same company would be coded as "722211 – Limited-Service Restaurant." There will be situations where a business does not fit neatly into a predefined classification; in such cases, unorthodox application of a code or the use of a shorter-digit code may be necessary. It is crucial to consider how these decisions might affect future analyses and uses of the codes.

The team or individuals responsible for classification should maintain a detailed coding protocol throughout the process. This protocol should include the version of coding used for the dataset and any nuances or deviations from the original coding system. Keeping track of commonly used keywords and their corresponding classification categories or NAICS codes will also expedite future updates of new, unclassified accounts.

To limit errors, it is beneficial to have a quality assurance process in place, such as referencing a comprehensive list of classification to catch any typos or incorrect entries. For example, if a code is entered incorrectly and results in a description that does not match the account, it will signal a potential error that can be corrected promptly, preventing the need for future rework.

Not all CII accounts will fit neatly into a single category or NAICS code. "**Stumpers**" are businesses that may seem to fit multiple categories or none at all, based on their water use and business type. When dealing with these stumpers, begin by considering overall water use, as this is often the most significant factor in the classification process. While the 19 categories provided by Energy Star Portfolio Manager often cover gray areas, the specificity of NAICS codes and the other additional 4 categories can make it challenging to determine the most appropriate code. In such cases, creating designated codes for unique types of sites can facilitate easier identification during future analyses.

Common stumpers that utilities may encounter include:

- **Apartment Common Areas:** Laundry rooms in apartment complexes use less water than commercial laundromats, but their purpose is still laundry.
- **Breweries and Microbreweries:** These may serve food and beverages on-site but are primarily engaged in beverage manufacturing.
- **Combined Office Buildings:** Straightforward under the 22 categories categories, but potentially complex under NAICS codes; using a designated code for large office buildings can help in direct analysis.
- **Industrial or Distribution Warehouse Parks:** These often involve multiple businesses sharing one meter, ranging from logistics to smaller-scale manufacturing. Recommend using category Industrial, non-manufacturing or NAICS 493110 - General Warehousing and Storage.
- **Empty Fields:** If the lot is slated for construction, classify it accordingly; if there are no signs of development, use NAICS 531190 – Lessors of Other Real Estate Property. If there is an option to leave it blank, leave it blank.
- **Grocery Stores:** High water users compared to other sales stores, which may require a subcategory, like grocery stores or NAICS 445110 - Supermarkets and Other Grocery (except Convenience) Stores.
- **Healthcare Complexes:** Strip complexes with mainly healthcare services may require a specific code. Recommend using category Healthcare or NAICS 621111 - Offices of Physicians (except Mental Health Specialists), though this NAICS code would also be applied to singular PCP offices.
- **Irrigation:** If irrigation is able to be coded in the billing system, then more value occurs through additional differentiation between business types. If there is no denotation in the billing system, recommend using category irrigation water or NAICS 221310 Water Supply and Irrigation Systems.
- **Parking Lots and Garages:** Often low-use accounts; may need site visits for clarification.
- **Strip Malls or Complexes:** Multiple businesses sharing one meter; "Mixed Use Commercial" or NAICS 531120 - Lessors of Nonresidential Buildings (except Mini warehouses) may be a suitable category.
- **Unfinished Construction:** Code as "Other" or use an appropriate construction-related NAICS code if the account is under a construction company's name. If the account is in the name of business, wait to code until construction is complete.
- **Utilities:** Non-office utility buildings should be coded under "Utilities" or the appropriate NAICS code.

Staying organized and using consistent data sources will optimize the classification process, but discrepancies between sources are common. For example, an account may be listed under a generic LLC name, while Google Maps shows a retail store, and the utility database classifies it as a real estate office. If you are using multiple data sources to automatically assign NAICS codes, implement a quality control process to cross-reference these sources and prioritize accounts that may need manual verification. When manually coding, verify the most current data source and consider site visits or direct customer contact if needed. If no definitive information is available, use your best judgment, as discrepancies are more likely to occur with small, low-water-use commercial spaces.

SECTION 5: CASE STUDIES

The case studies presented in this document offer practical insights and real-world applications of Commercial, Industrial, and Institutional (CII) classification methodologies. These examples highlight how various agencies and organizations have effectively classified and managed water use within diverse CII sectors. Each case study provides context on the unique challenges and approaches involved, including lessons learned. By exploring these scenarios, we can gain a deeper understanding of the strategies used to overcome classification hurdles and align on best practices.

5.1 PLACER COUNTY WATER AGENCY

Utility Profile

Agency Name: Placer County Water Agency (PCWA)

Location: Placer County, CA

Website: www.pcwa.net

Population Served: 248,000

Service Area Connections: 41,000

Number of CII Accounts: 2,760

Billing System: Central Square, Naviline

Last Billing System Classification Update: N/A

Previous Classification: No previous classification undertaken

Classification Codes Used: SIC (Standard Industrial Classification)

Methodology Piloted: Manual

Approach

Placer County Water Agency (PCWA) embarked on a manual classification process for its 2,760 Commercial, Industrial, and Institutional (CII) accounts, having never conducted CII classifications before. To date, PCWA has classified 100% of its CII Accounts, with each classification taking an average of five minutes. The process utilized various tools and resources, including the Customer Information System (CIS)/ billing system, GIS, Google Maps, web searches, and site visits.

Since many CII accounts had outdated SIC codes that were unreliable for Energy Star Portfolio Manager classification, two Customer Service Specialists and a Customer Services Manager collaboratively undertook the manual classification process.

Methodology

Classifying all commercial, industrial, and institutional (CII) accounts can be a big task for any utility, especially if it's their first time. The classification should be based on the type and amount of water used, and in some cases, you may need more specific categories beyond the 22 required. Using 6-digit NAICS codes helps cover all CII accounts, and CalWEP provides a crosswalk document to link NAICS codes to Energy Star categories.

Start with simple accounts, like chain restaurants (NAICS 722513), K-12 schools (NAICS 611100), or hotels (NAICS 721110). Over time, you'll develop a routine. Sorting accounts by customer name or water use can help speed up the process, with large users often easier to classify. In fact, classifying just 15% of accounts can account for 90% of total water use. Using common search terms, like "hotel" or motel," can also help.

NAICS codes should reflect water use at the location, not just the business type. For example, an office for a fast-food chain would be coded as "551114" (Corporate Offices), while a restaurant would be "722211" (Limited-Service Restaurant). Some businesses won't fit neatly into a category, so be flexible and think about how these decisions could affect future analyses.

Lessons Learned

It's important to keep a detailed protocol for coding and track any changes or nuances. Maintaining a list of keywords and their corresponding codes will help with future updates. To avoid errors, have a quality assurance process, such as checking codes against a list to catch mistakes.

Some accounts, called "stumpers," may not fit easily into any category. In these cases, focus on water use as the key factor and consider creating custom codes for unique sites to make future analysis easier.

5.2 CITY OF SANTA BARBARA

Utility Profile

Agency Name: City of Santa Barbara
Location: Santa Barbara, California
Website: SantaBarbaraCA.gov/WaterWise
Population Served: 88,255
Service Area Connections: 27,500
Number of CII Accounts: 2,750

Billing System: Advanced Utility Systems CIS Infinity V4
Last Billing System Classification Update: N/A
Previous Classification: No previous classification undertaken
Classification Codes Used: NAICS (North American Industry Classification System)
Methodology Piloted: Manual

Approach

The City of Santa Barbara initiated its first classification of CII (Commercial, Industrial, and Institutional) accounts between July 2022 and January 2023. During this period, the City successfully classified approximately 95% of its 2,750 CII accounts. The remaining 5% of accounts were more challenging to classify, and efforts to complete this process are ongoing. Given the time-intensive nature of this work, the City started early to ensure sufficient time for thorough classification.

To aid in this process, the City leveraged unique data sources accessible to a municipality, including the City's business license database with NAICS codes, a list of Industrial Waste Discharge Permit Holders, and a Solid Waste (trash and recycling) database, which was particularly useful for identifying businesses in the Food/Beverage category. Google Earth and GIS data, combined with Santa Barbara County Parcel data, were also heavily used to support the classification efforts.

Methodology

The classification process was carried out entirely in-house by an intern, with support from other City staff who provided expertise on the local service area as needed. Staff from various departments, including Environmental Services (Trash and Recycling), Parking Services, and Business Licensing, were consulted for additional data and clarifications on water use.

To ensure accuracy, the City opted for a fully manual classification process, spending approximately six months to classify 2,600 out of the 2,750 CII accounts. Staff began by exporting all water accounts with commercial bill codes from the City's utility billing system into an Excel spreadsheet, which served as the CII classification database. This database tracked which accounts had been classified and included notes for reference. The team used color-coding, pivot tables to track progress, and columns to note each account's classification.

Each account was carefully reviewed using various databases and online research tools. The initial focus was on easily distinguishable businesses, such as restaurants, hospitals, schools, and hotels, and gradually moved to more challenging classifications using addresses. If the category could not be determined by the account holder's name, staff cross-

referenced the service address or Assessor's Parcel Number with Santa Barbara County's GIS Parcel data, the City's list of Industrial Waste Discharge Permit Holders, the Solid Waste Database, and Google Maps to identify the business type or commercial use of the property.

To streamline future reporting, staff identified a field within the City's utility billing system to store the CII classification for each account. This allows for easier generation of water usage reports by CII category. To prevent the need for a complete reclassification every two years, Water Resources staff and Utility Billing (UB) staff established a process to reclassify turned-over accounts and classify new ones. UB staff will assist by asking customers to specify the nature of their business when turning on water service and directly entering the classification into the billing system. Every two years, Water Resources staff will run reports from the billing system to check for changes in business classifications.

Stumpers

During the classification process, the City encountered several "stumpers" where businesses had conflicting water usage histories or were difficult to categorize based on their business type:

- **Shared Laundry Rooms in Multi-Family Residential (MFR):** These rooms are used for laundry purposes but exhibit water usage patterns similar to office spaces, making them hard to classify.
- **Live-Work Properties:** It was challenging to determine whether the water use was residential or commercial, despite being billed commercially.
- **Car Dealerships:** Currently categorized under "Sales," but a sub-category may be necessary due to high water use for landscape irrigation and car washing, which does not align with the water use patterns of convenience or retail stores.
- **Parking Lots/Garages:** Although there is a category for "Parking," some parking lots and garages also have water use related to irrigation and public bathrooms.

Lessons Learned

Organization was critical to managing the various databases and systematically verifying business classifications. Many of the City's CII accounts were associated with properties holding a business license under the NAICS code "Lessors of Residential Buildings and Dwellings," a vague category that required further investigation through additional databases. Despite the time-consuming and manual nature of the process, staying organized and setting daily classification goals helped staff remain on track.

The City utilized a document that listed the 22 classification codes with examples for each category as a reference throughout the classification process. As staff classified accounts, they added more examples to each category to improve clarity. Changes or additions made by City staff were marked in blue to distinguish them from the original examples provided by DWR. Notably, the City removed the "Dedicated Irrigation Meters" category since these accounts already had a separate billing classification. The City also realized they needed to identify a sub-category with certain retail customers, like Grocery, to account for the distinct water use patterns of grocery stores compared to other retail stores.

By taking these steps, the City of Santa Barbara has created a robust classification system that not only complies with regulation requirements but also ensures that water usage data remains accurate and up-to-date.

Figure 7: An image of a shopping complex with several different storefronts.

5.3 CITY OF SANTA ROSA

Utility Profile

Agency Name: City of Santa Rosa

Location: Santa Rosa, CA (about 50 miles north of San Francisco)

Website: www.srcity.org/water

Population Served: 173,000 (as of 2020)

Service Area Connections: 54,321 (as of 2020)

Number of CII Accounts: 4,970

Billing System: Advanced Customer Information System (CIS)

Last Billing System Classification Update: Accounts are updated when a new account holder is established

Previous Classification: No previous classification undertaken

Classification Codes Used: SIC (Standard Industrial Classification)

Methodology Piloted: Manual

Approach

Santa Rosa Water undertook its CII classification effort in 2023 to create a consistent methodology across all CII accounts. The Water-Use Efficiency (WUE) section managed the project, focusing on fulfilling legislative requirements. The agency utilized multiple data sources, including the Advanced CIS for water billing information, GIS aerials, Google Maps street view, and field visits when necessary.

Methodology

The classification process was conducted manually using in-house resources, following the 22 categories required. Santa Rosa decided to leverage internal staff, including WUE staff, a WUE intern, IT staff, and billing department staff. The WUE team managed the classification, with the intern handling straightforward categories and full-time WUE staff addressing more complex classifications and any "**Stumpers**" encountered.

Straightforward categories, such as "Public Services and Religious Buildings," were easier to classify because such buildings, like firehouses and churches, are unlikely to change use. IT staff generated necessary reports from the CIS, while the billing department clarified any irregularities in how individual meters were billed.

For cases where data from CIS, GIS aerials, and Google street view imagery were current and consistent, classifying a meter took about two to three minutes. When data was outdated or contradictory, the research and assessment process extended to seven to ten minutes per meter. This time estimate excludes meters that could be mass-classified, such as dedicated irrigation meters.

Data Tracking

The process began with an IT expert pulling a report that included all 4,970 CII meters. The report contained the following headers:

- **Account Number:** Represents the overall site, with all meters at a facility or site grouped under one account number.
- **Customer Number:** Lists water customers, some of whom have multiple accounts, aiding in accurate classification.
- **Customer Name:** Used to identify customers.
- **Account Type:** Describes whether an account is commercial, industrial, or institutional.
- **SIC Code:** Used for more specific classification.
- **DWR Classification:** Where DWR classifications are recorded.
- **Meter Number:** Essential for classification, representing the number assigned to a specific meter.

- **Meter Bill Code Description:** Details the size and type (e.g., domestic, dedicated irrigation, specialty, recycled water) of the meter.
- **Service Address:** Location of the meter, useful for field verification.
- **Mailing Address:** Helps verify the actual facility or site address via a Google search.
- **Year Usage:** Shows annual water use, useful for benchmarking and comparing against the sewer cap. By comparing the annual use to the sewer cap, we can see if the sewer cap is comparatively low compared to the average monthly usage. This would indicate that most of the site's usage is coming from irrigation. This would affect how we compare it to a site within the same classification that doesn't have to irrigate.
- **Sewer Cap:** Calculated based on average monthly winter water use, which reflects typical domestic use and informs sewer charges.

Additional columns included **Notes** (for recording any site-specific information), **Data Quality Score** (indicating confidence in the new classification), **Outreach Category** (providing specific internal notes to help market to businesses), and **Billing** (for issues requiring coordination with the billing section).

Process

To classify CII accounts, staff first reviewed the billing history within Customer Information Systems (CIS) to understand water usage patterns. They checked whether an account had a sewer cap and whether overall usage exceeded this cap. If most usage was for irrigation, this influenced how the site was compared to others in the same classification.

Next, staff reviewed any notes on previous customer interactions that might clarify the type of business at the location. GIS aerials were examined to determine the area covered by the meter, and a Google search confirmed that the CII type matched CIS and GIS data.

Finally, classifications were recorded with a confidence score ranging from 1 to 3:

1. All research and field verification were inconsistent.
2. Research was inconsistent, but the best determination was based on field verification.
3. CIS, internet research, and other sources were consistent.

Stumpers

The classification process encountered several challenges, particularly with meters assigned a "Services" Standard Industrial Classification (SIC) code but covering multiple businesses. For example, a business park in northeast Santa Rosa was initially classified as "Offices of Optometrists" based on GIS analysis, which showed mostly medical offices, but also included a credit union. This site was ultimately reclassified as "Mixed-Use Commercial."

Tips and Tricks

- **Issue: SIC Codes Not Frequently Updated**
  Santa Rosa found that SIC codes were not updated frequently, making them unreliable for classification. The billing section only updates the SIC code when a new account holder is established, meaning many classifications were outdated. This necessitated additional verification methods.
- **Issue: Crosswalking SIC Codes to WUE Framework**
  Even when SIC codes were current, they did not always fit cleanly into one of the 22 classification codes. To address this, Santa Rosa verified classifications using GIS aerials and Google searches. They also added "Sales-Grocery," to account for businesses that did not intuitively fit within existing NAICS codes.
- **Issue: Locations with Multiple Commercial Customers on a Single Meter**
  Google Maps proved useful for verifying which businesses were present at a location when multiple commercial customers shared a single meter.

By refining their classification approach, Santa Rosa Water ensured consistency, accuracy, and a robust methodology for ongoing compliance.

5.4 MOULTON NIGUEL WATER DISTRICT

Utility Profile

Agency Name: Moulton Niguel Water District (MNWD)

Location: 26161 Gordon Rd, Laguna Hills, CA 92653

Website: mnwd.com

Population Served: 170,000+ customers

Service Area Connections: 54,900+

Number of CII Accounts: 1,844

Billing System: Oracle JD Edwards Utility 360

Last Billing System Classification Update: July 2011, during a transition to Water Budget Based Rate Structure (WBBRS); a general customer class evaluation verified commercial accounts, including commercial, industrial, and institutional.

Previous Classification: Yes (Commercial only, not more granular)

Classification Codes Used: NAICS (North American Industry Classification System)

Methodology Piloted: GIS Mapping

Approach

Moulton Niguel Water District (MNWD) undertook a comprehensive effort to spatially map 100% of its CII accounts, totaling 1,844, using a GIS-based approach. Each CII account was mapped with a corresponding polygon in ArcGIS software, which represented the business area served by each water meter. For instance, a meter serving only an indoor building was mapped to include just that building, while a meter serving both a building and its surrounding landscape was mapped to encompass both areas in a single polygon. This detailed mapping

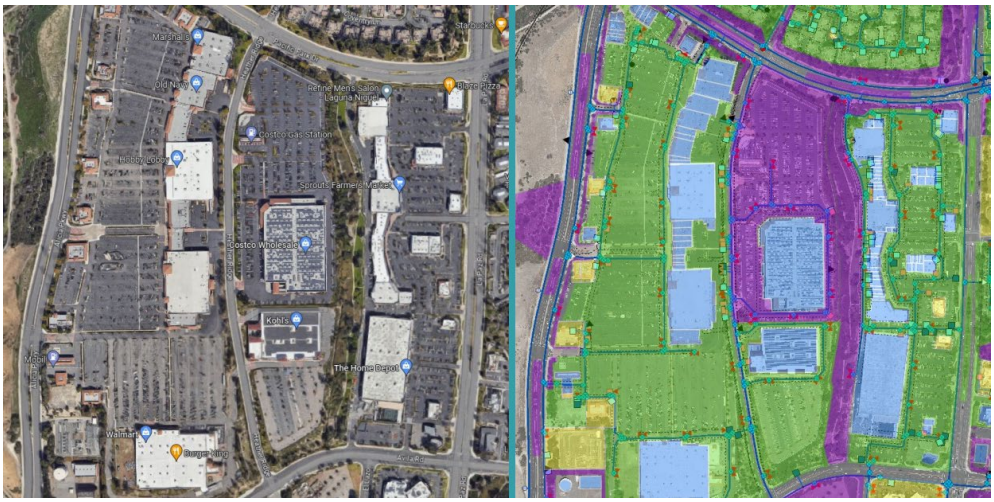


Figure 8: An example of GIS mapping of CII accounts

allows for differentiation between businesses with only indoor use (blue polygons) and those with both indoor and outdoor landscape use (yellow polygons). Additionally, dedicated potable irrigation meter areas (green polygons) and dedicated recycled irrigation meter areas (purple polygons) were also mapped to provide a comprehensive spatial representation of the service area. Customer attribute information is added to the polygon for reference when selecting it.

MNWD is currently 100% mapped but not yet formally classified using the WUE regulation categories. MNWD plans to automate future updates of this classification process with a software as of September 2024. They plan to automate future updates with a software script to keep business occupancy data current, ensuring that changes in business occupancy are promptly reflected in the data.

Methodology

MNWD's classification process involved several steps to accurately map and categorize CII water use:

1. **Mapping Customer Accounts in ArcGIS:** MNWD mapped CII customer accounts using ArcGIS software to create polygons that represent the areas served by each meter. Customer attribute information, such as business type and NAICS code, was added to each polygon to facilitate reference and classification.

1. Use GIS mapping tool to draw polygon (including building & landscape)
2. Enter in Commercial Meter attribute information
   - Service Type (Indoor or Mixed Use)
   - Meter Service Address ID
   - Land Use (Res. or Non Res.)
   - Comments with Owner & Acct #
3. When finished, clicking on the polygon will display the key site information

Figure 9: Methodology example for mapping CII accounts using GIS

2. **Importing Third-Party NAICS Business Data:** MNWD imported business data from third-party vendors, including NAICS.com, Data-Axle, SafeGraph, Dun & Bradstreet, and CoStar, into a "NAICS Business Point" GIS object. A total of 7,861 NAICS points were imported, and 1,096 points were manually created to ensure coverage of all businesses within the service area. The NAICS points contained business-specific data that categorized each establishment within the NAICS framework. Manual adjustments were made to accurately position the NAICS points on their respective business polygons.

3. **Geocoding and Data Adjustment:** For businesses without existing latitude and longitude data, MNWD used the Google Maps Platform and Google Geocoding API to convert addresses into geographic coordinates. These geocodes were imported into the GIS software as points, and any overlapping points were manually adjusted to ensure accurate placement.

   A water provider may use the statistical program language R in accordance with the Geocoding

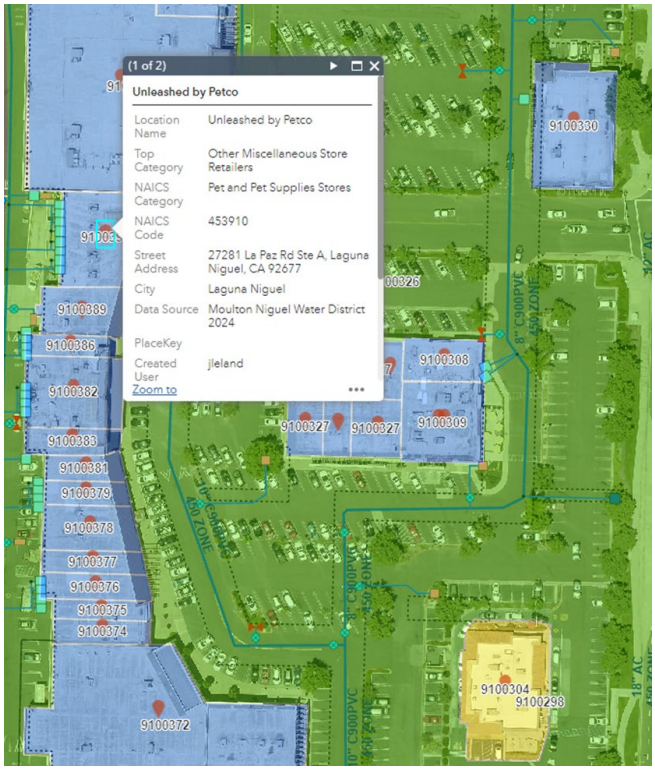


Figure 10: Methodology example of mapping CII accounts using GIS.

API Key from Google. The R Program reads the Excel CSV file containing the address inputs. Each address is read by the coding loop, passed into a Geocoding code, and then output into an Excel file of Geocodes. Take Geocode Lat/Longs and import them in to GIS software as a Geocode point layer. Manually adjust the remaining Lat/Long points that are placed on top of each other.

4. **Crosswalking to EPA EnergyStar Categories:** MNWD created a master sheet of all NAICS points, identifying which were specific to the service area. A manual crosswalk between each NAICS code and the corresponding EPA EnergyStar category was performed. For example, the NAICS code 811121 ("Automotive Body, Paint, and Interior Repair and Maintenance") was matched to the EnergyStar category "Services."

5. **Handling Mixed-Use Meters:** Meters serving multiple businesses were categorized under the EPA EnergyStar CII category "Mixed." These properties contain multiple business types, none of which account for more than 50% of the total gross floor area. MNWD plans to conduct a deeper analysis of these mixed-use sites by mapping and classifying each business down to the suite level, which will support future sewer classification studies, improve field knowledge, and enhance backflow compliance management.

Intended Uses Beyond Legislative Requirements

MNWD's classification efforts are intended to serve more than just legislative requirements. The detailed spatial mapping of CII meters offers benefits across various District departments, such as Customer Accounts, Field Customer Service, Cross Connection, Development Services, and Recycled Water. Detailed suite-level information on water users can provide insights into water outages and emergencies, meter maintenance and leak detection, backflow compliance,

location_name	top_category	sub_category	naics_code	latitude	longitude
Next Gen Self Defense	Other Schools and Instruction	Sports and Recreation Instruction	611620	33.584211	-117.734064
Randevoo	Personal Care Services	Hair, Nail, and Skin Care Services	81211	33.747843	-117.836602
Financial Partners Credit Union Expres	Depository Credit Intermediation	Credit Unions	522130	33.585009	-117.729374
Condos at 69 Vantis Dr	Lessors of Real Estate	Lessors of Residential Buildings and Dwellings	531110	33.580306	-117.728719
Gold Coast Farm	Other Personal Services	All Other Personal Services	812990	33.580845	-117.71394
Birds & Bees Connection	Other Schools and Instruction	Exam Preparation and Tutoring	611691	33.558055	-117.731753
Sushi Kizuna	Restaurants and Other Eating Places	Full-Service Restaurants	722511	33.569642	-117.729919
Julie Bright O.t.	Offices of Other Health Practitioners	Offices of All Other Miscellaneous Health Pract	621399	33.748636	-117.836562
Anyone Home	Activities Related to Real Estate	Residential Property Managers	531311	33.666308	-117.684324
Soka University Of America	Colleges, Universities, and Professional Sc	Colleges, Universities, and Professional School	611310	33.555605	-117.734806
Las Ramblas Trail	Museums, Historical Sites, and Similar Inst	Nature Parks and Other Similar Institutions	712190	33.492198	-117.664413

Figure 11: Example shown in excel with geocodes for CII accounts

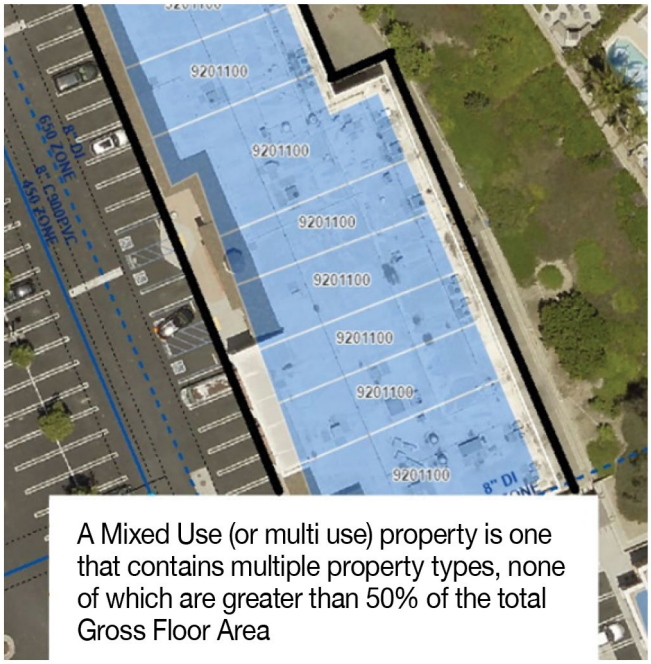


Figure 12: Example of a mixed-use property

customer development improvements, sewer strength analyses, and on-site recycled water retrofitting.

For instance, field customer service crews can better understand the impact of turning off a meter due to a landscape issue, avoiding unintended disruptions to indoor water use. The Cross Connections team can use these maps to ensure proper backflow compliance, and leak detection crews can more easily identify potential leak sources. Development Services can update incoming business information, prompting Water Efficiency to revise the polygon map and NAICS codes as needed. The Recycled Water team can use these mapped areas to understand adjacent potable and recycled water zones, assisting in source runoff investigations and compliance.

Data Sources

MNWD relied on a variety of data sources, including:

- Third-party NAICS vendors (NAICS.com, SafeGraph, etc.)
- Google Maps for street and aerial views
- ArcGIS software for mapping
- Field knowledge
- District billing and AMI systems

Methodology: Manual and GIS-Based

The Water Efficiency department led this geospatial mapping and classification effort. The project was 100% completed in terms of mapping and placing NAICS points, covering approximately 1,400 sites with a one-meter, one-business relationship, and 400 sites with a one-meter, multiple-business/suites relationship. MNWD identified 24 accounts (56 meters) classified as looped meters—two or more meters interconnected to enhance flow and pressure. The approach to mapping these meters involved creating a single polygon for all looped meters, linked via comments to reflect their relationships.

Figure 13: Example of a looped meter in GIS

Staff Support

- **In-House Support:** The Water Efficiency department conducted the project with occasional input from the Recycled Water and Customer Accounts departments.
- **Hours per Account:** On average, the classification took about five minutes per account, ranging from 2 minutes to 30 minutes depending on the complexity. In-field verifications could extend to 1-2 hours per meter.

Data Tracking

Data was tracked using an ArcGIS database and Microsoft Excel, which served as a framework to import billing data and track the completion of each account's classification.

Stumpers

Several challenging scenarios emerged during the classification process:

- **Live-Work Properties:** These sites, featuring businesses on the first floor and residences on upper floors, were defined as Residential but included the respective business type(s).

Figure 14: A live-work property

- **HOA Guard Shacks:** Defined as Non-Residential with a NAICS category for HOA communities.

Figure 15: An HOA guard shack

- **HOA Common Areas (Clubhouses and Pools):** Defined as Residential with a NAICS category for HOA communities.

Figure 16: An HOA common area shown from above

- **Community Laundry Rooms:** Typically exclusive to apartment complexes, these were defined as Residential with a NAICS category for HOA or apartment communities.

Tips and Tricks: Lessons Learned

1. **Collaborate with Other Departments and Agencies:** Engaging with other public agencies and neighboring water agencies is crucial, especially for accounts near service area borders.
2. **Use This Project to Update Customer Information:** While mapping, update customer contact details, GIS and meter placement, and add relevant notes to accounts.
3. **Evaluate NAICS Data Providers:** When using NAICS data, consult multiple companies to understand data coverage, sources, and pricing plans.
4. **Plan for Ongoing Updates:** Establish a strategy for regularly updating classifications, including who will handle updates and how frequently they will occur.

By adopting these strategies, MNWD has created a robust, flexible system that supports both legislative compliance and enhanced water management and service delivery.

SECTION 6: WHOLESALER OPTIONS

While wholesalers are not required to report under the framework, they can offer valuable support to their retailers. Many of the framework requirements are data-intensive and may strain the resources of smaller water agencies. A larger wholesaler could choose to engage contractor services on behalf of all its retailers. By leveraging economies of scale, the wholesaler can negotiate more favorable pricing for these services, with the cost savings shared among the retail agencies.

Additionally, wholesalers can support retail agencies in other ways. They can serve as a central hub for sharing data and methodologies between retail agencies. Although wholesalers may not have access to billing categories or detailed water use data, they may possess other valuable resources, such as GIS imagery, that can assist retailers in their classification efforts.

Regulatory Text

974(c)

(c) Each supplier shall identify CII water users according to one of the following paragraphs (1), (2), or (3):

(1) By June 30, 2025, identify:

(A) Existing CII water users at or above the 97.5th percentile for CII water use; and

(B) Existing CII water users at or above the supplier's 80th percentile for CII water use.

(2) By June 30, 2027, identify:

(A) Existing CII water users at or above the supplier's 97.5th percentile for CII water use; and

(B) Existing CII water users at or above the supplier's 80th percentile for water use in each of the classification categories described in section 972.

(3) By June 30, 2029, identify existing CII water users that appear to be inefficient according to key business activity indicators (KBAI) the supplier has developed for the classification categories described in section 972. A supplier may also develop KBAIs for the specific ENERGY STAR Portfolio Manager property types.

977

(4) Relevant data pursuant to section 974(c) through 974(h) in accordance with paragraph (A), (B), or (C) below, as applicable:

(A) For suppliers that have identified water users pursuant to 974(c)(1):

(i) The number of CII water users at or above the 97.5th percentile for water use

(ii) The best management practices (BMPs) offered to the water users identified in paragraph (i)

(iii) The estimated annual water savings associated with the BMPs identified in paragraph (ii)

(iv) The number of CII water users at or above the 80th percentile for CII water use

(v) The BMPs offered to the water users identified in paragraph (iv)

(vi) The estimated annual water savings associated with the BMPs identified in paragraph (v).

(B) For suppliers that have identified water users pursuant to 974(c)(2):

(i) The number of CII water users at or above the 97.5th percentile for water use

(ii) The best management practices offered to the water users identified in paragraph (i)

(iii) The estimated annual water savings associated with the BMPs identified in paragraph (ii)

(iv) The number of water users at or above the 80th percentile for water use in each of the classification categories specified in section 972 (a) and 972 (b)

(v) The BMPs offered to the water users within each of the classification categories identified in paragraph (iv)

(vi) The estimated annual water savings associated with the BMPs identified in paragraph (v).

(C) For suppliers that have identified water users pursuant to 974(c)(3):

(i) The key business activity indicators (KBAI) developed for each of the classification categories specified in section 972 (a) and 972 (b)

(ii) Any KBAI the supplier has developed for specific ENERGY STAR Portfolio Manager property types

(iii) For each of the classification categories specified in section 972 (a) and (b), the number of water users identified pursuant to section 974(c)(3)

(iv) The BMPs offered to the water users within each of the classification categories identified in paragraph (iii)

(v) The estimated annual water savings associated with the BMPs identified in paragraph (iv).

(f) Unless otherwise specified, any volume of water reported pursuant to this section shall be reported in gallons.

What do suppliers have to do:

The specific reporting requirements for CII classifications under section 974(c) include:

1. The number of CII water users by each classification.
2. The number of CII water users identified at or above the 97.5th percentile and the 80th percentile of water use.
3. The BMPs (Best Management Practices) offered to these users.
4. The estimated annual water savings associated with each BMP offered.
5. For 2029 and beyond, suppliers that have chosen to identify water users pursuant to 974(c)(3) will need to report KBAIs (Key Business Activity Indicators) developed for each classification, along with any developed for ENERGY STAR property types, and reporting on the associated BMPs and water savings for each classification category.

All reported water volumes must be in gallons.

The figure below the current template reporting document that the State Water Board released September 2024.

Pursuant to 972(c), a supplier shall classify "existing CII water users" by June 30, 2027. By June 30, 2028 and thereafter, the supplier shall maintain, for each reporting year, at least a 95 percent classification rate of all its CII water users.
Pursuant to 965(x), "existing CII water users" are those served by the supplier on or before the "effective date" of the regulation (January 1, 2025).
In cells B13 through B37, indicate the number of CII water users classified **to date** for each of the classification categories

CII Classification Sub-Category	Values	Units	Calculation Instructions and Notes	Reference
Select source of Commercial, Institutional, and Industrial (CII) service connections data	Open Data	N/A	Review CII connections data from "Open Data" (Calendar Year 2023 data from eAR) or provide "Updated Values."	
Total number of Commercial, Institutional, and Industrial (CII) service connections	0	Number of service connections		975(e)(1)(A)
Number of classified CII water users		Connections	CII water users may be defined in terms of connections, accounts, or other. Please select the units in Cell C11.	975(e)(1)(B)
Definition of "Other" water user units		N/A	If specified units are "Other" in Cell C11, define "Other" in Cell B12.	N/A
Number of water users in **banking/financial services** category		Connections		975(e)(1)(C)
Number of water users in **education** category		Connections		975(e)(1)(C)
Number of water users in **entertainment/public assembly** category		Connections		975(e)(1)(C)
Number of water users in **food sales and service** category		Connections		975(e)(1)(C)
Number of water users in **health care** category		Connections		975(e)(1)(C)
Number of water users in **lodging/residential** category		Connections		975(e)(1)(C)
Number of water users in **manufacturing/industrial** category		Connections		975(e)(1)(C)
Number of water users in **mixed-use** category		Connections		975(e)(1)(C)
Number of water users in **office** category		Connections		975(e)(1)(C)
Number of water users in **parking** category		Connections		975(e)(1)(C)
Number of water users in **public services** category		Connections		975(e)(1)(C)
Number of water users in **religious worship** category		Connections		975(e)(1)(C)
Number of water users in **retail** category		Connections		975(e)(1)(C)
Number of water users in **technology/science** category		Connections		975(e)(1)(C)
Number of water users in **services** category		Connections		975(e)(1)(C)
Number of water users in **utility** category		Connections		975(e)(1)(C)
Number of water users in **warehouse/storage** category		Connections		975(e)(1)(C)

Bonus Incentive | Actual Water Use | Reported Real Water Loss | CII Classification (972) | DIMs or In-Lieu T

Figure 15: State Water Board reporting template released in 2024 showing the required inputs needed related to CII classification

SECTION 8: CONCLUSION

The classification of Commercial, Industrial, and Institutional (CII) water accounts is a critical component of effective water management and conservation efforts. As demonstrated in the case studies of Placer County Water Agency, the City of Santa Barbara, the City of Santa Rosa, and Moulton Niguel Water District, a comprehensive and methodical approach to mapping and categorizing CII accounts is essential to meet regulatory requirements and support long-term resource management goals.

Each agency's unique approach to CII classification, whether through manual efforts, GIS mapping, or a combination of various methodologies, highlights the importance of tailoring strategies to specific local contexts and available resources. Challenges such as inconsistent data, complex mixed-use properties, and outdated classification codes require creativity, collaboration across departments, and the use of multiple data sources to ensure accuracy and compliance.

The benefits of accurate CII classification extend beyond meeting legislative mandates. Properly classified data enhances water use efficiency programs, supports targeted outreach efforts, and improves operational decision-making across various departments, from field customer service to development services and recycled water management. Wholesalers, although not directly responsible for reporting, also play a vital role by providing support to retail agencies, facilitating data sharing, and optimizing resource allocation through economies of scale.

As agencies continue to refine their classification processes and adopt innovative tools and methodologies, the resulting improvements in data quality and resource management will contribute significantly to sustainable water use practices across California. By staying organized, engaging in interagency collaboration, and maintaining flexibility to adapt to changing data and circumstances, agencies can position themselves to meet future challenges effectively and ensure compliance with state water use requirements.

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