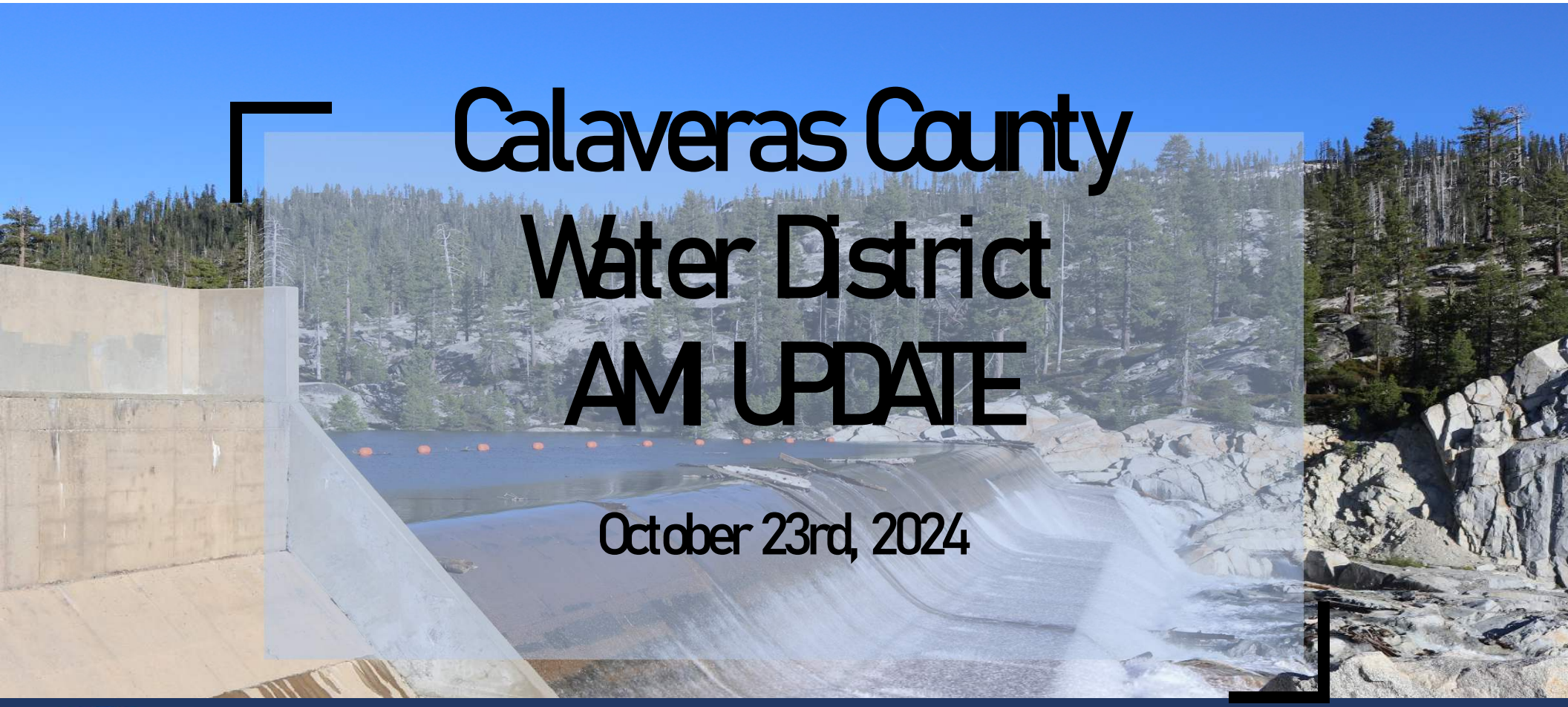


Calaveras County Water District AM UPDATE

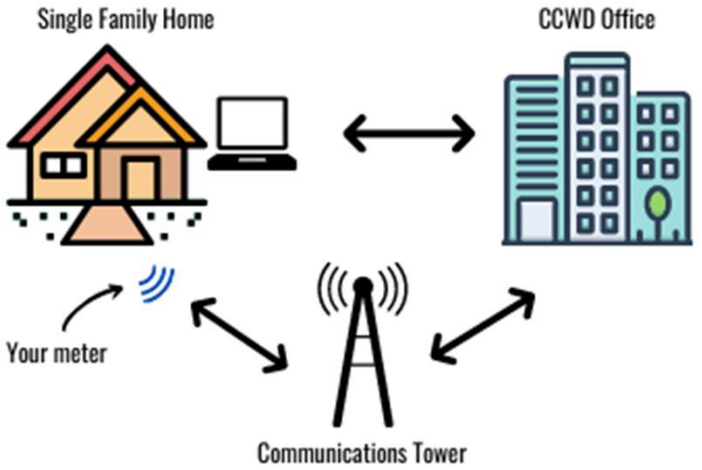
October 23rd, 2024

120 Toma Court
San Andreas, CA
95249

Damon Wyckoff
Director of Operations
209-754-3306
damonw@ccwd.org

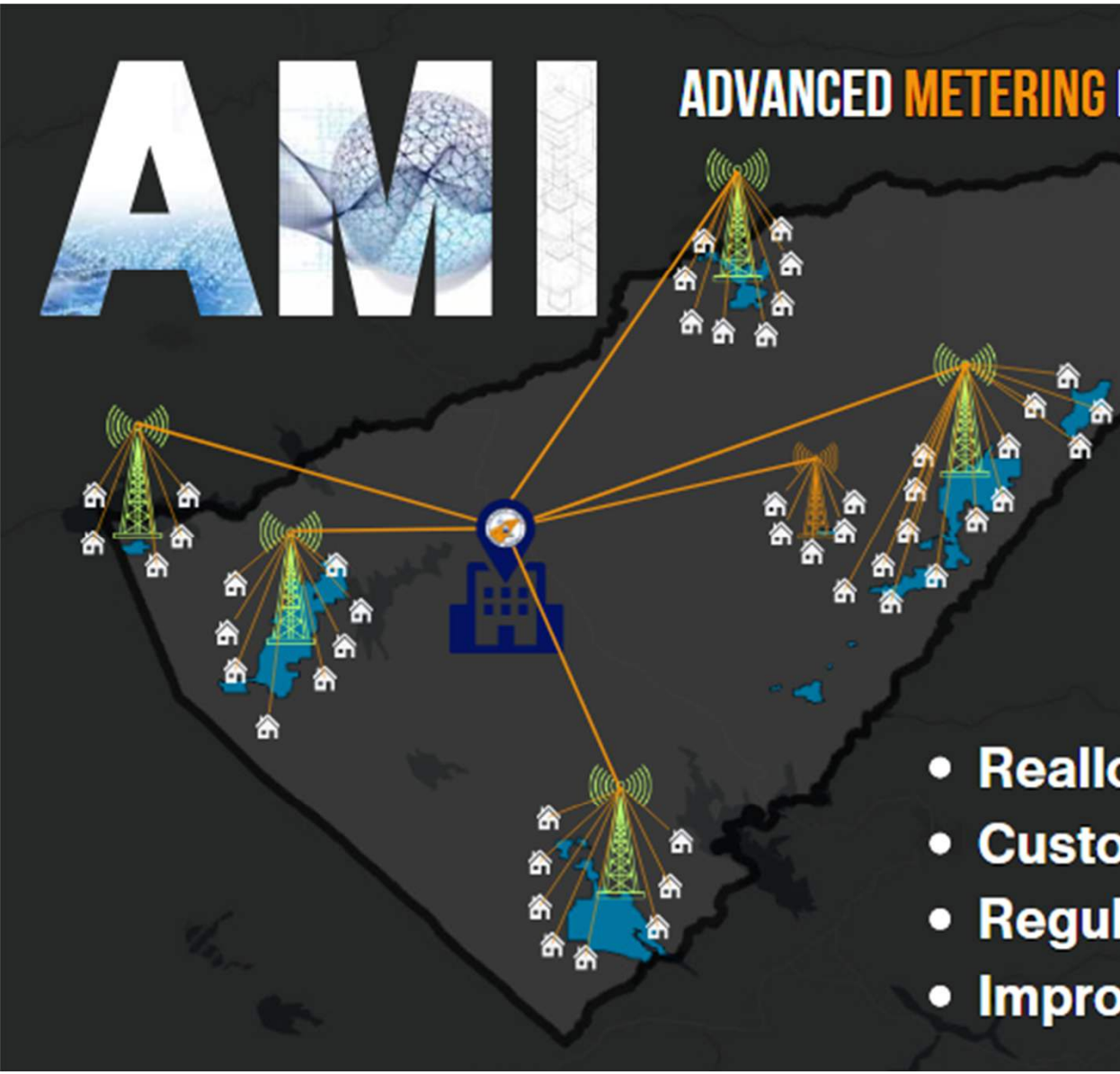
What is AMI?

- An advanced metering system using a radio network.
- Advanced water meters transmit real time water use data.
- CCWD staff can access data and more detailed reports about water use throughout the District.
- Customers can access data from a web portal.



AMI

ADVANCED METERING INFRASTRUCTURE



BENEFITS:

- Reallocate Meter Reading Staff
- Customer Portal
- Regulatory Compliance
- Improve Data Efficiencies

WHY AMI?
AMI & Updated Customer Service Software Benefits

- Improved metrics associated with water use will be uniform District-wide, enhancing customer service and ensuring regulatory compliance.
- Improved information gathering, enhanced customer service and increased water conservation efforts.
- Meter readers will transition to field staff and will enhance CCWD's operations.
- Modernizes and increases efficiency of CCWD’s infrastructure and billing systems

USDA Rural Development Loan

- Low interest loan at 1.75% for the first $5 mil
- $1 mil grant above $5 mil
- Bid the Project like a construction project

Project Hghlights

- Routine Project Meetings proved key to ensuring the effective pace of implementation
- CCWD Field staff proved to be the "eyes & ears" of Mueller related to sub-contractor work.
- Mueller proved adept at reacting to supply chain issues

Project Challenges

- Sub-contractor organization was challenging
- Supply Chain issues
- Software integration

AMI Meters are Mechanical Meters

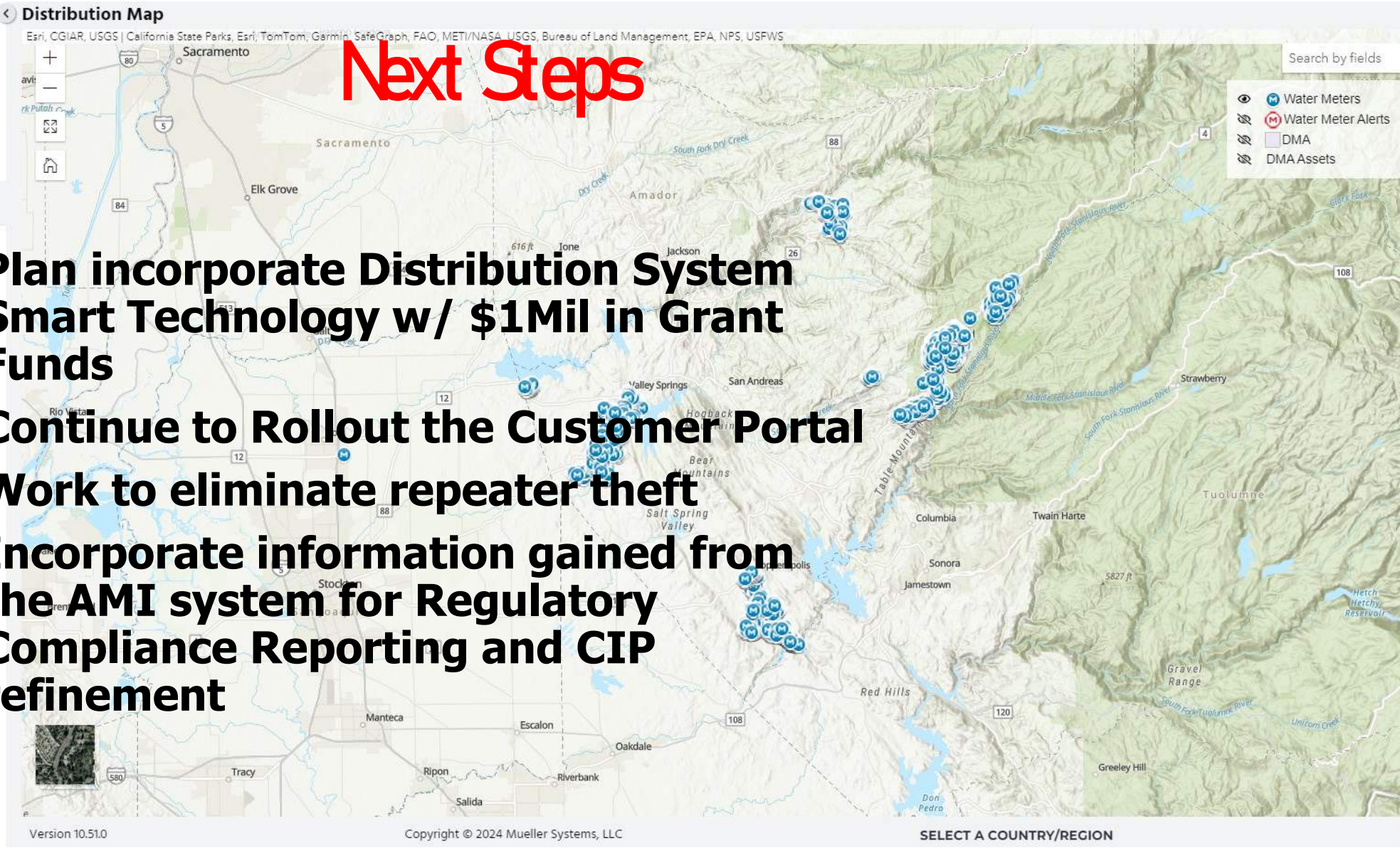
- They register water mechanically
- Just like the meters that were replaced
- When, for whatever reason, the meter cannot push out data, We can still manually read the meter
- “Manually” can either mean by way of a handheld device in the neighborhood or the old- fashioned way

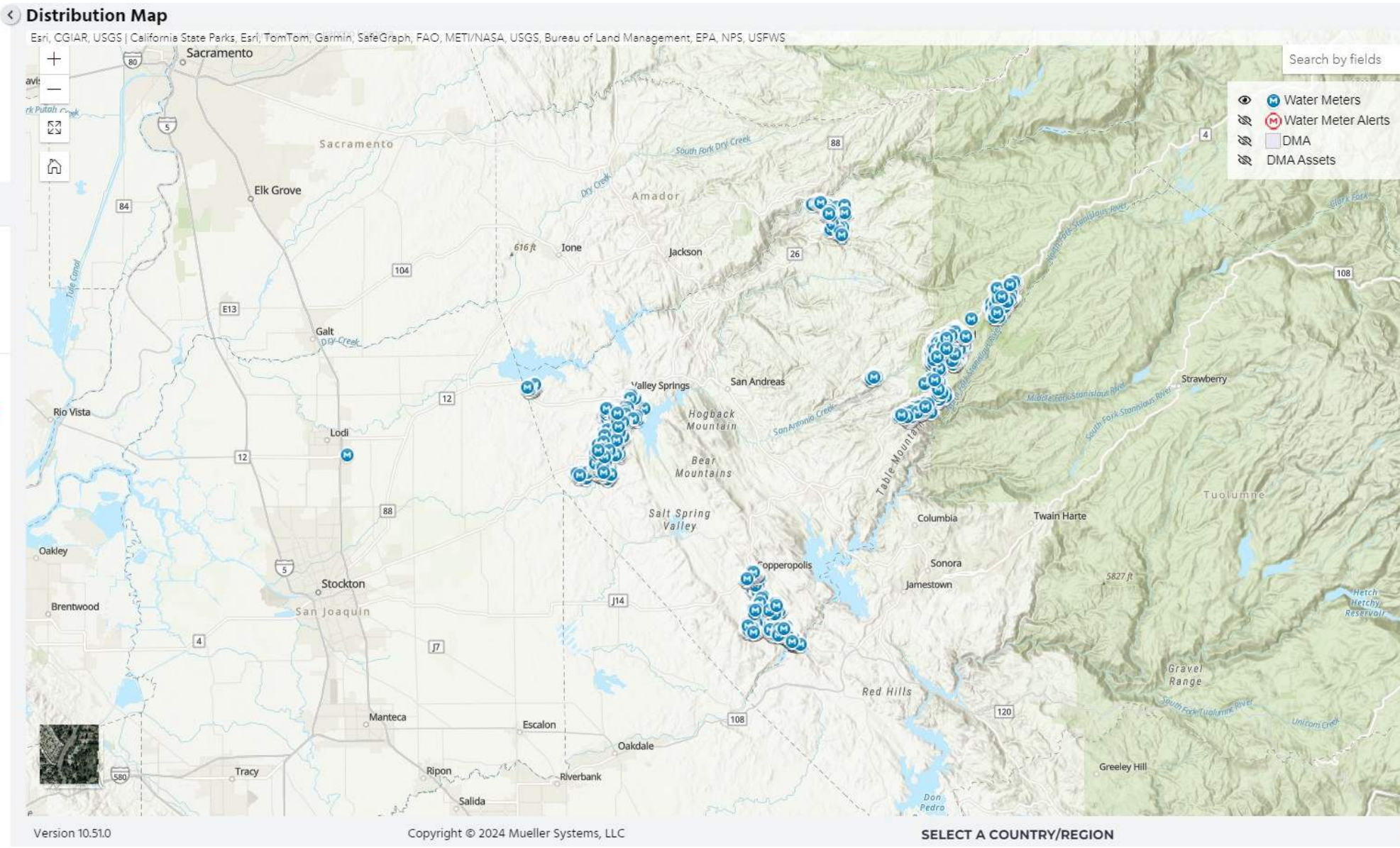
By the Numbers

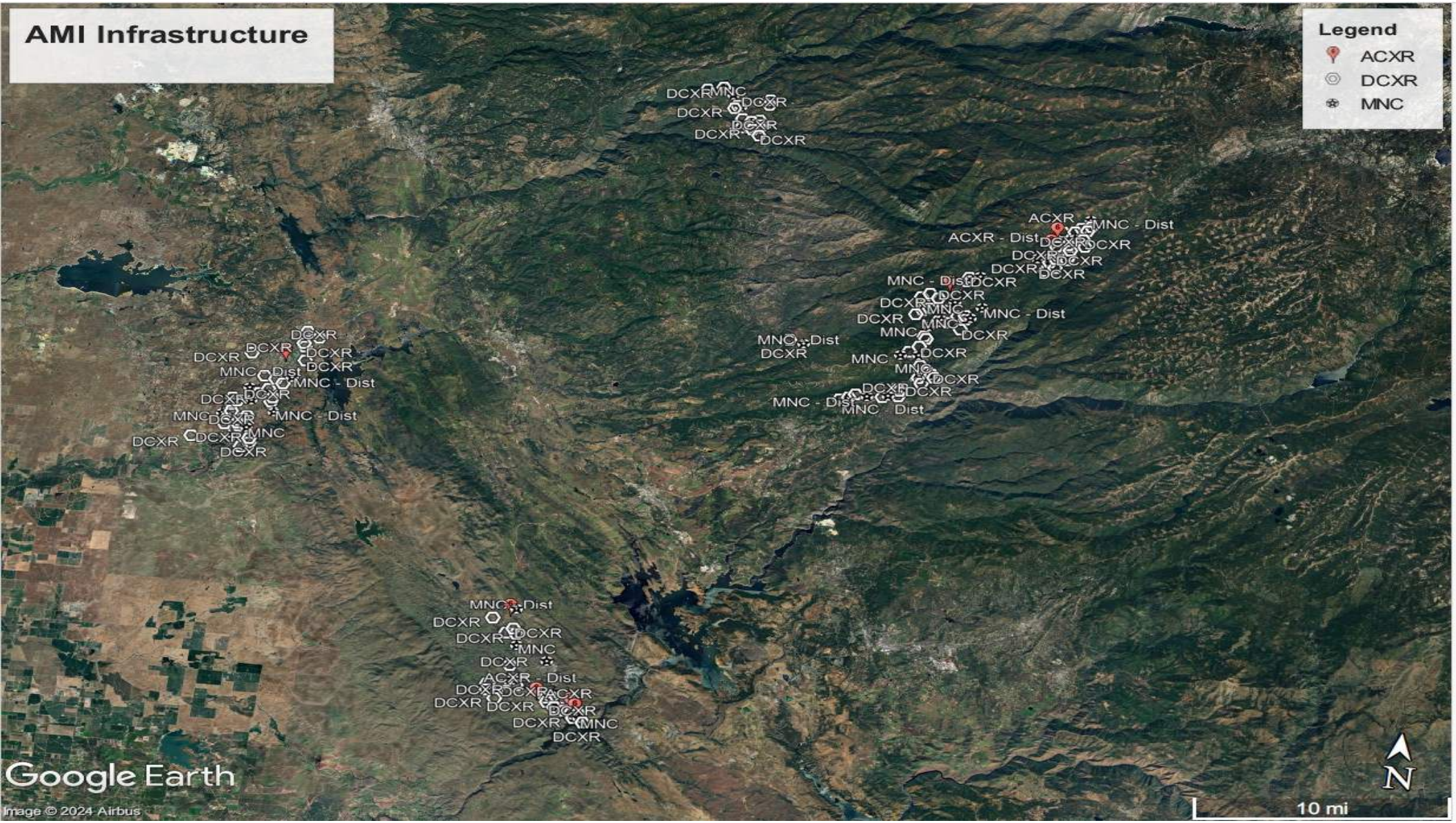
- Project Cost - $4.8 Mil
- Duration – 3 years
- Read Rate (as of 10-1-2024) 98.5% 3-day avg.

Next Steps

- **Plan incorporate Distribution System Smart Technology w/ $1Mil in Grant Funds**
- **Continue to Rollout the Customer Portal**
- **Work to eliminate repeater theft**
- **Incorporate information gained from the AMI system for Regulatory Compliance Reporting and CIP refinement**




Distribution Map
Esri, CGIAR, USGS | California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS
Search by fields
Water Meters
Water Meter Alerts
DMA
DMA Assets
Sacramento
Elk Grove
Galt
Rio Vista
Lodi
Oakley
Stockton
Brentwood
Manteca
Tracy
Escalon
Ripon
Riverbank
Oakdale
Salida
Ione
Jackson
Amador
Valley Springs
San Andreas
Hogback Mountain
Bear Mountains
Salt Spring Valley
Table Mountain
Copperopolis
Columbia
Twain Harte
Sonora
Jamestown
Strawberry
Tuolumne
Red Hills
Gravel Range
Greeley Hill
Hetch Hetchy Reservoir
Tule Canal
Dry Creek
South Fork Dry Creek
San Antonio Creek
Middle Fork Stanislaus River
South Fork Stanislaus River
South Fork Tuolumne River
Unicorn Creek
Don Pedro
616 ft
5827 ft
Version 10.51.0
Copyright © 2024 Mueller Systems, LLC
SELECT A COUNTRY/REGION


AMI Infrastructure
Legend
ACXR
DCXR
MNC
Google Earth
Image © 2024 Airbus
N
10 mi

Top 10 Monthly Consumptions

September 2024

Account ID	# of Meters	Cubic Feet
520-14120-00	1	3,227,700
713-09985-01	1	273,905.65
713-09963-01	1	270,082.81
575-01823-01	1	188,210
611-06648-00	1	179,754
713-13726-00	1	169,774.99
613-09599-00	1	142,746.67
540-01009-00	1	109,583
550-10464-00	1	59,830
510-15098-00	2	45,954.43

Current Device Communication Status

Days Since Last Communication
>=14 Days
11-13 Days
8 - 10 Days
4-7 Days
Healthy(Within 3 Days)
Grand Total

Overview | Site Consumption

Daily Consumption

10/14/2024

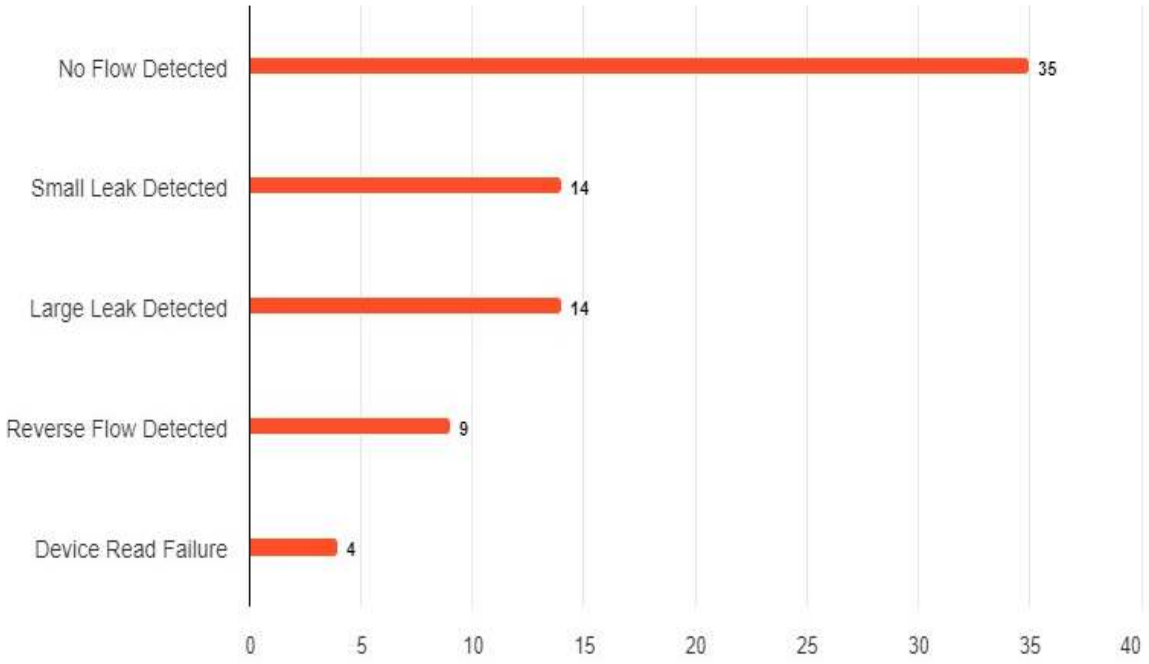
--- Cubic Feet

Estimated DMA Loss

0 Cubic Feet

Unacknowledged Water Meters Alerts

All



Unacknowledged Communication Alerts

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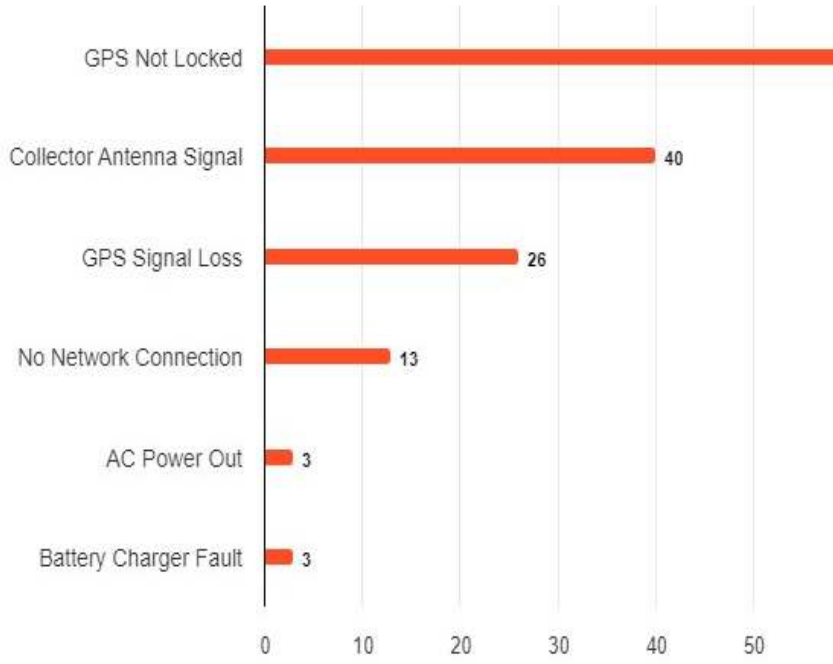


On Demand Read | Tasks | Swap

Account Holder :

Address :
4067 BLAGEN Blvd, · WILSEYVILLE , CA · 95257

Water Consumption

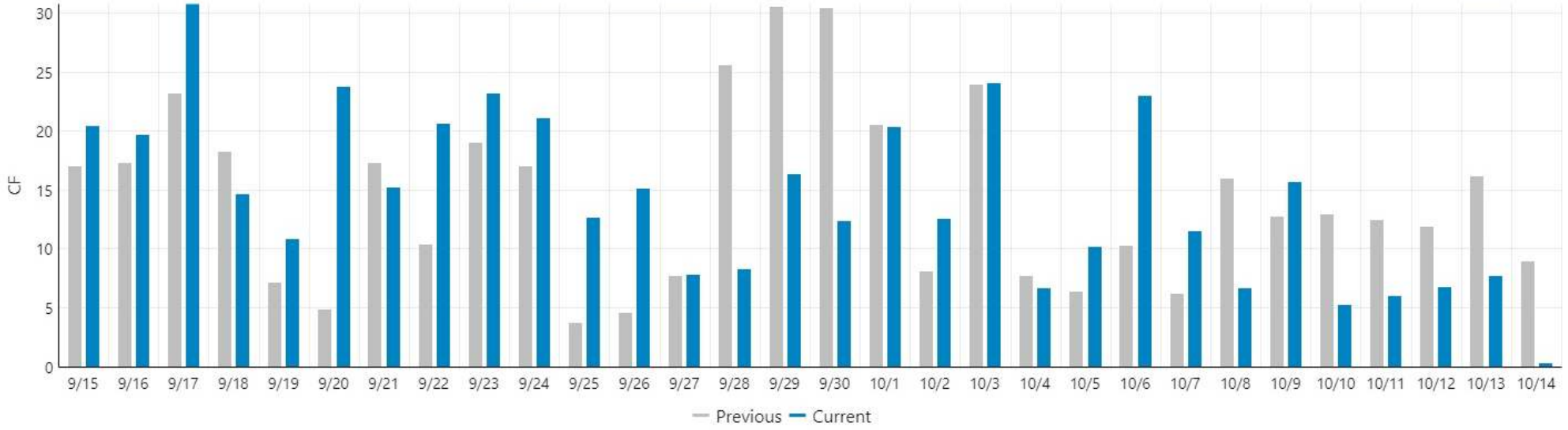
Current status :	Last Reading :	Last Read Date :	Flow Rate :
OK	8,631.81	10/14/2024 00:00	9.53 CF / Day

Data view: Hourly | Daily | Monthly

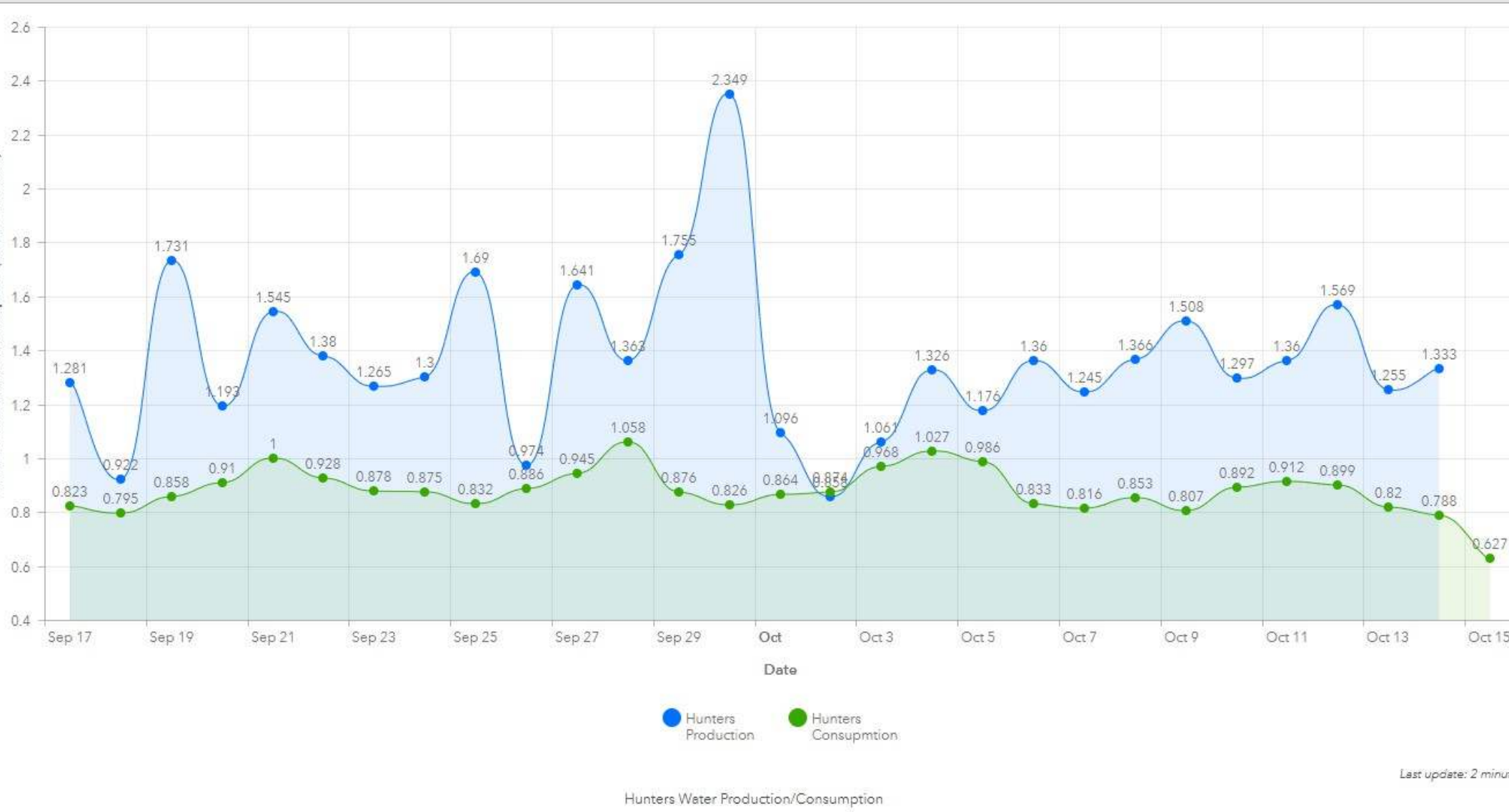
Start date: 9/15/2024 End date: 10/14/2024

Compare to previous: Week | Month | Year

Bar gra Line graph



Alerts



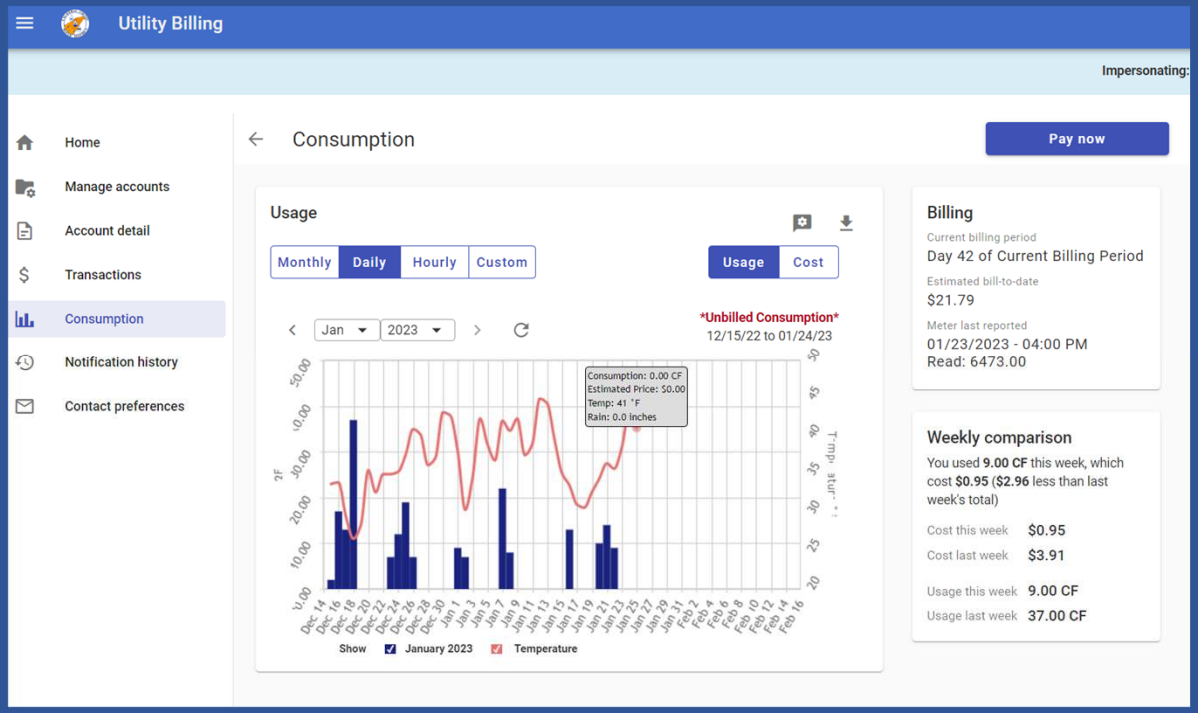
Last update: 2 minu

Hunters Water Production/Consumption

Interactive Dashboard

CCWD staff will be able to:

- Analyze data and identify usage trends across the District.
- Participate in real time discussions and facilitate better decision making with access to key information.
- Improve response times for water leaks and customer inquiries.
- Reallocate resources based on real time needs.



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Customers will be able to:

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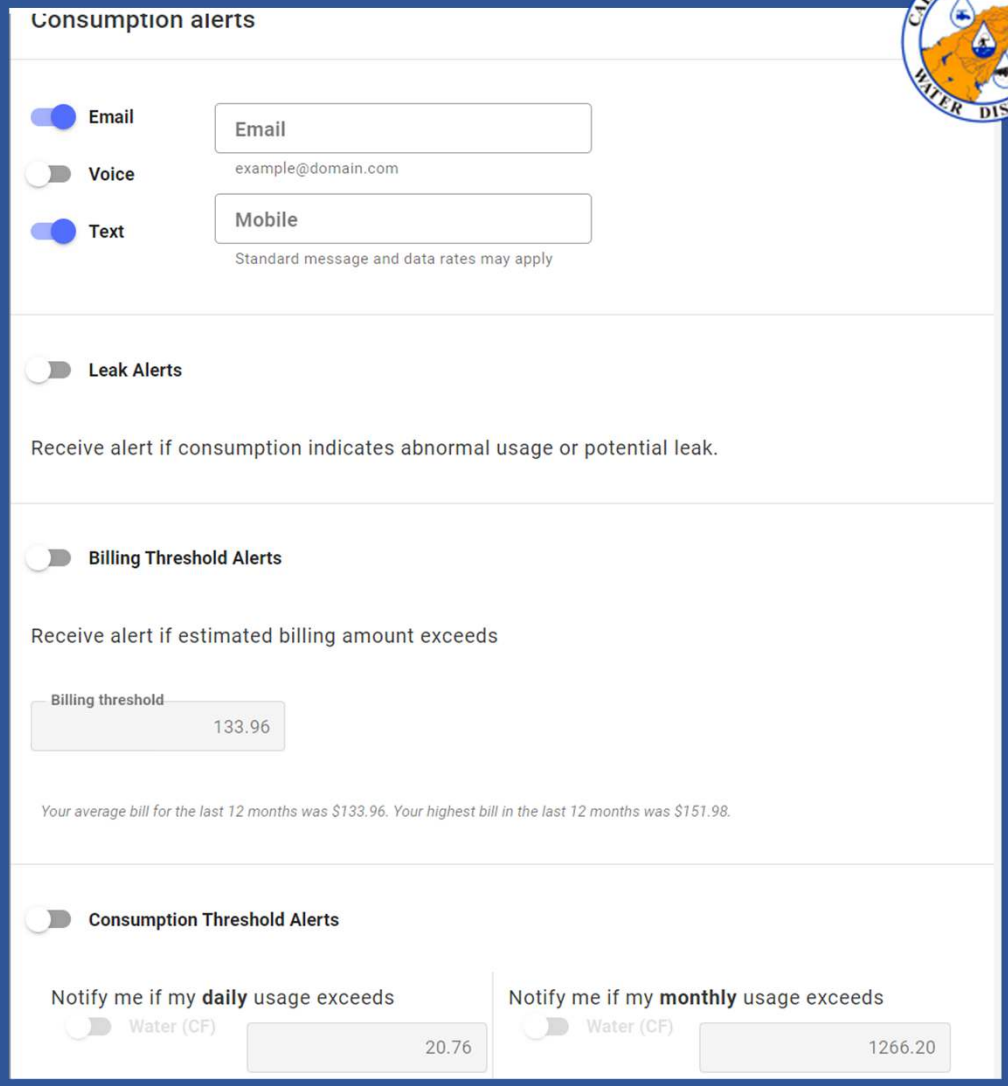
- Set alerts for leaks, billing thresholds & excess water usage.



120 Toma County
San Andreas, CA 95249
ccwd.org

Damon Wyckoff - Director of Operations
209-754-3306
damonw@ccwd.org

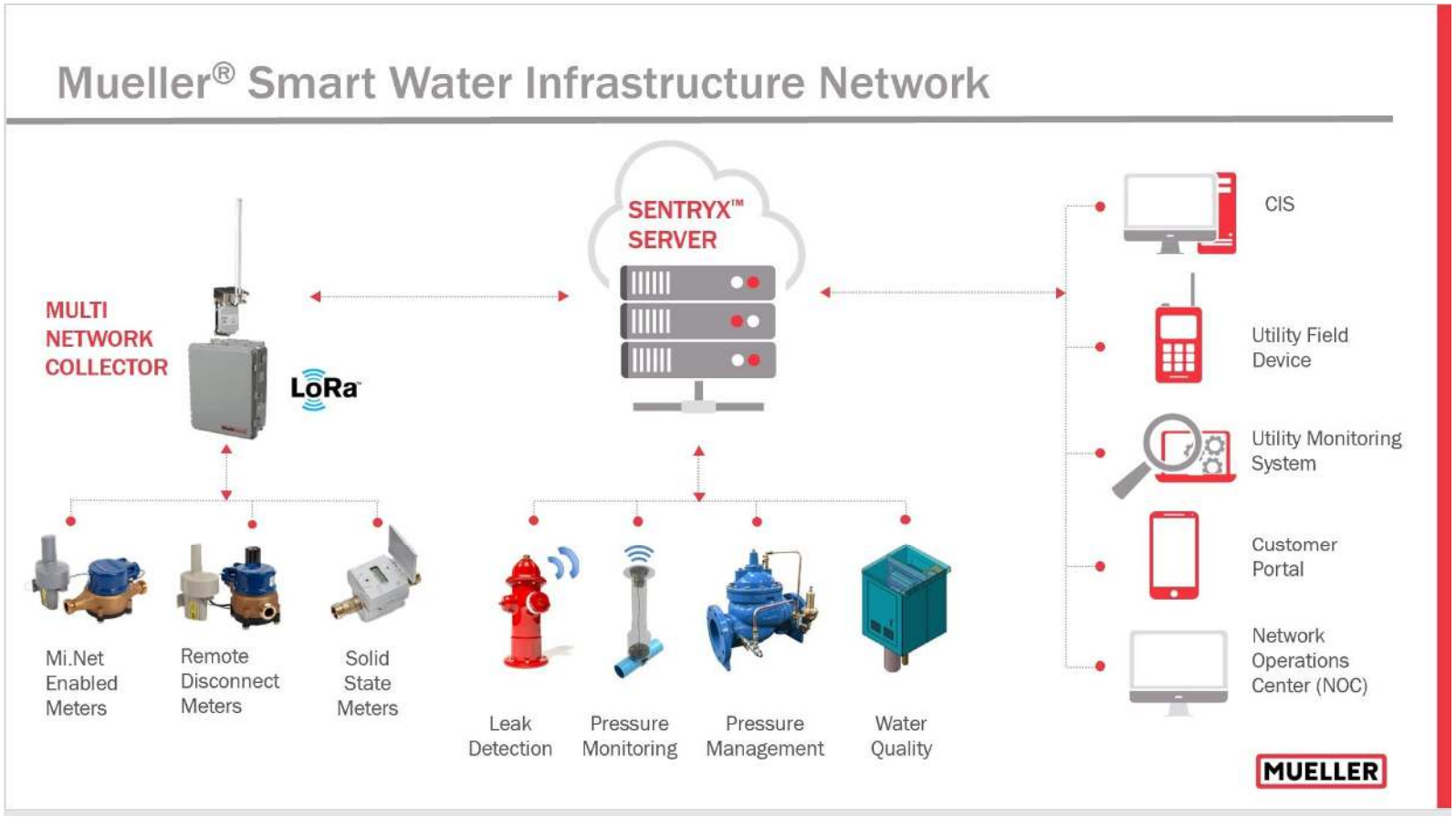
Benefits of Fixed Network AMI

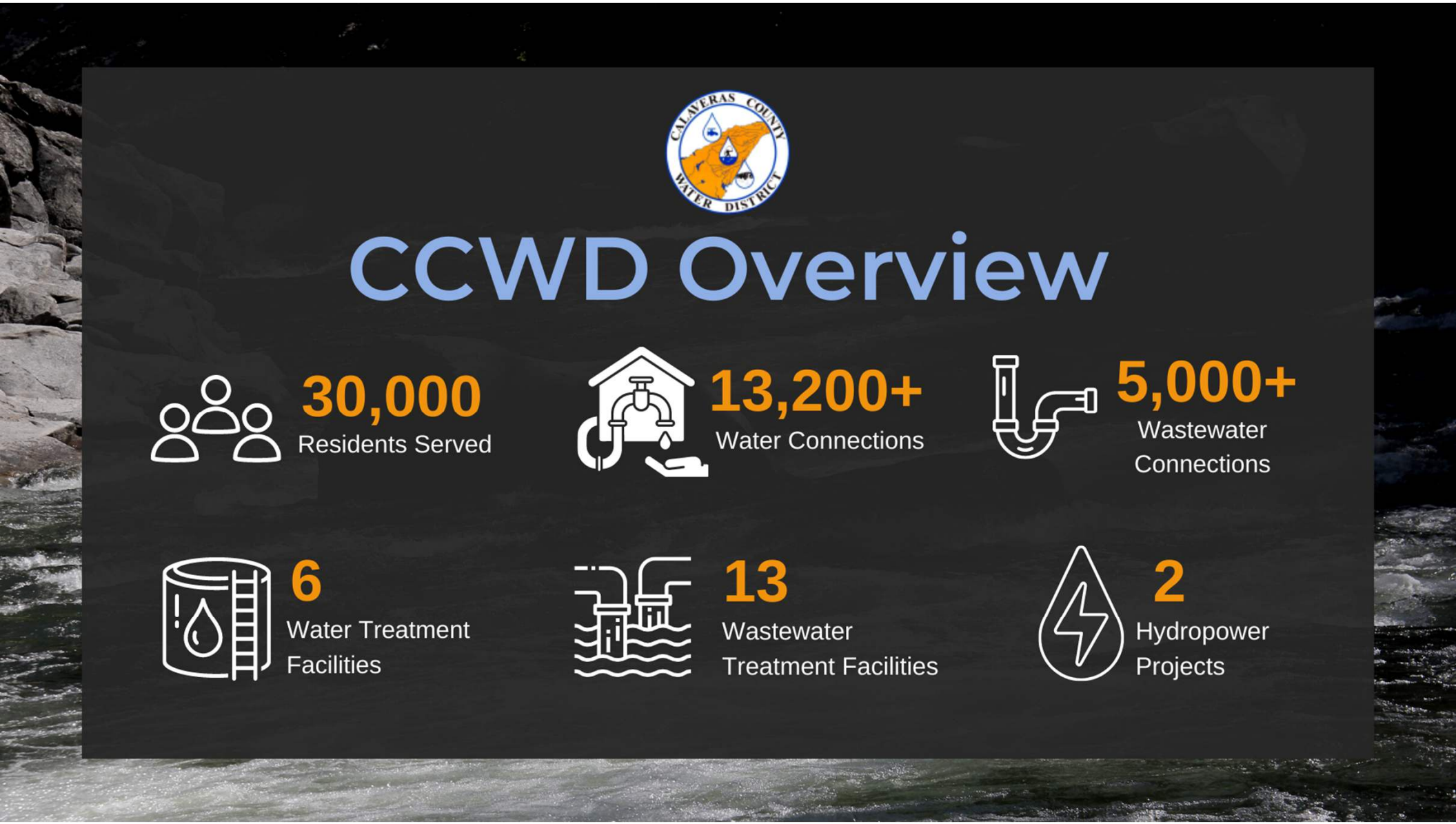
- Automatic meter readings without having to drive-by in vehicle. Works under adverse weather conditions including snow.
  - Keeping a portion of the District on AMR would still require bi-monthly drive-by meter readings
- Communicates directly with the District's CIS system (Tyler).
- Provides Operation staff real time water usage information. Option to add customer portal in future for an additional cost
  - Realtime consumption information allows customers to identify areas that they can control to reduce use and identify why certain days are higher than others.
- Leak detection – Customer side leaks and detection of backflow conditions.
  - It can take months to detect and correct a leak. AMI would provide real time leak detection.
  - Reduce volume of very frustrated customers due to ongoing leaks.
  - Will reduce leak adjustment calculations and refunds on bills through customer service.
- System flow monitors and pressure sensors can be connected to AMI network.
- Ability to add Remote Disconnect Meter (RDM) for hard to access areas or where water needs to be routinely shut off.

Benefits of Fixed Network AMI (Con't)

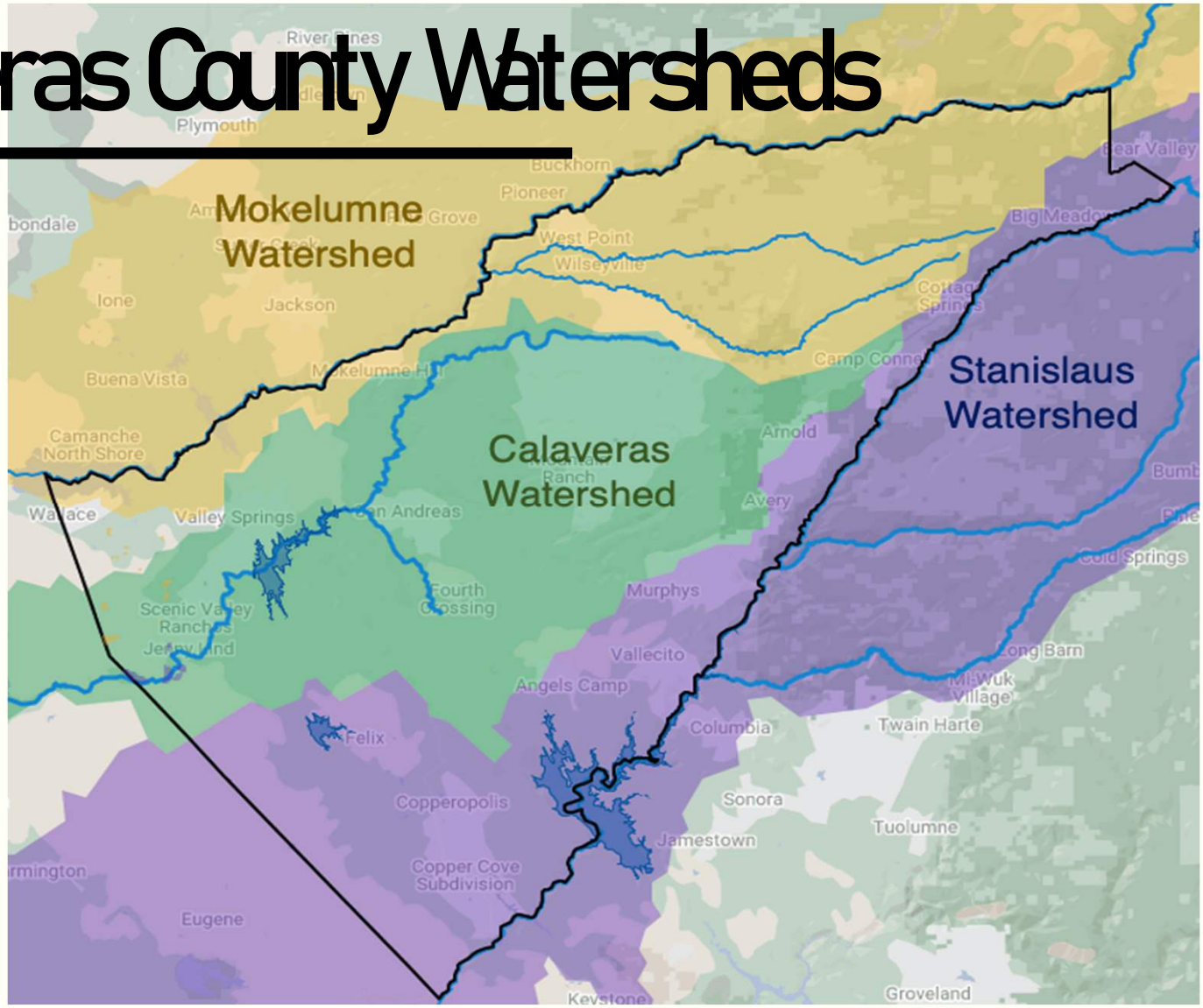
- Allows staff the ability to identify if conservation efforts are working
  - Currently we issue press releases, website postings, and Facebook outreach and hope for the best.
    - With real-time data, we can identify which areas are complying with request to conserve and which need more outreach.
    - Allow for more cost effective and targeted outreach efforts.
- Ease of Water Audit Reporting Date
  - AMI would allow for more comprehensive and accurate reporting
    - Days of high consumption
    - Months of high consumption

Fixed Network AMI Data Collection



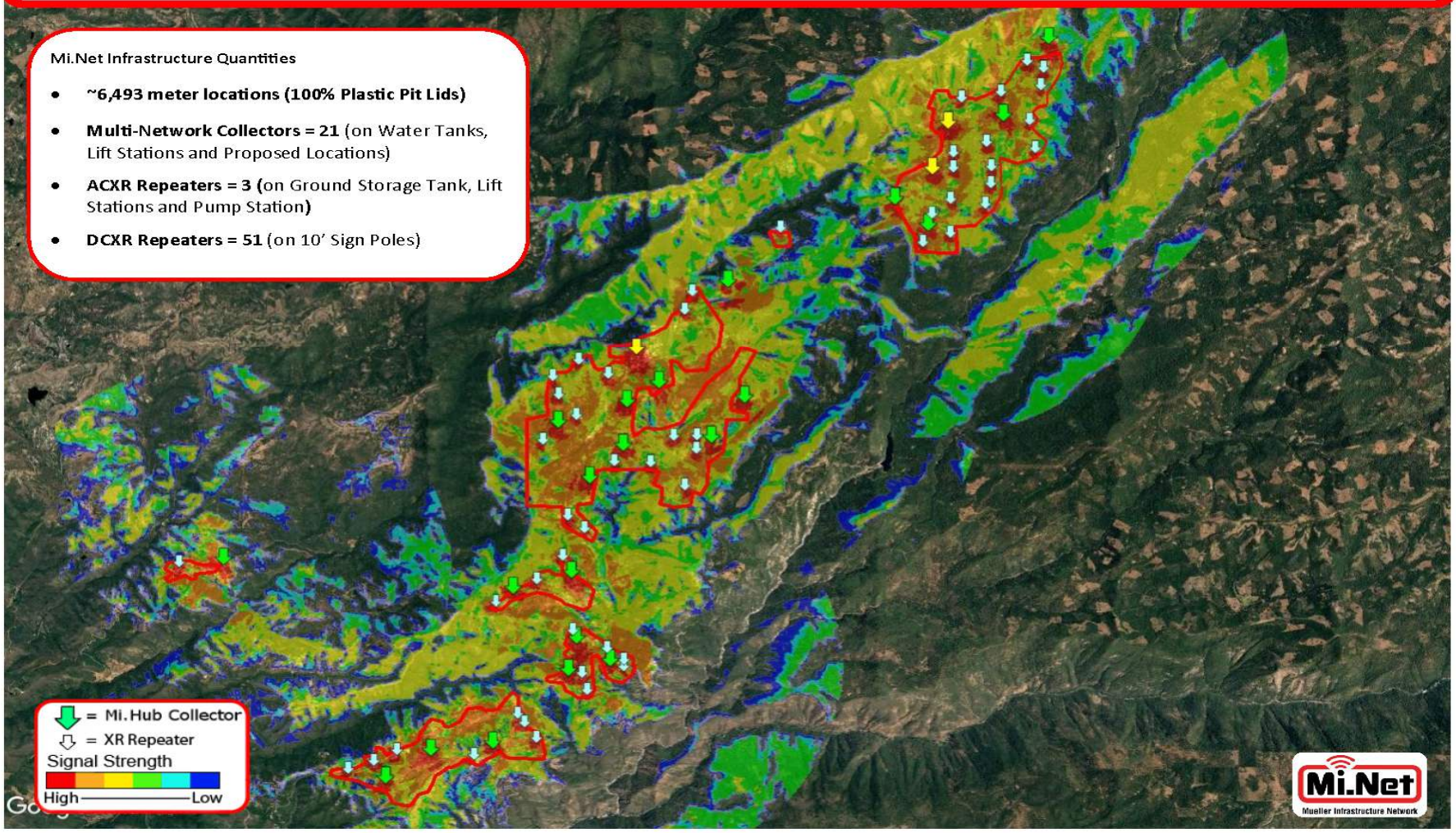

CALAVERAS COUNTY WATER DISTRICT
CCWD Overview
30,000
Residents Served
13,200+
Water Connections
5,000+
Wastewater Connections
6
Water Treatment Facilities
13
Wastewater Treatment Facilities
2
Hydropower Projects

Calaveras County Watersheds



Calaveras County Water District, CA — Mi.Net M Propagation Study

Estimated RF Analysis Coverage—Ebbetts Pass



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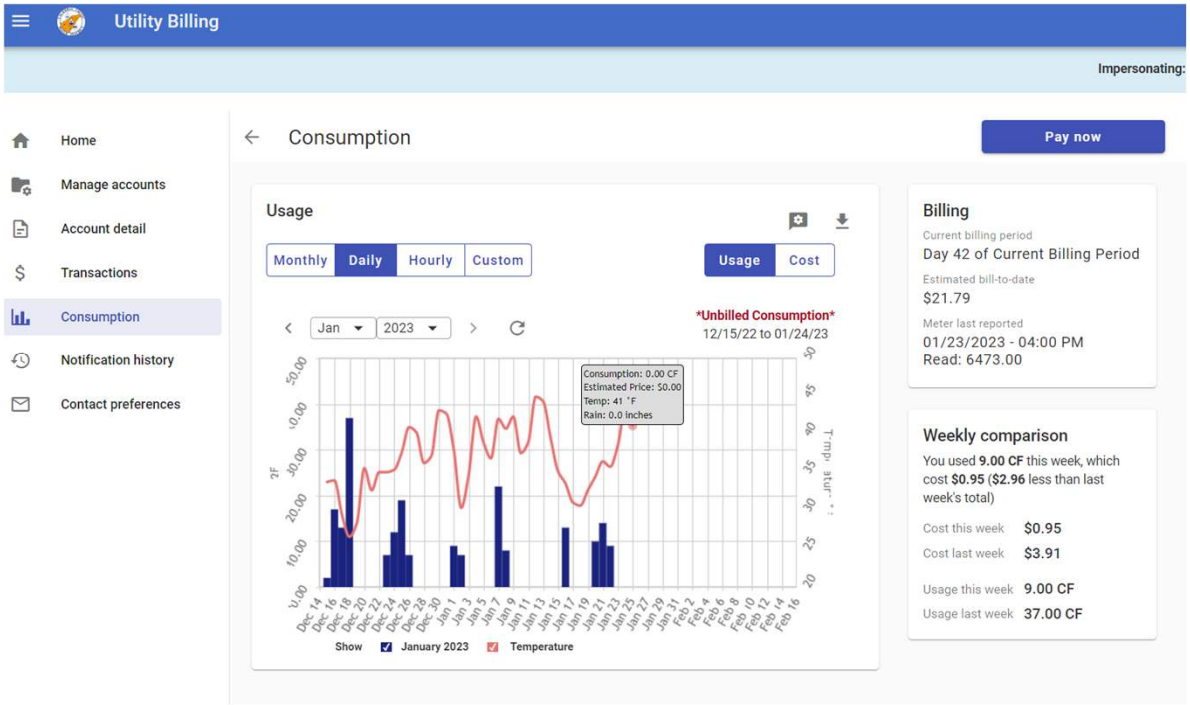

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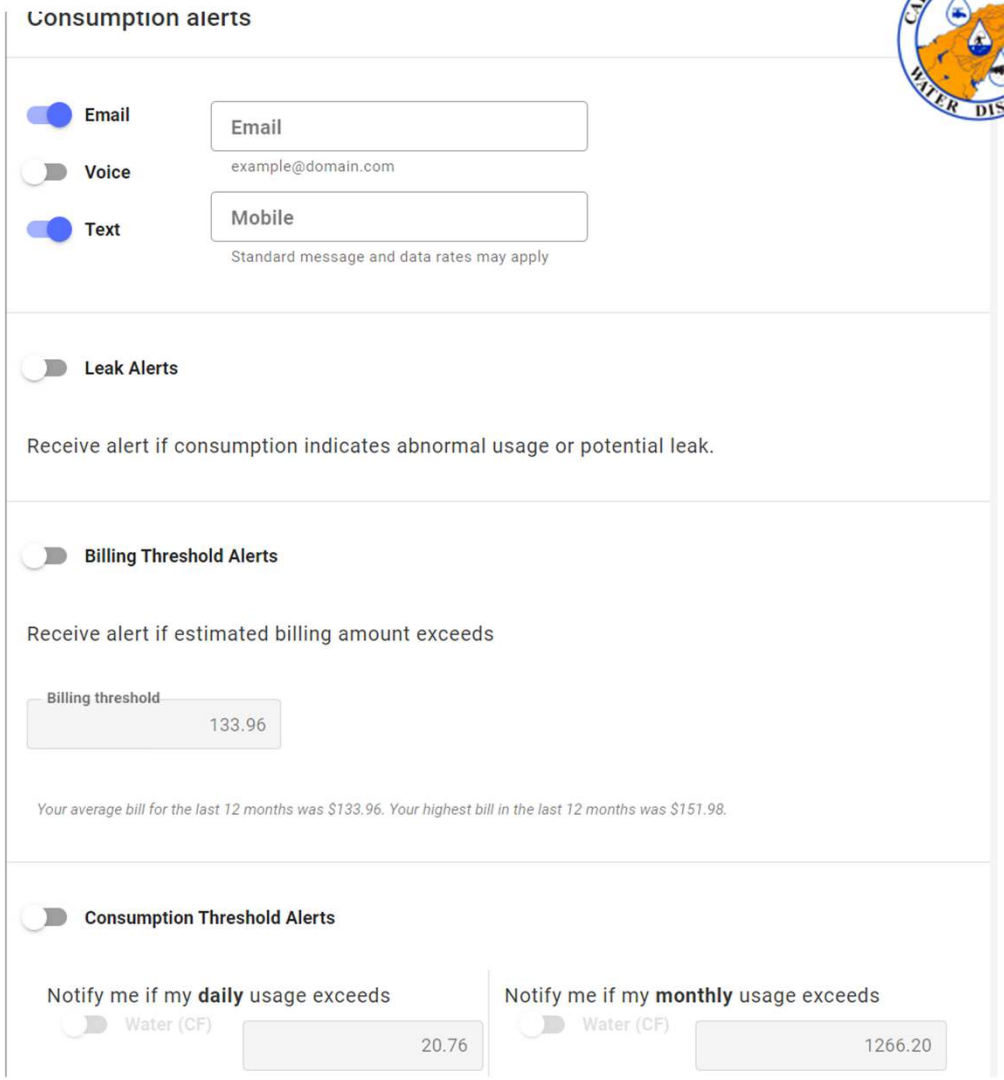


AMI Water Meter - Radio Frequency

AMI Water Meter (Standing directly over the meter)	Wireless Router (at 3 feet)	Microwave Oven (5 minutes at 3 feet)	Smart Phone (data) (10 minutes at 8 inches)
			
0.00010 microwatts per square centimeter	0.37 microwatts per square centimeter	0.45 microwatts per square centimeter	0.98 microwatts per square centimeter

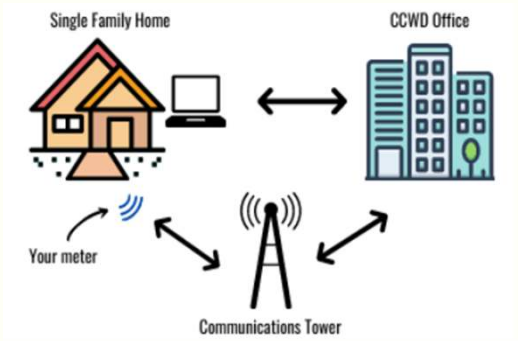
San Francisco Public Utilities Commission, October 2010

- FCC, FDA & EPA set a standard limit for Radio Frequency (RF), limiting RF exposure to 608 microwatts per square centimeter.
- For comparison, PG&E RF meter emits 8.8 microwats

(source: pge.com)

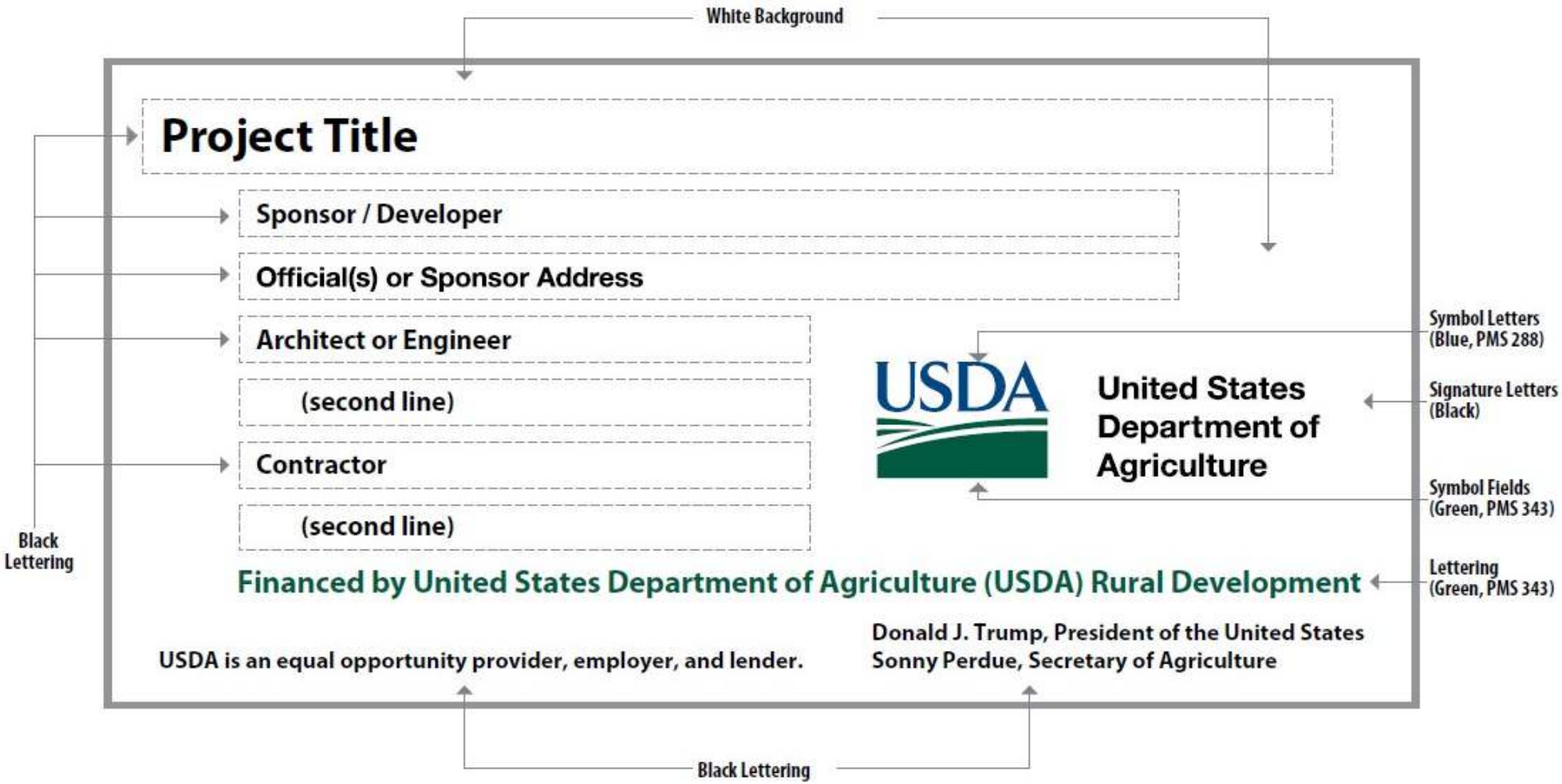
Mueller Systems

- Initially one service area was to be AMR
- Shifted to total AMI post contract award
- Mueller used a sub-contractor for the Installation of **13,000+** AMI meters.
- Also used a sub for the installation of the AMI network



RURAL DEVELOPMENT PROJECTS

Recommended Fonts: Helvetica, Arial, or Myriad Pro



The Bid Process

				MUELLER SYSTEMS	FERGUSON WATERWORKS	TIECHERT CONSTRUCTION
ITEM #	WORK / MATERIAL	UNIT	QUNTY			
1	Mobilization/Demobilization	LS	1			
2A	Furnish 5/8" Positive Displacement Type Radio Read Water Meter	EA	13022			
2B	Install 5/8" Positive Displacement Type Radio Read Water Meter	EA	13022			
3A	Furnish 3/4" Positive Displacement Type Ra	EA	5			
3B	In Re					
4A	Fu M					
4B	In M					
5A	Fu Co					
5B	In Se					
6A	Fu Je					
6B	In Se					
7A	Fu W					
7B	In Se					
8	Fu					
9	So					
10A	Install new meter box lids	EA	13102			
10B	Furnish new meter box lids (Allowance)	EA	13102			
	Adjustment made to Bid Total for Ferguson Waterworks (Bidder #2) based on sum total of unit prices					

The Project was Bid like a Construction project

- **Three Bids**
- **One from a Distributor**
- **One from a Meter Manufacturer supported post sale by a Distributor**
- **One from a Contractor**
- **Mueller was the low bid = $3.9 Mil**