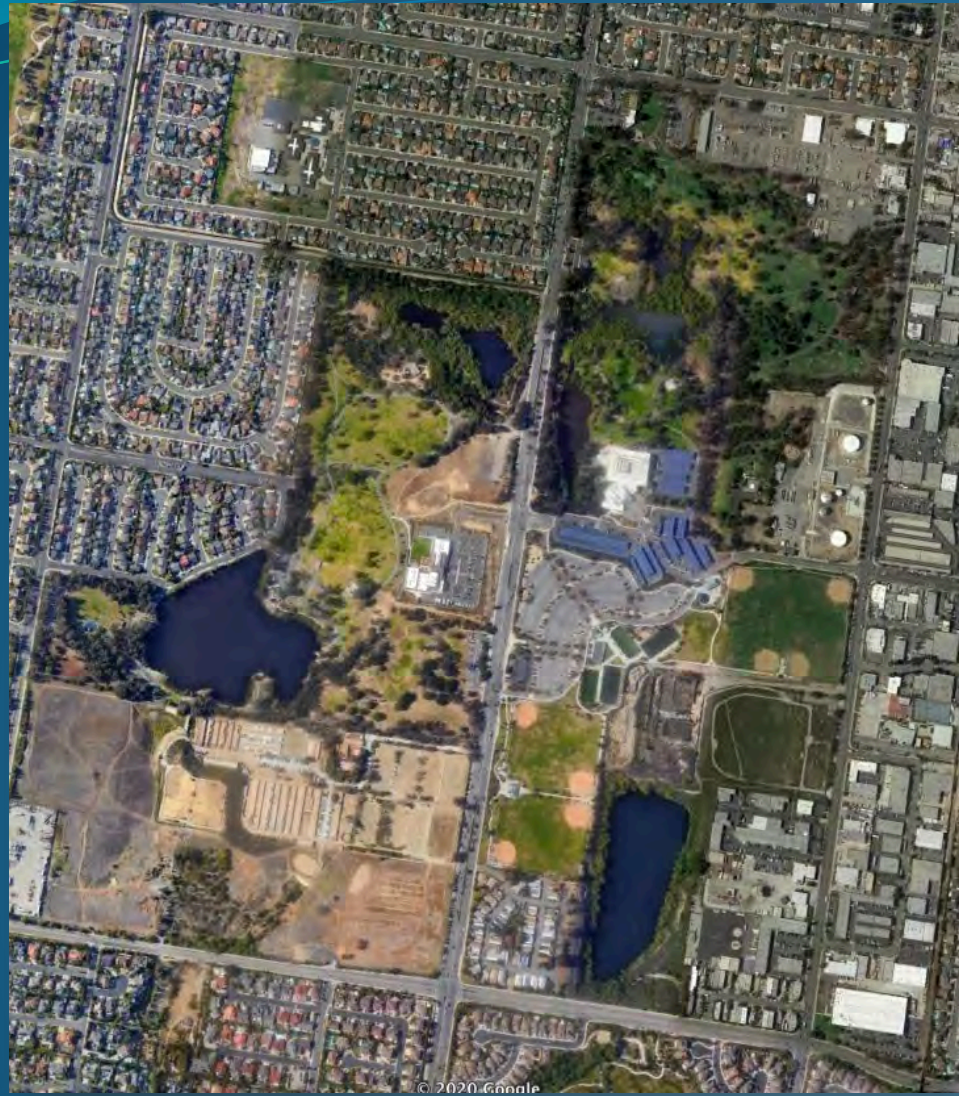


Water Efficiency Budget Assistance Request for Proposals

Ian Achimore | Senior Watershed Manager
November 10, 2020 | PA 22 Committee Meeting
Item 4.A.



Purpose of Replacement SARCCUP Task

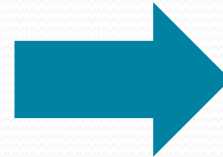
1. Use SARCCUP \$1.2 million conservation-based water rates task funding;
2. Help **5 to 10** retail agencies comply with State regulations that require water agencies to adhere to agency-wide water budgets (Senate Bill 606 and Assembly Bill 1668);
3. Provide **5 to 10** retail agencies with budgets to prepare them to eventually study/adopt conservation-based rates; and
4. Provide **5 to 10** retail agencies with information to target other water use efficiency programs to inefficient water users.



New Water Use Efficiency Legislation

Requires the following data to calculate agency-wide “objectives” (water budgets):

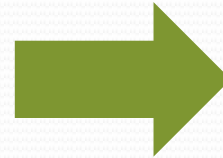
- A. Indoor residential.
- B. Outdoor residential.



Prop 1/USBR Project.



- C. Outdoor dedicated irrigation meters.



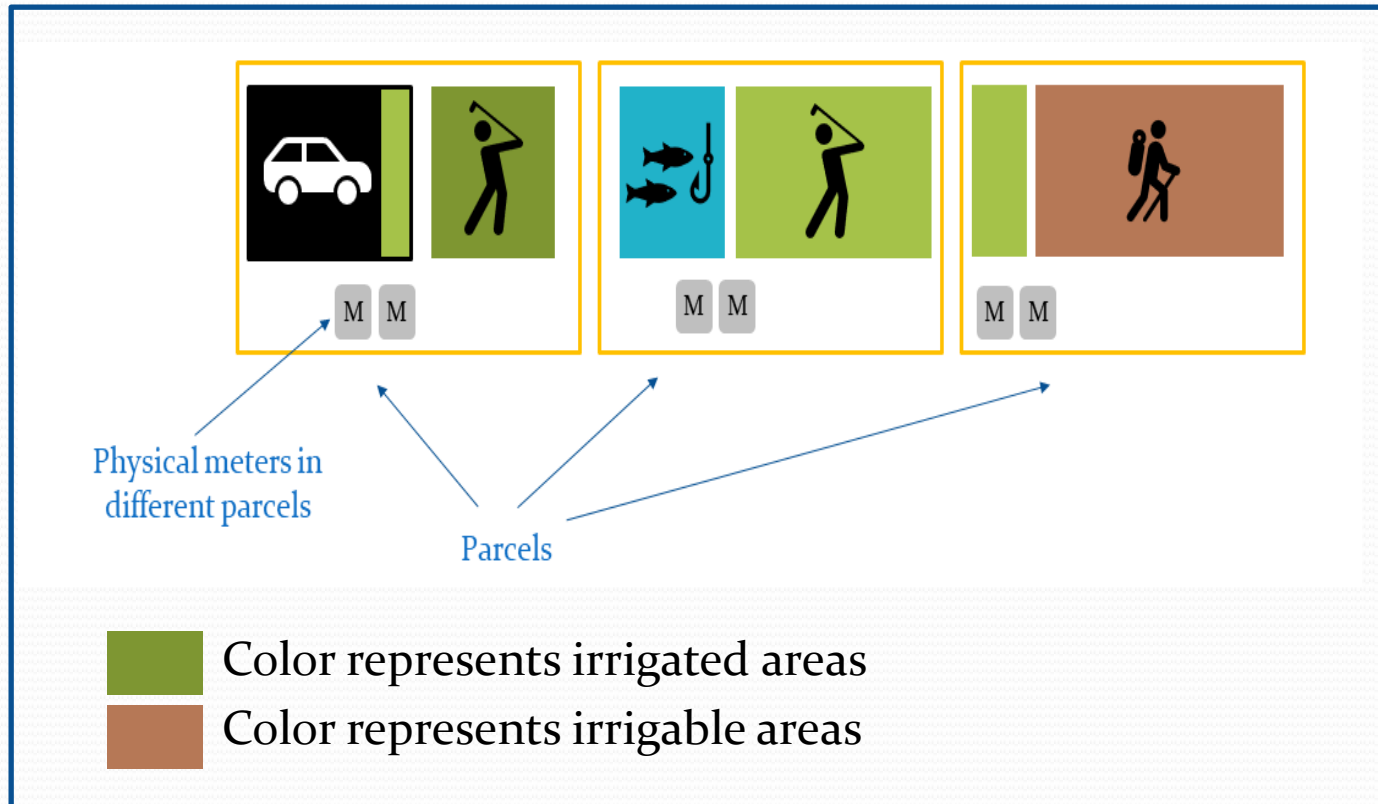
This Task



- D. Efficient water losses (pipe leaks).
- E. Approved variances (water use by horse corrals).

Dedicated Landscape Meter Customers

Conceptual Graphic of Customer

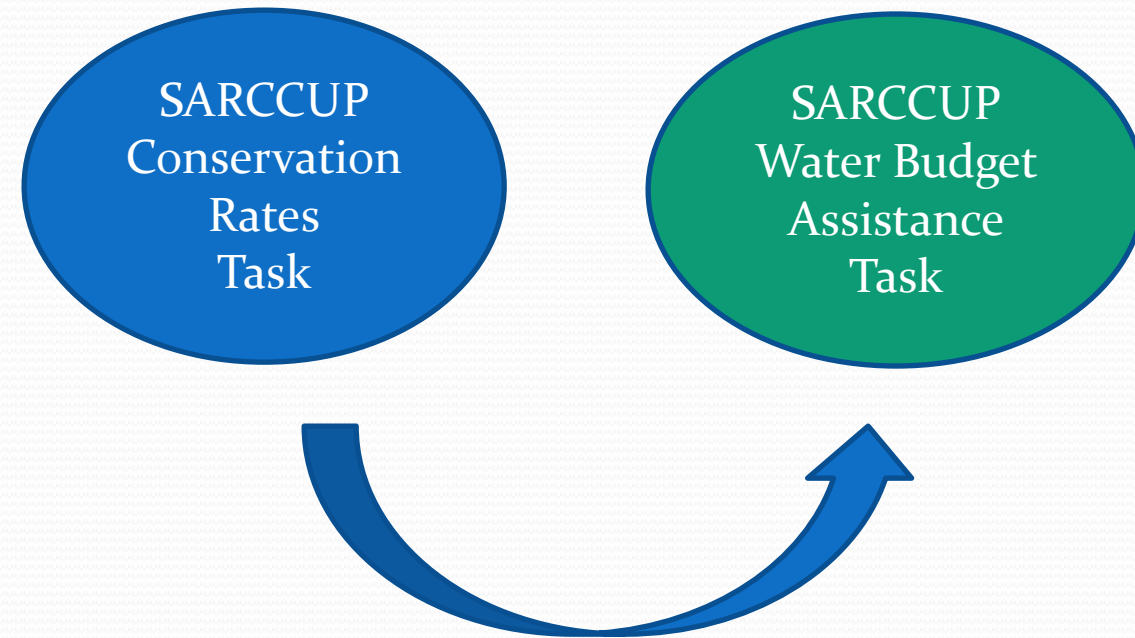


Real Customer



Recent PA 22 Activity Related to This Task

- **February 27, 2019***: SAWPA discuss helping agencies create efficiency budgets for dedicated irrigation meters.
- **June 27, 2019**: PA 22 Committee decides not to approve program changes to existing SARCCUP conservation-based rates task, wants to hear about potential replacement task focused on dedicated irrigation meter budgets; and
- **August 22, 2019**: PA 22 Committee authorizes staff to submit Amendment to Department of Water Resources for SARCCUP Grant Agreement (includes this new replacement task and removing water rates).



*Advisory Group meeting

SARCCUP Water Use Efficiency Budget

SARCCUP Task	Grant	Cost Share Total	Grant + Cost Share
Water Use Efficiency Task	\$503,933	\$1,148,067	\$1,652,000
Smartscape Sub-Task	\$217,856	\$210,686	\$428,542
Water Budget Assistance Sub-Task	\$286,077	\$937,381	\$1,223,458

Note: The latest DWR Grant Amendment did not change grant or cost share from original amounts the SAWPA member agencies have agreed to.

Consultant to Complete Two Major Assignments

1



- Data mining retail water agency billing software queries to determine dedicated irrigation customers, their physical location in the service area if available, and their water usage,
- Develop a list of these customers,
- Using information from the Customer-Interface Work (next slide), create georeferenced digitized area measurements through GIS software based on the information gathered via the Customer-Interface Work,
- Upload data from the Project into a web-based application.*

*Optional – depends on cost proposals

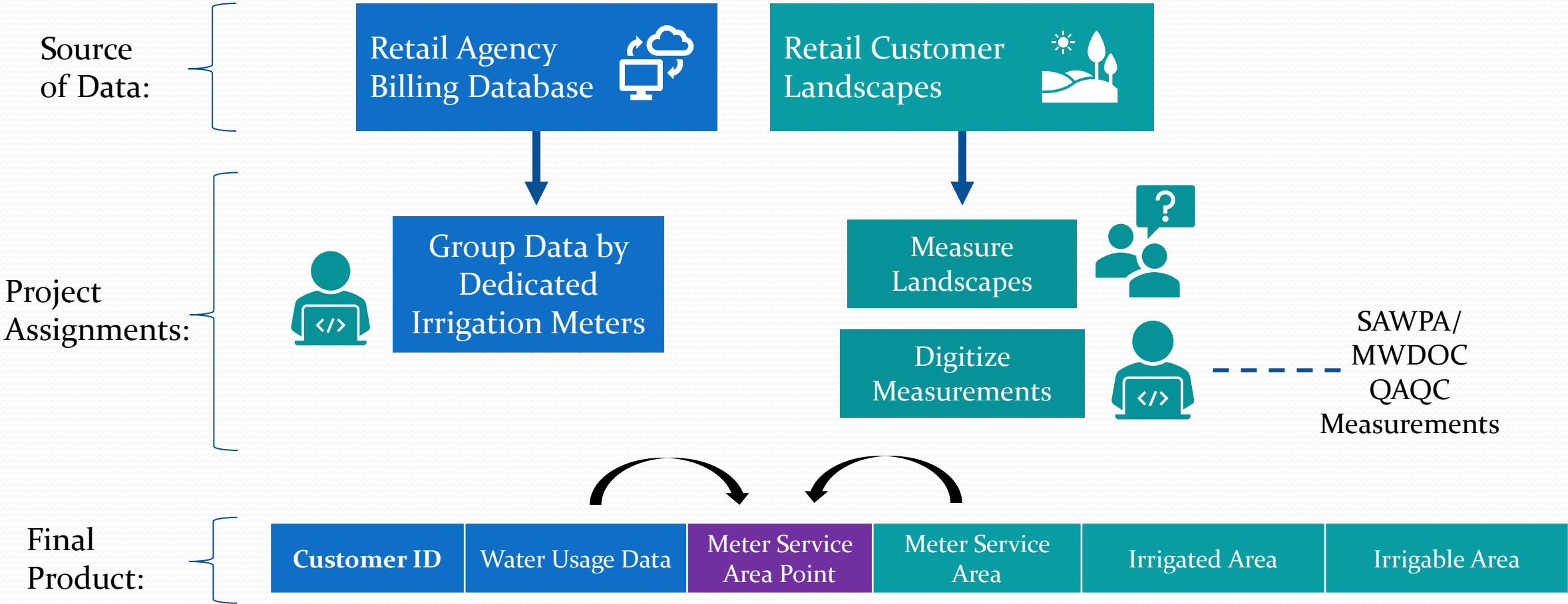
Consultant to Complete Two Major Assignments

2



- Interact with retail water agencies staff and their dedicated irrigation customers using the customer list from the GIS/Database Work (from previous slide),
- Calculate landscape measurements by working with water agency staff, customers, and/or property site managers.
 - Prioritize the use of remote sensing imagery; in field measurements to be used as last resort and special circumstances.

Relationship Between Assignments



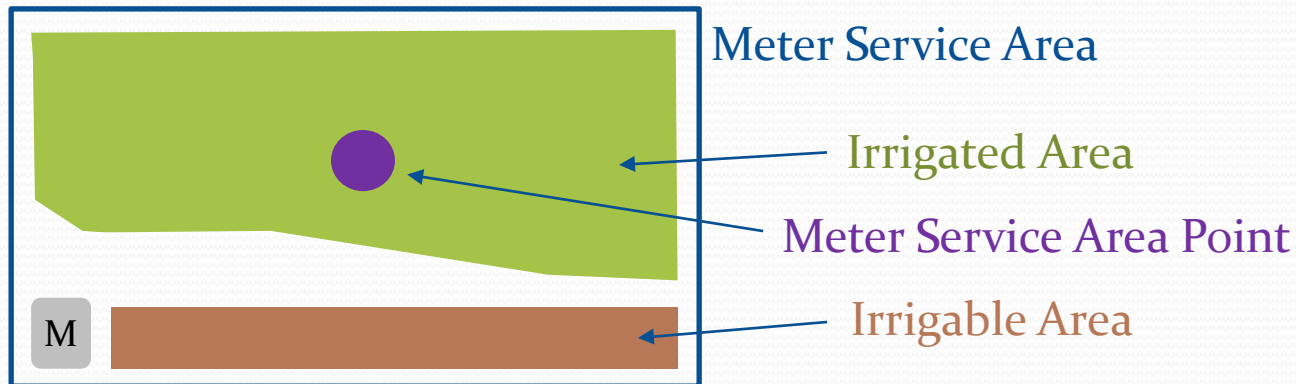
Note: the two datasets are joined by meter service area point (not customer IDs)

Final Products for Retail Partners

Table
Format

Customer Identifier	Meter Service Area	Meter Service Area Point	Irrigated/ Irrigable Area	Can Also Provide Access to ET Data to help create holistic efficiency budget
Customer Identifier	Meter Service Area	Meter Service Area Point	Irrigated/ Irrigable Area	
Customer Identifier	Meter Service Area	Meter Service Area Point	Irrigated/ Irrigable Area	
Customer Identifier	Meter Service Area	Meter Service Area Point	Irrigated/ Irrigable Area	

GIS
Format




How Landscape Measurements Are Utilized for Water Efficiency Budgets

Irrigable (or Irrigated) Area x **Reference* Evapotranspiration (ET) in Inches** x **ET Adjustment Factor** x **Conversion Factor from Inches to Gallons**

*Reference ET refers to ET for cool season turf grass that is consistently irrigated.

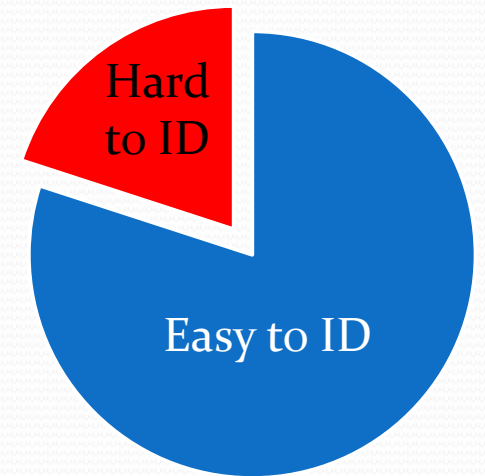
Filling in the Blank for the New Legislation



Residential Customer A, B, C...	Water Used	Budget
Dedicated Landscape Customer A, B, C...	Water Used	Budget = _____
Approved Variances	Water Used	Budget
Efficient Water Losses	Water Used	Budget
	Sum	≤ Sum

Other Observations

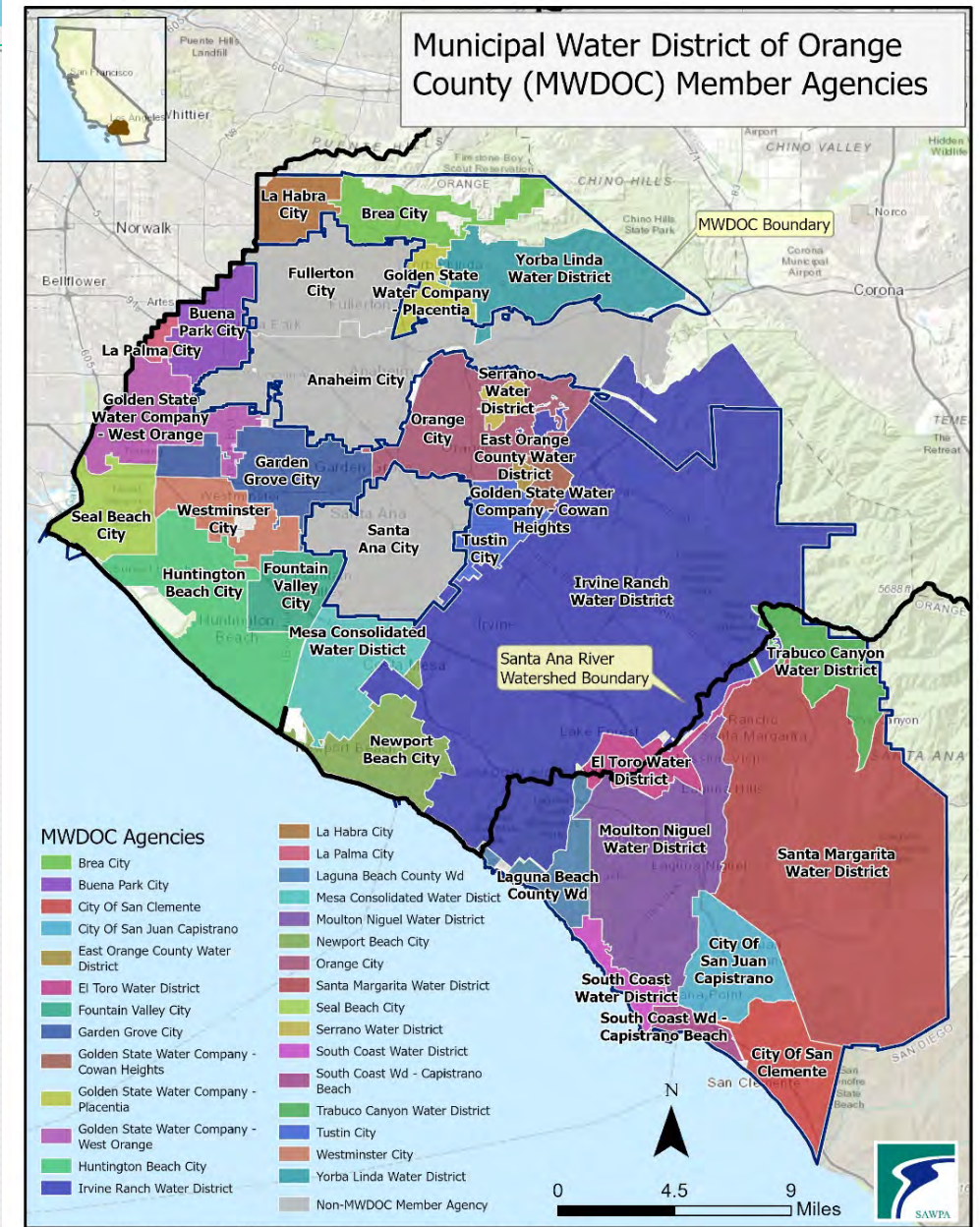
- 80/20 rule for how many dedicated irrigation meters are easily to identify in billing system;
- Advisory Workgroup supportive of focusing on public agency customers such as parks,
- State may take a phased-approach to requiring dedicated irrigation meter customers to have budgets (i.e. start with top 10% of water users),
- We've developed a list of about 10 potential firms and resource conservation districts who might be interested in this RFP.



MWDOC Utilizing RFP

For those retailers in OC that can't be covered under this Project, MWDOC will utilize this RFP to hire a consultant to perform the same level of services

Their governing board has approved a policy whereby they can utilize another agency's RFP if it meets certain standards.



Evaluation Criteria

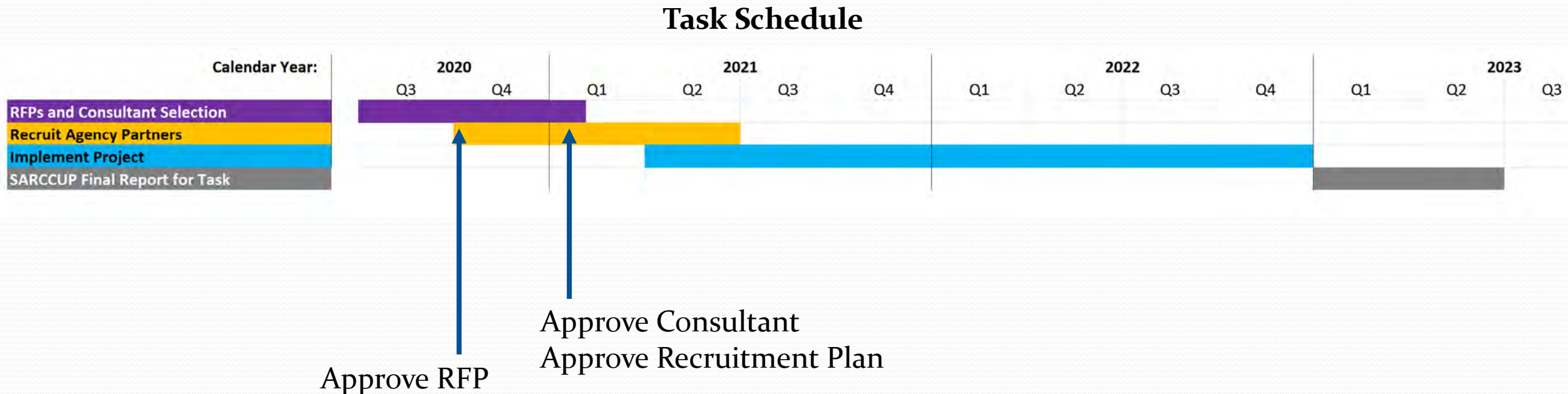
- A. Responsiveness to the RFP,
- B. Experience and qualifications of the assigned team of individuals,
- C. Project approach and understanding of needs,
- D. Appropriateness of proposed fees,
- E. Anticipated value and quality of services received.

Schedule

Milestone	Date
RFP Published	November 10, 2020
Responses Due	December 7, 2020
Consultant Interviews	Mid-December 2020
Recommendation to SAWPA's Governing Board	January 12, 2021
Recommendation to MWDOC's Governing Board	March 1, 2021
Execute Agreement with SAWPA	By January 22, 2021
Execute Agreement with MWDOC	March 17, 2021

Future Decision Points for PA 22 Committee

- 1) Approve recruit plan for retail agency partners and any cost share required by them to participate, and
- 2) Approve RFPs for consultants and contracts/budgets.



Recommendation

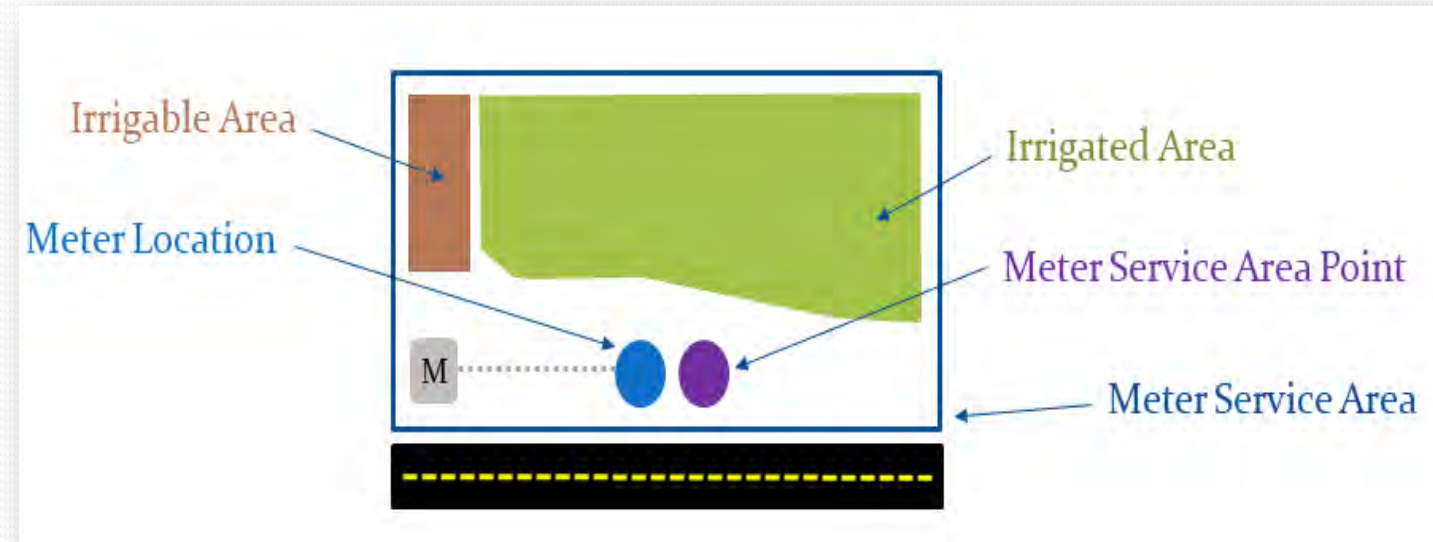
Approve the distribution of the Water Efficiency Budget Assistance Request for Proposals.



Additional Information on Meter Service Area Points if Needed

Meter Location vs. Meter Service Area Point

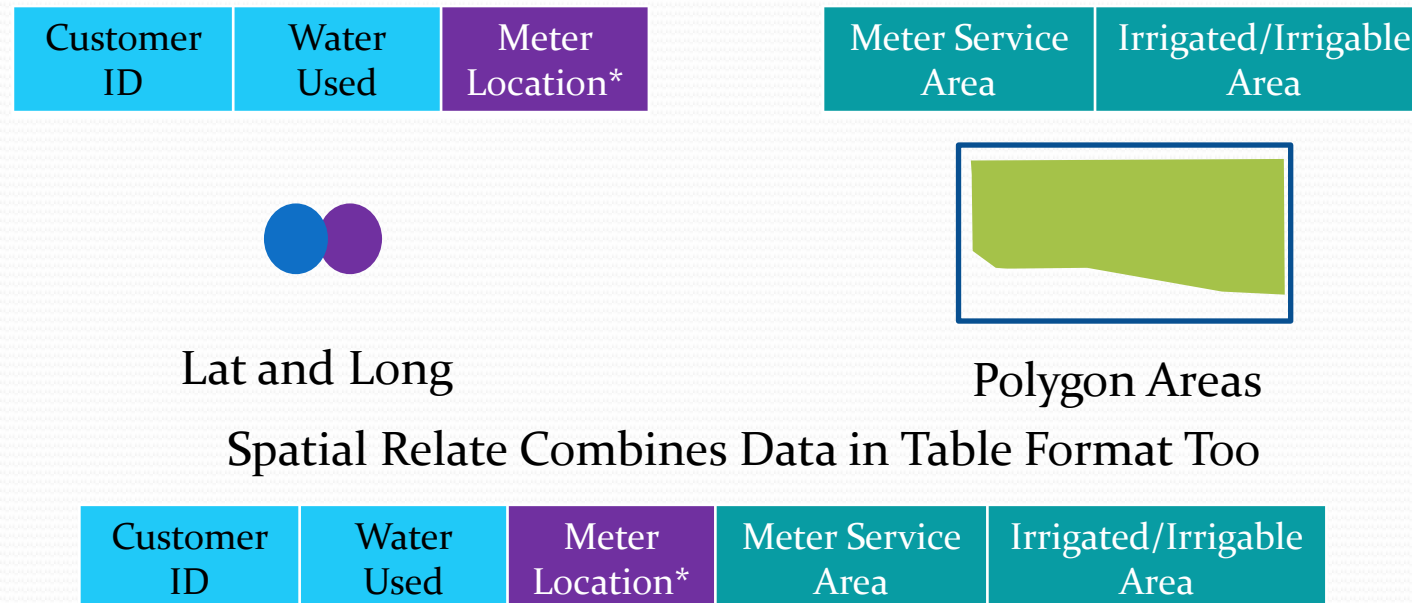
Graphical Representation of Dedicated Landscape Meter Customer



- **Meter Location** point may already exist and is created by different methods such as:
 - A coordinate a water meter technician has identified in the field for the physical meter location, or
 - A coordinate created by a “smart” meter where the coordinates are transmitted to a database.
- As long as they are in the Meter Service Area polygon, **Meter Service Area Point** and **Meter Location** are the same thing for our purposes (lat/long),
- They are just created using different processes.

Merging the Customer Info with the New Data from this Project

Merging of data in GIS through this method is called a “Spatial Relate”



*Meter Location or Meter Service Area Point

Update on the Enhancements to Watershed-Wide Water Budget Decision Support Tool

Ian Achimore | Senior Watershed Manager

November 10, 2020 | PA 22 Committee Meeting

Item 4.B.



Updates for Committee

- ▶ SAWPA has had discussions with Department of Water Resources, their consultant Quantum Spatial, and our project partner the US Bureau of Reclamation,
- ▶ Discussions have helped us prepare for the eventual analysis of the first batch of imagery we will receive by January 2021 for Orange County, and
- ▶ Discussions have helped SAWPA and the Bureau ensure we are not duplicating the State's efforts and learn from their existing image analysis efforts.

DWR/Quantum Project Information

- ▶ Imagery captured in summer 2018 by Eagle Aerial (another DWR Consultant),
- ▶ Imagery is 12-inch resolution; 4-band,
- ▶ All 400+ urban retailers* across the State will receive data in table format as well as imagery data,
 - ▶ Data are just for single family residential and multi-family residential,
 - ▶ Data not provided for other customers like CII and dedicated irrigation,
- ▶ DWR will provide a viewer tool for those retailers without GIS, and
- ▶ DWR recently stated their intention is that all 400+ retailers will still receive their data by January 1, 2021.



*Retailers that use over 3,000 AF of water annually or serve more than 3,000 urban connections.

Relationship to Our Enhanced Tool Project

Remote Sensing Processes Used:

- ▶ SAWPA/SRI* Process (Analysis Done 2015-2016).
 - ▶ Process: Classification of individual pixel by trained predictive model.
- ▶ DWR/Quantum Process (Analysis Done 2018-2020).
 - ▶ Process: Classification of super pixel by trained predictive model.
- ▶ SAWPA/USBR Process (Analysis to be Done 2021-2022).
 - ▶ Process: Still defining.



— BUREAU OF —
RECLAMATION

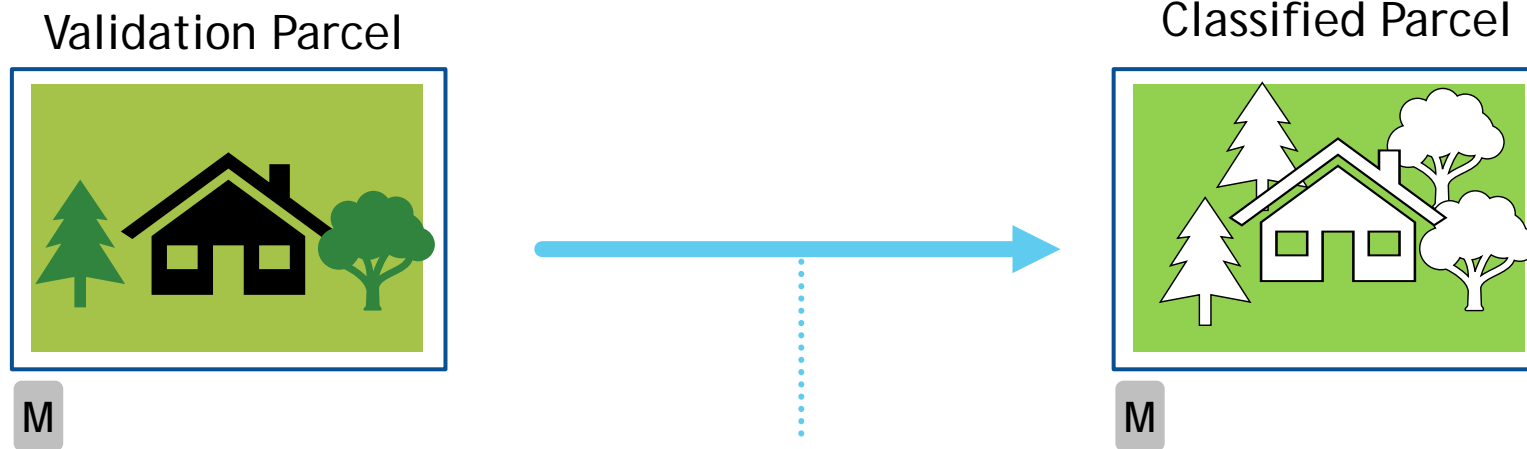
*Statistical Research Inc. (SRI) was SAWPA's consultant for the 2015 imagery analysis

Overview of DWR/Quantum Project

- ▶ DWR's contract with Quantum Spatial contains the stipulation that budgets must be within 5% of what can be classified manually ("heads up digitizing) by DWR staff and Formation Environmental (FE)
 - ▶ DWR/FE classify about 275 parcels for each of the retailers in building the model
- ▶ Quantum "heads up digitize" validation/reference parcels in a retailer's service area,
 - ▶ Those validation/reference parcel data is extrapolated to other parcels ("classified parcels") in the service area, and
 - ▶ Results are QA/QC'd as newly classified parcels from Quantum Spatial are compared to DWR/FE's analyzed parcels using different statistical methods,
 - ▶ If QA/QC thresholds aren't met, they introduce more validation/reference parcels.



DWR/Quantum's Remote Sensing Effort is a Predictive Model

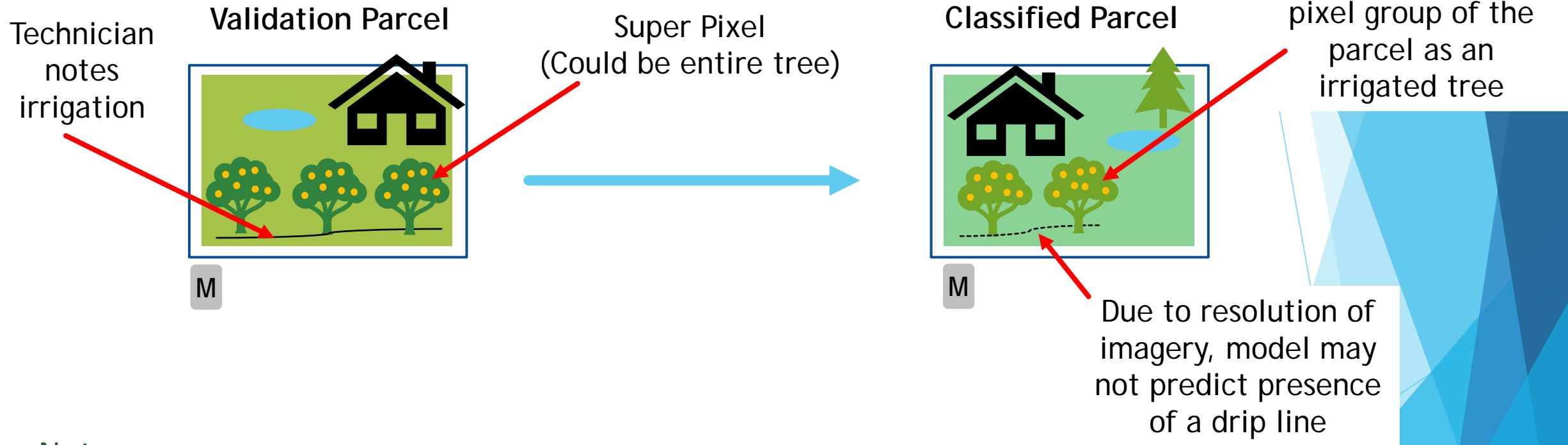


How Does it Extrapolate
Data to Other Parcels?

30+ Variables Including:

- Normalized difference vegetation index range on in-parcel veg
- Assessor parcel number
- Size of parcel
- Complexity of parcel border lines
- Proximity of parcel to reference

How DWR/Quantum Predict Landscape Type and Location



Notes:

- Super pixel gets documented in classification list.
- Classification list used by GIS software and artificial intelligence to predict what each 12-inch pixel in the non-reference classified parcel represents per the DWR landscape definitions.

DWR Landscape Definitions and Level of Work

DWR Classification Code	QSI Reference Code	QSI Description
1 - Irrigated	2A	Pools
	3A	Turf
	3B	Canopy
	3C	Ground Cover
	3D	Bare Earth
	3E	Moveable objects on irrigated surface
	3F	Trampolines on irrigated surface
	7	Horse Corrals Mask ** Class NOT used during Parcel Object classification.
2 - Irrigable, Not Currently Irrigated	4A	Turf
	4B	Canopy
	4C	Ground Cover
	4D	Bare Earth
	4E	Moveable objects on irrigable, not currently irrigated, surface
	4F	Trampolines on irrigable, not currently irrigated, surface
3 - Not Irrigable	1A	Structures and decks
	1B	Roads
	1C	Concrete, pavers, and brick
	1D	Empty slot
	1E	Other objects
	1F	Vehicles or tractors on roadways or driveways.
	5B	Canopy
	5C	Ground Cover
	5D	Bare Earth
	5E	Moveable objects on impervious or not irrigable surfaces
	5F	Trampolines on impervious or not irrigable surfaces
	8A	Open Water
	9A	Artificial Turf
	6	Undeveloped Lands Mask ** Class NOT used during Parcel Object classification.
10	Agricultural Lands Mask ** Class NOT used during Parcel Object classification.	

- Quantum Team (17 people) meets every 2 weeks,
- 2 Year effort to work with DWR on adding/refining 29 sub-categories under the three classifications

Next Steps with USBR



— BUREAU OF —
RECLAMATION

- ▶ Develop our “super pixels” through training datasets,
 - ▶ Training datasets will likely be 1 square mile grids from 3-inch 4 band 2015 imagery SRI analyzed.
- ▶ Develop our QA/QC approach,
 - ▶ Approach may utilize random sampling methods per the professional standards of the National Park Service and the Imaging and Geospatial Information Society.
- ▶ Work with the SAWPA member agencies and MWDOC to ensure we are capturing for the variability of landscape types in their service areas,
- ▶ OC imagery available likely in January 2021.

Questions



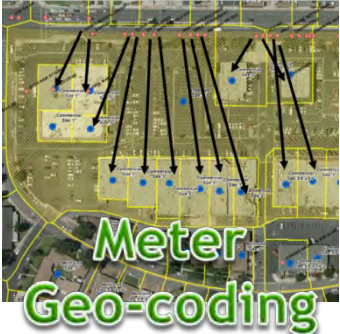
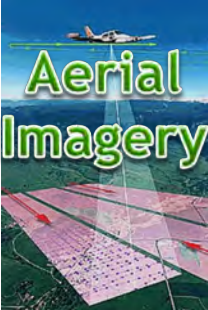
Emergency Drought Grant Program - Retention Release

Ian Achimore | Senior Watershed Manager
November 10, 2020 | PA 22 Committee Meeting
Item 4.C.



Projects included in Drought Grant Program

Project 1: Conservation Based Reporting Tools and Rate Structure Implementation

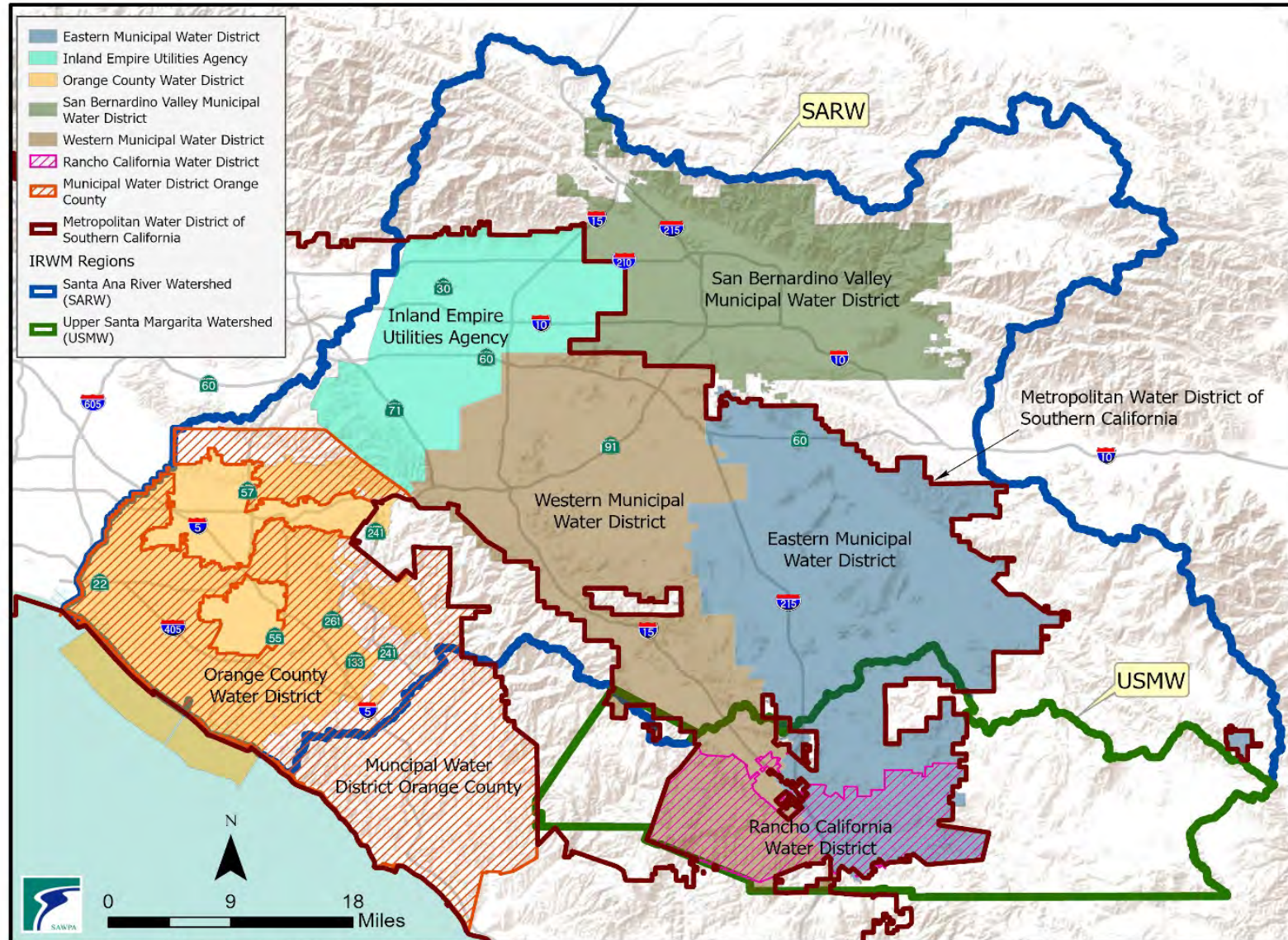


Project 2: High Visibility Turf Removal and Retrofit



*Tasks/projects

Agencies Involved in Turf Retrofit

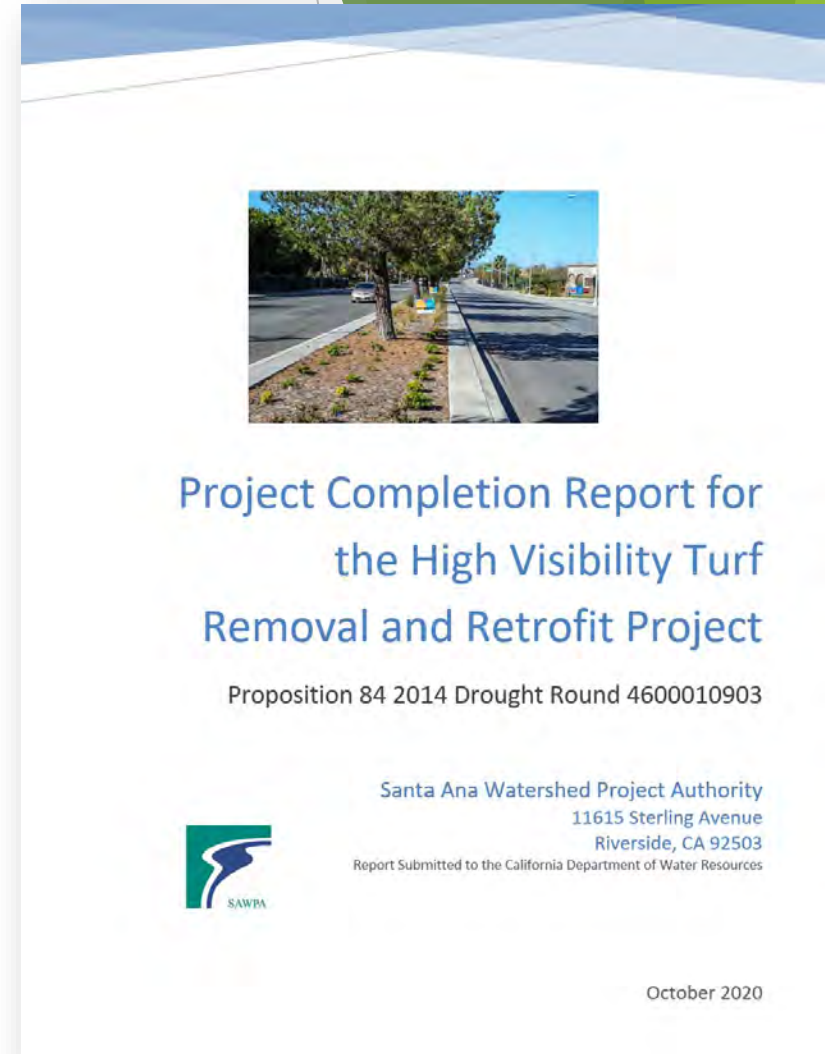


Retention Release for Turf Retrofit

- ▶ Project Completion Report submitted to DWR,
- ▶ Allows for retention (shown below) to be released in approximately three months.

Partner Agency	Grant Paid	Retention
EMWD	\$1,640,350.29	\$180,627.00
IEUA*	\$1,209,556.83	\$87,308.32
OCWD	\$872,815.00	\$91,684.00
SBVMWD	\$745,649.10	\$82,849.90
WMWD	\$965,057.90	\$63,535.66
RCWD	\$521,920.07	\$28,824.45
Total	\$5,955,349.19	\$534,829.33

*Includes \$2,000 retention for OmniEarth \$40,000 invoice that will be released at a later date.



Turf Removal Benefit from Project

Benefits Included in Grant Application

	SARW	USMW	Total
Turf Removal Benefit (SF)	4,000,000	950,000	4,950,000
Associated Water Benefit (AFY)	540	128	668

Grant Application vs Actual SF Turf Removal

IRWM Region	SF Amount from Application	SF Actual Amount	Percent of Application (%)	Actual AF Water Savings
Santa Ana River	4,000,000	8,074,885	202%	1,090
Upper Santa Margarita	950,000	1,573,730	166%	212
Total	4,950,000	9,648,615	195%	1,302

Questions

