

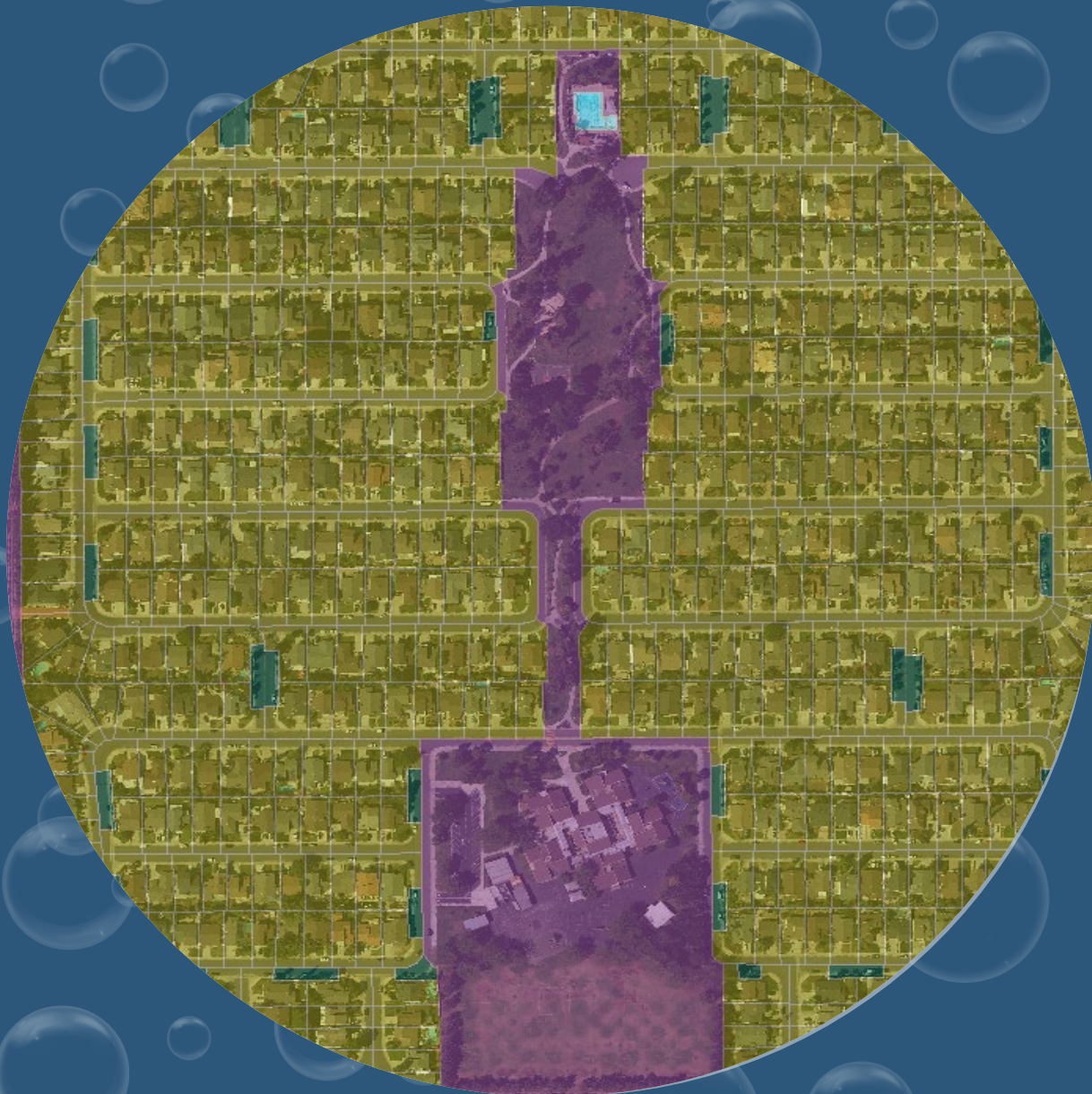
This presentation premiered at WaterSmart Innovations

watersmartinnovations.com





Irvine Ranch
WATER DISTRICT



METER TO PARCEL PROJECT

Enrique Zanetti

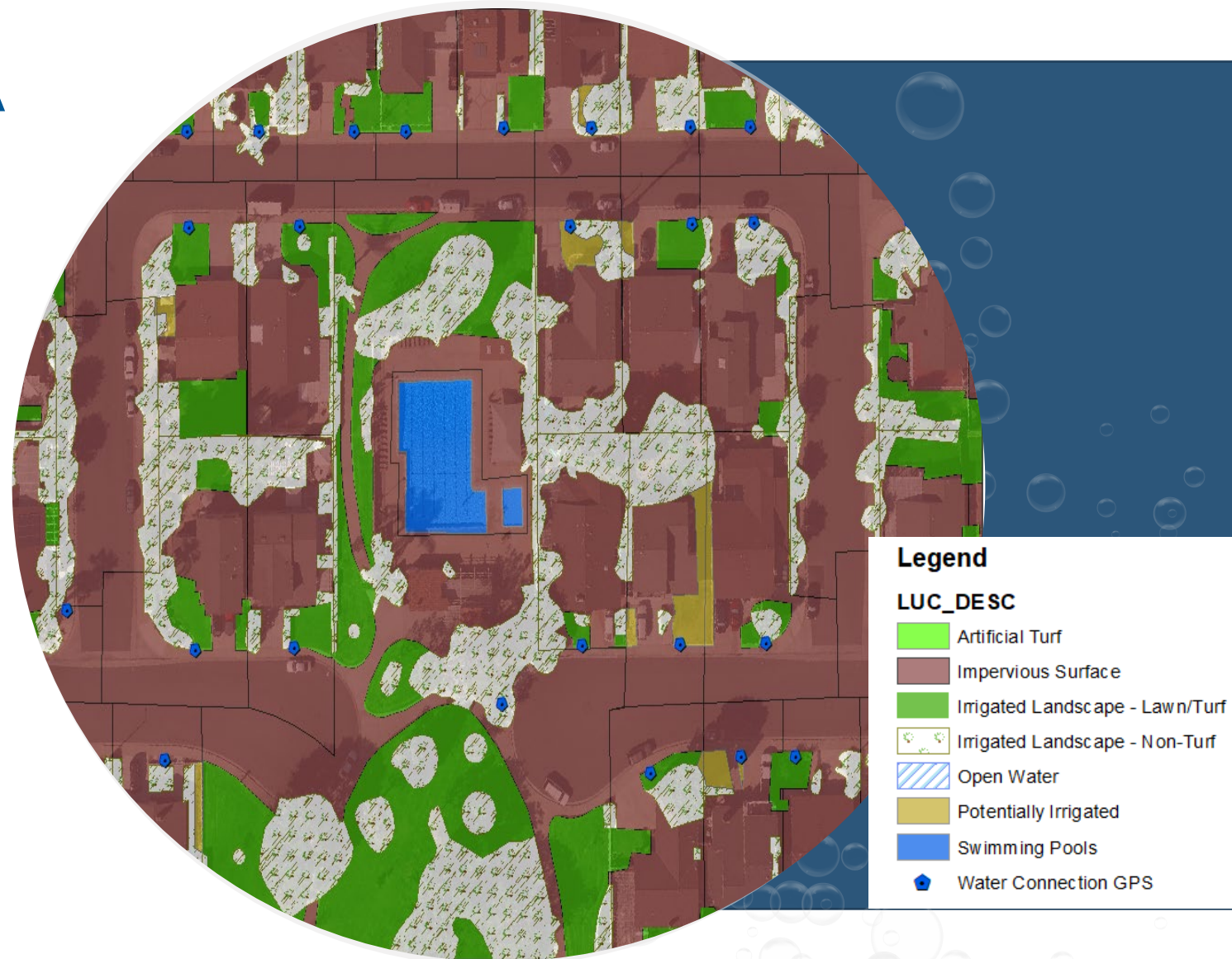
Senior Water Efficiency Analyst

WaterSmart Innovation

October 2021

PRESENTATION AGENDA

- IRWD facts
- Meter to Parcel Project
 - Objectives
 - Background
 - Methodology
 - Combining Data Sources
 - Final Product
 - Future Application
 - Next Steps
- Q&A





Irvine Ranch
WATER DISTRICT

IRWD FACTS

IRVINE RANCH WATER DISTRICT FACTS



181 square miles

20% of Orange County



600,000

Daytime population

425,000

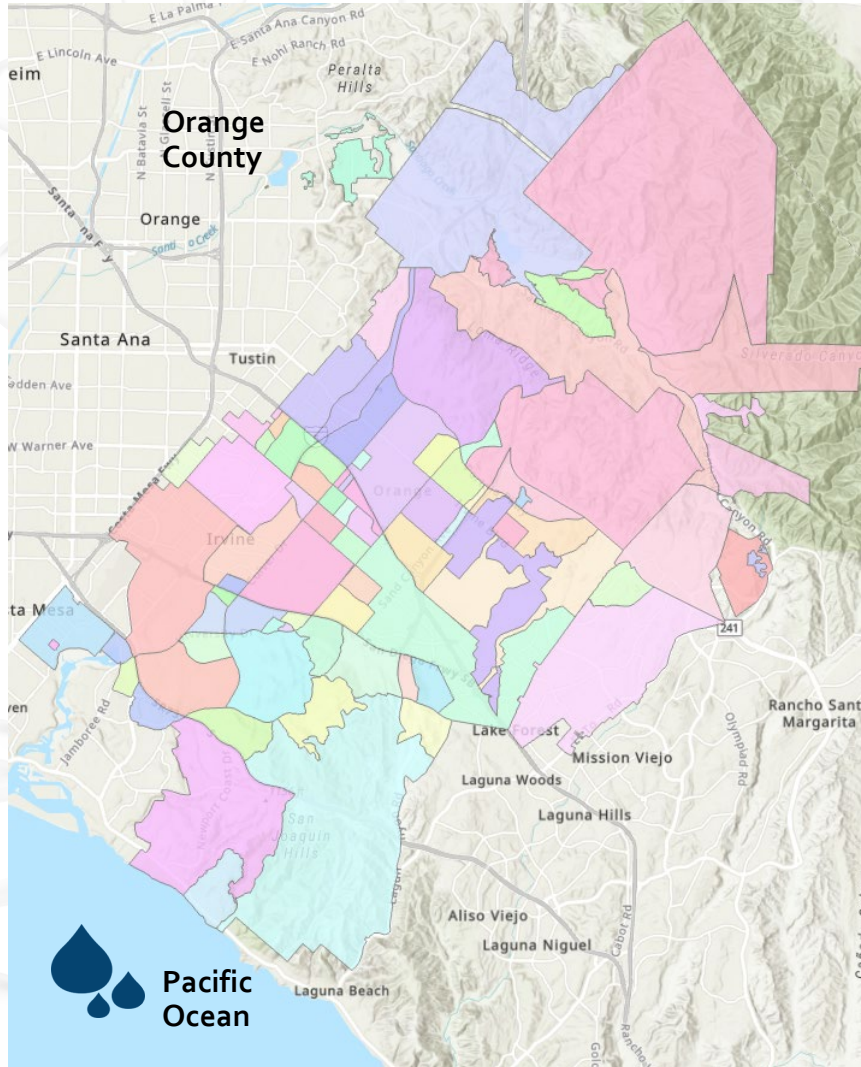
Residents served



Six cities served

- Irvine
- Lake Forest
- Newport Beach
- Tustin
- Costa Mesa
- Orange
- Unincorporated Orange County

IRVINE RANCH WATER DISTRICT FACTS



85
Villages



125,400
Water connections



107,282
Water connections serve landscape



Budget-based rate structure
Indoor budget + Outdoor budget



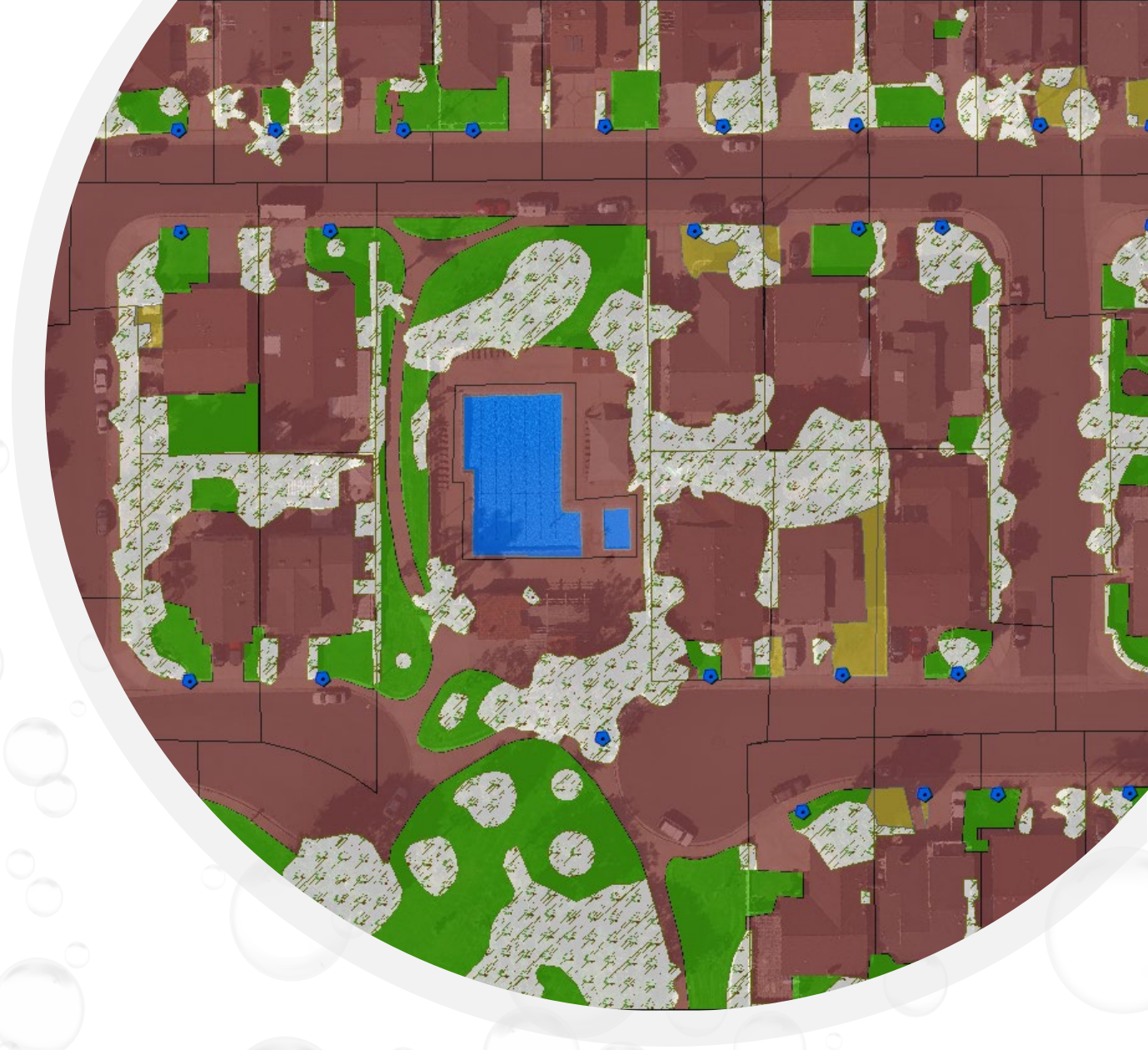
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OBJECTIVES

OBJECTIVES

Improve the District's data accuracy of irrigated landscape area

Provide an alternative methodology to the Department of Water Resources' (DWR) approach for calculating outdoor water budgets





Irvine Ranch
WATER DISTRICT










METHODOLOGY

Legend

Water Connection


- LI-R-W
- R-SF-WS




Symbol	Service Connection ID	Service Type	System	Irrigated Landscape Area (acres)
	6795610408	Landscape Irrigation Water	Recycled	0.928
	8307710184	Landscape Irrigation Water	Recycled	1.019
	8620710606	Landscape Irrigation Water	Recycled	0.934
	0982710075	Residential Single-Family Water & Sewer	Potable	0.173
	3882710071	Residential Single-Family Water & Sewer	Potable	0.062
	4882710072	Residential Single-Family Water & Sewer	Potable	0.053
	4982710076	Residential Single-Family Water & Sewer	Potable	0.130
	5882710073	Residential Single-Family Water & Sewer	Potable	0.043
	6882710074	Residential Single-Family Water & Sewer	Potable	0.040










Legend

Water Connection

 LI-R-W


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Legend

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Legend

Water Connection

 LI-R-W

 R-SF-WS



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Legend

Water Connection

●

LI-R-W

▲

R-SF-WS



METHODOLOGY – PREPARING DATA

Identify water connections serving landscape in the billing system
(107,282 connection to map)

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Classify the water connections into two groups according to whether they will require field validation to create the map or not

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In-Office mapping (≈ 98,000 connections)
Residential single-family, residential multi-family individual and master metered with no common landscape area

METHODOLOGY – PREPARING DATA

Identify water connections serving landscape in the billing system
(107,282 connection to map)

Classify the water connections into two groups according to whether they will require field validation to create the map or not

In-Office mapping ($\approx 98,000$ connections)
Residential single-family, residential multi-family individual and master metered with no common landscape area

In-Field mapping ($\approx 9,000$ connections)
Dedicated landscape irrigation, commercial-industrial-institutional mixed use, agricultural and residential multi-family master metered with common landscape area.

METHODOLOGY - IN-OFFICE MAPPING PORTION

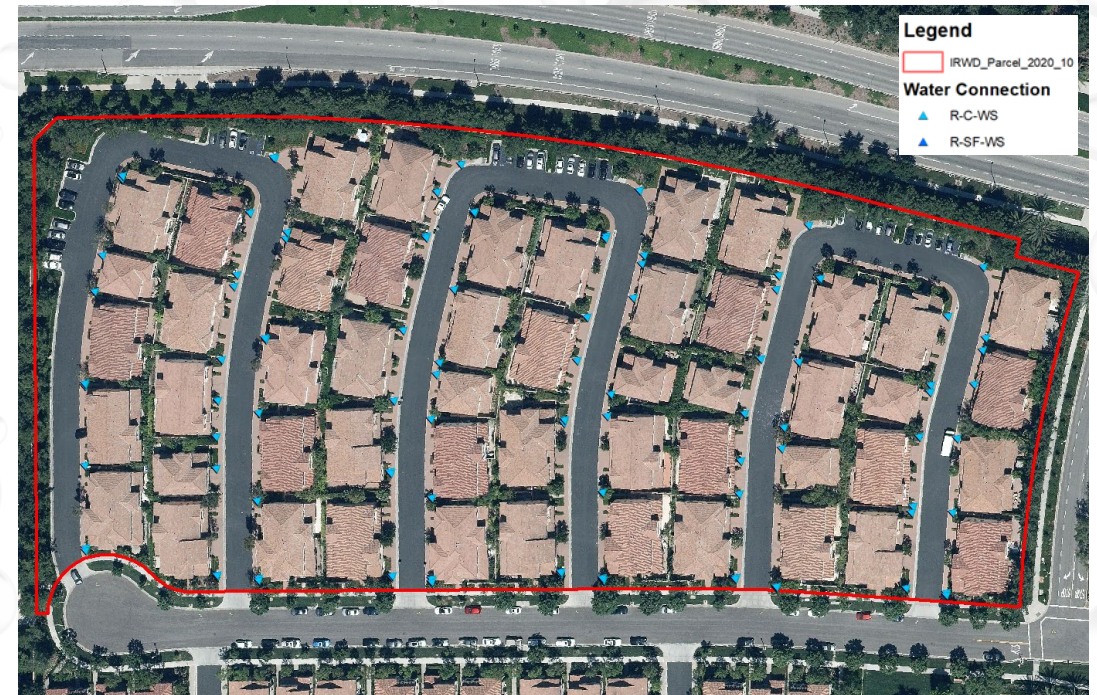
In-Office mapping ($\approx 98,000$ connections)

Meter to parcel relationship: one-to-one

- About 63,800 water connections
- The parcels are used as a starting point to define the landscape area associated with each water connection

Meter to parcel relationship: many-to-one

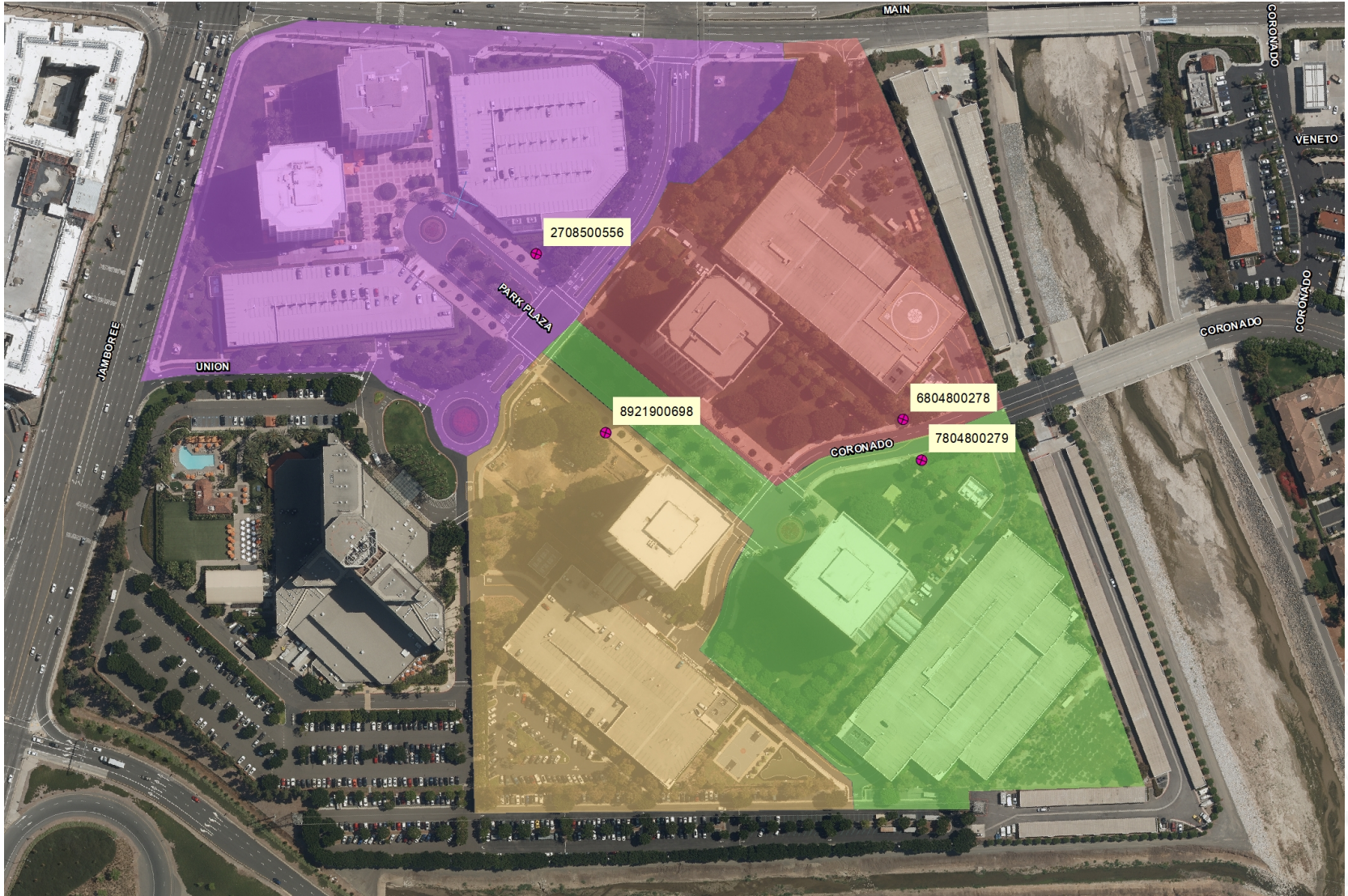
- About 34,200 water connections.
- The parcels cannot be used as a starting point to define the landscape area associated with each water connection.
- The landscape area associated with those connections cannot be mapped at this stage.



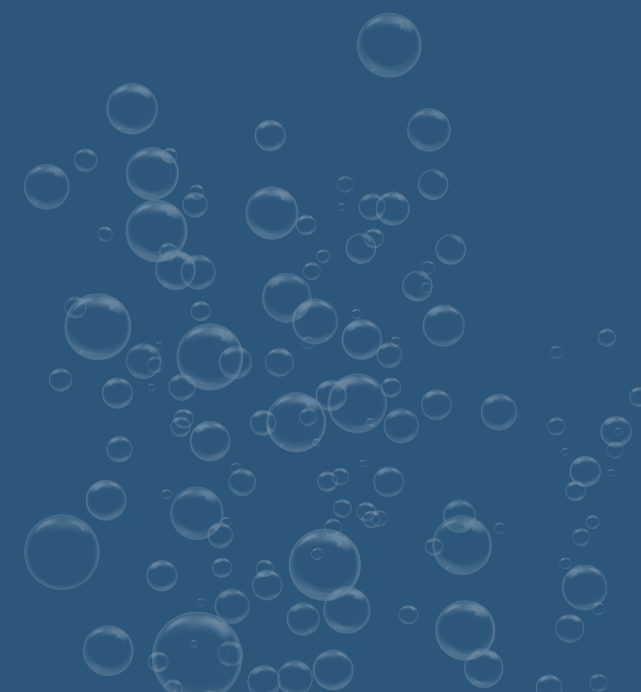
METHODOLOGY - FIELD SURVEY



METHODOLOGY - FIELD SURVEY



COMBINING DATA SOURCES



COMBINING DATA SOURCES

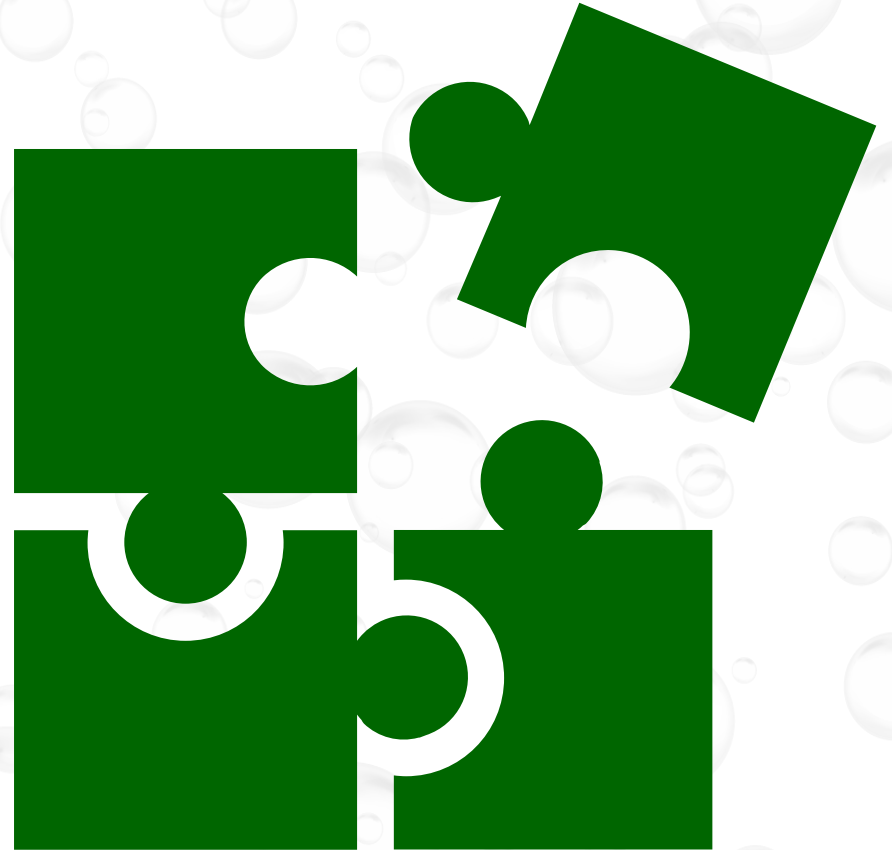
Field data takes prevalence over in-office data

Extend residential parcel to cover gaps

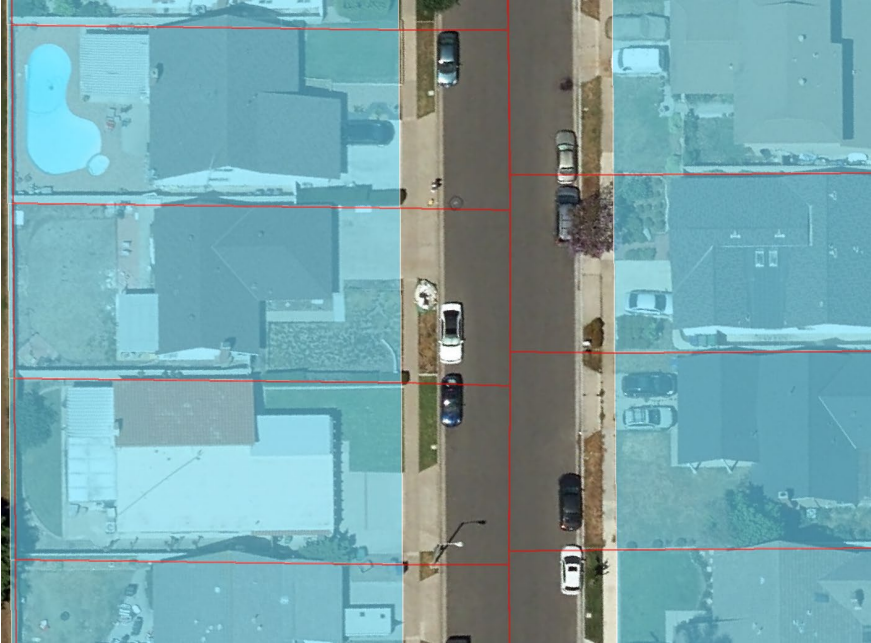
Cut residential parcel when overlapping

Fill gaps in residential areas

Resolve potential issues in data with the field teams



COMBINING DATA SOURCES



Extend parcels



Cut parcels



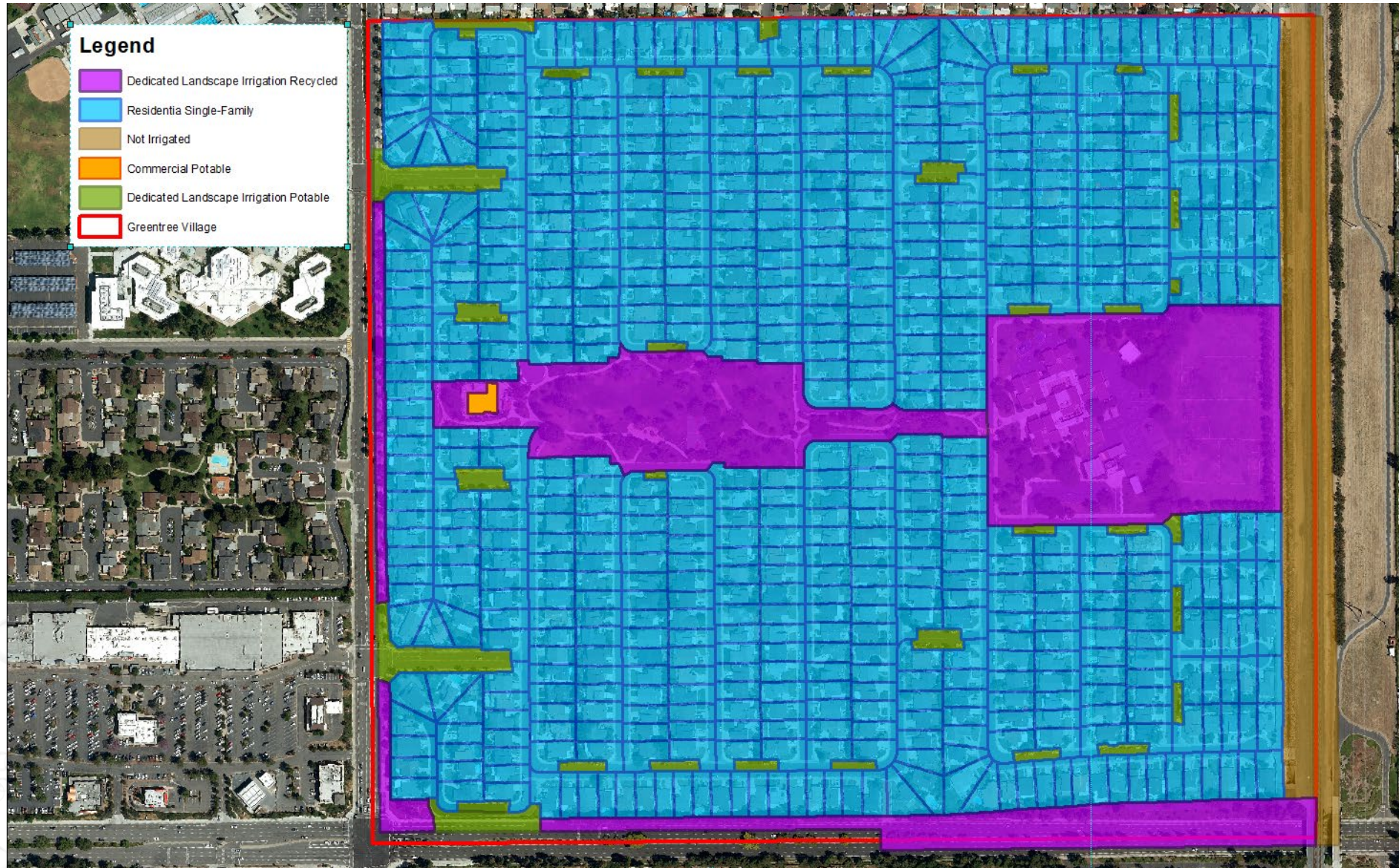
Create parcels



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WATER DISTRICT

FINAL PRODUCT


FINAL PRODUCT



IMPROVED DATA ACCURACY OF IRRIGATED LANDSCAPE AREA




IMPROVED DATA ACCURACY OF IRRIGATED LANDSCAPE AREA

Symbol	Service Connection ID	Service Type	System	Irrigated Landscape Area (acres)
	14853A0495	Landscape Irrigation Water	Recycled	9.50




IMPROVED DATA ACCURACY OF IRRIGATED LANDSCAPE AREA

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IMPROVED DATA ACCURACY OF IRRIGATED LANDSCAPE AREA

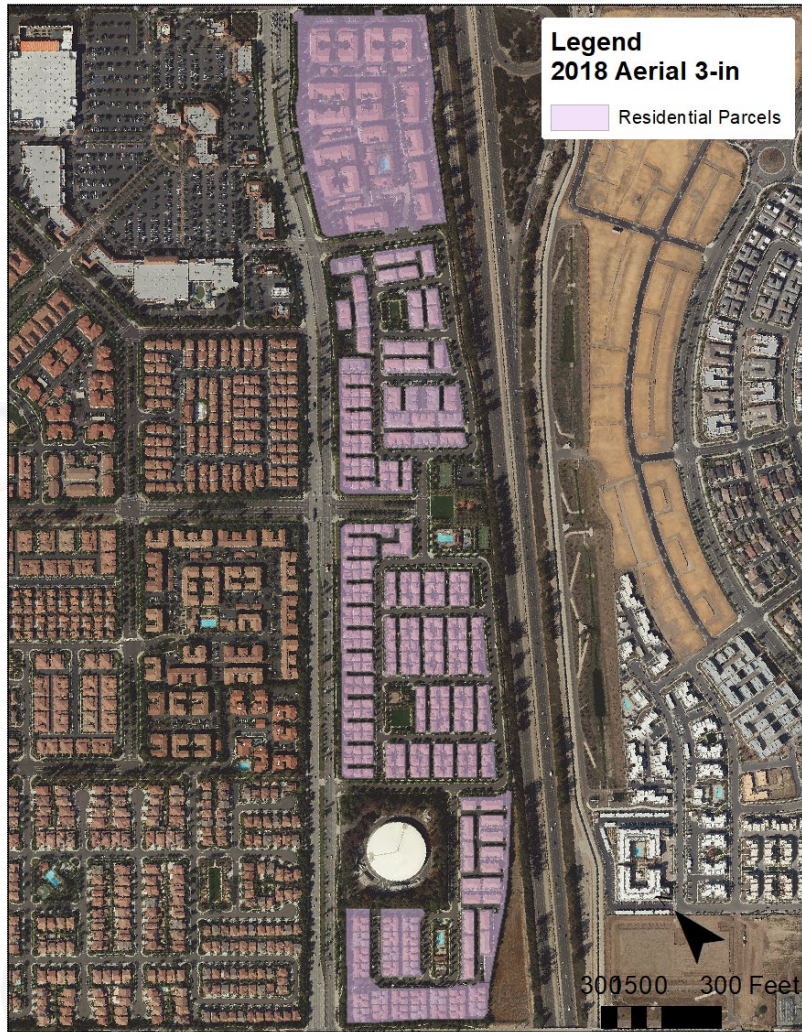


Symbol	Service Connection ID	Service Type	System	Irrigated Landscape Area (acres)	AGRICULTURE (sq-ft)	ARTIFICIAL TURF (sq-ft)	IRRIGATED LANDSCAPE LAWN/TURF (sq-ft)	IRRIGATED LANDSCAPE NON-TURF (sq-ft)	POTENTIALLY IRRIGATED (sq-ft)	NATURAL LANDS (sq-ft)	OPEN WATER (sq-ft)	POTENTIALLY IRRIGATED (sq-ft)	SWIMMING POOLS (sq-ft)
	14853A0495	Landscape Irrigation Water	Recycled	9.50	-	-	78,378	329,897	13,168	-	-	-	-

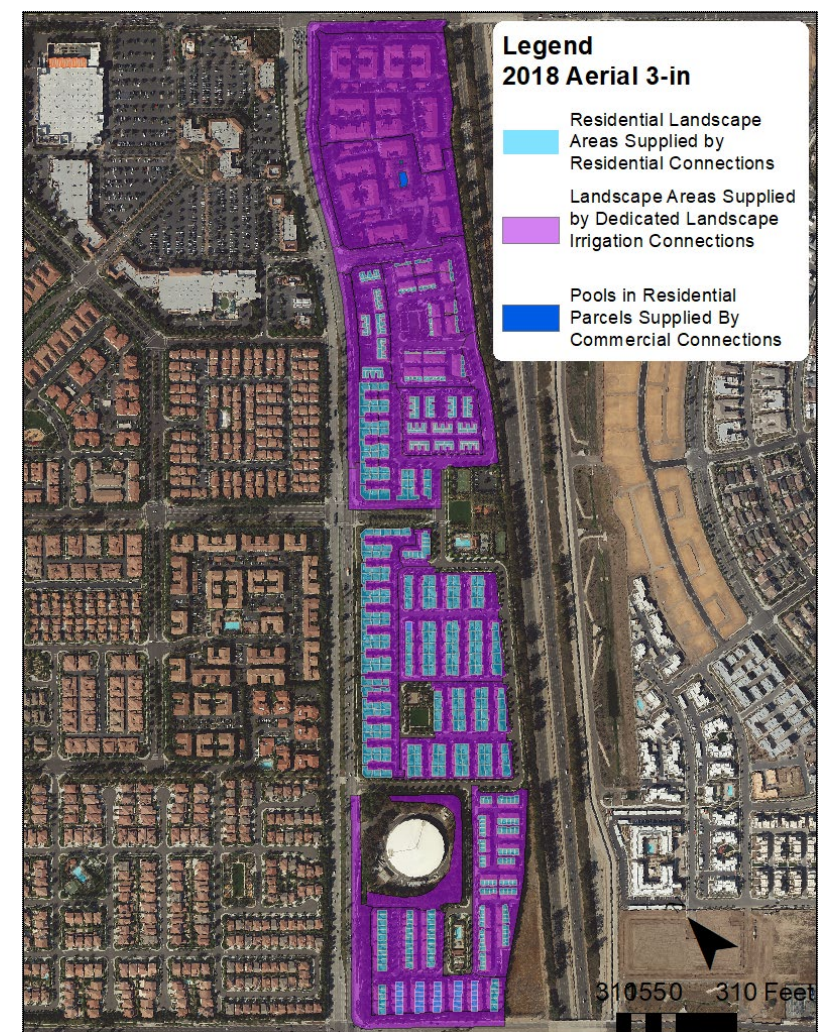
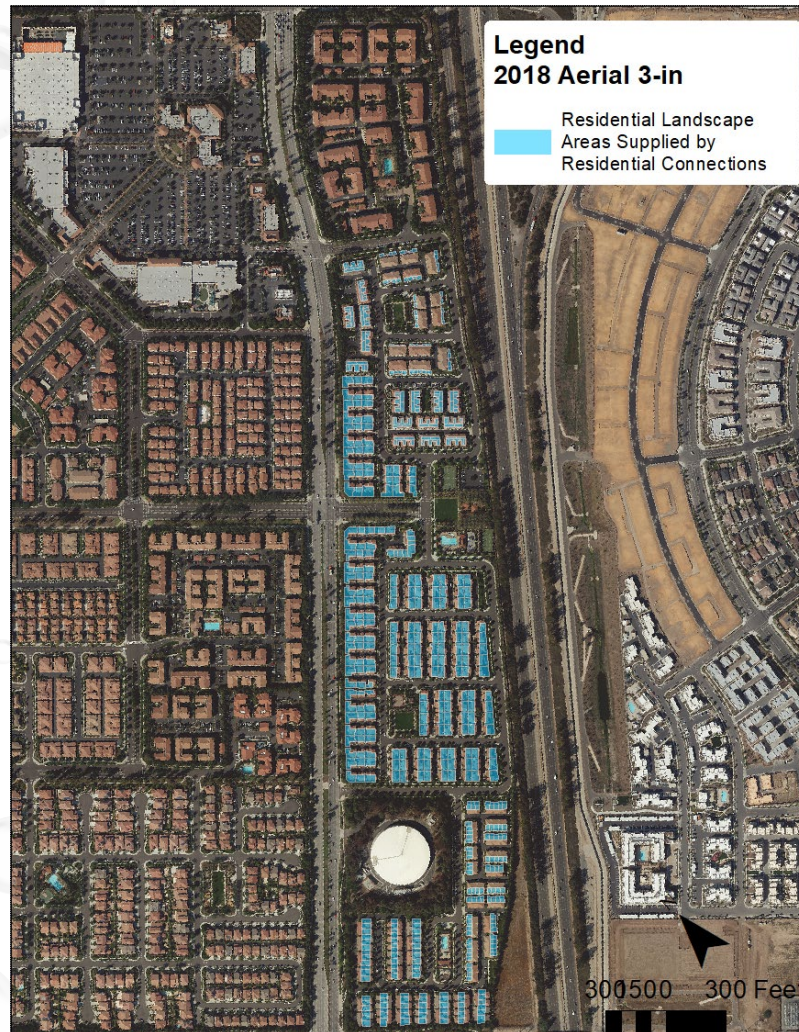


CUSTOMER TYPE VERIFICATION

DWR Data: Parcels selected based on Land Use Codes



IRWD Data: landscape areas created based in field mapping, parcel data and aerial imagery



ADDITIONAL BENEFITS FOR THE DISTRICT

Improve accuracy of GIS data

Improve accuracy of billing data

Identify illegal connections





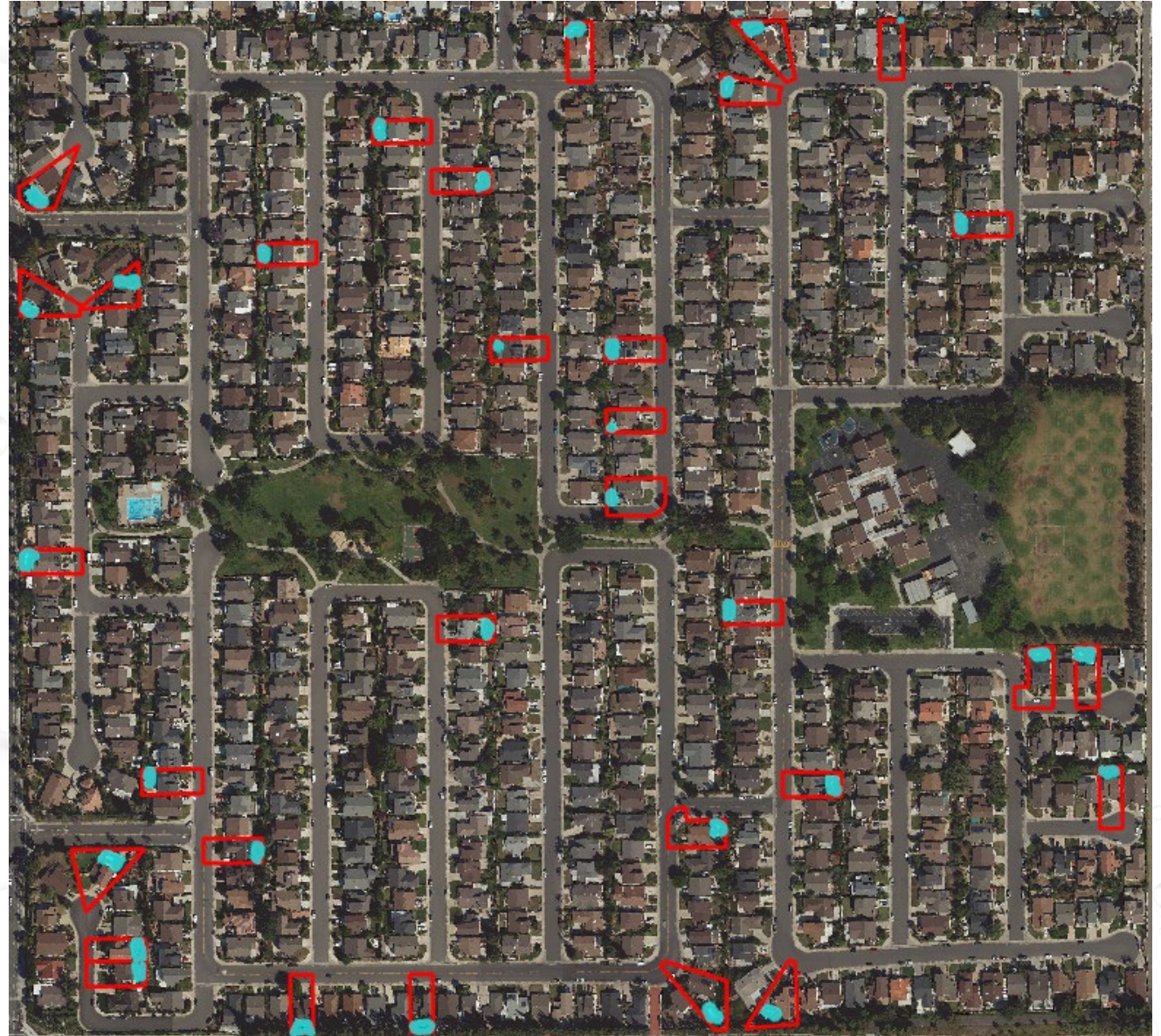
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FUTURE APPLICATIONS

DESIGN AND TARGET WATER EFFICIENCY PROGRAMS

Water Feature Improvement Program

Query: to extract residential houses having pool inside Greentree village

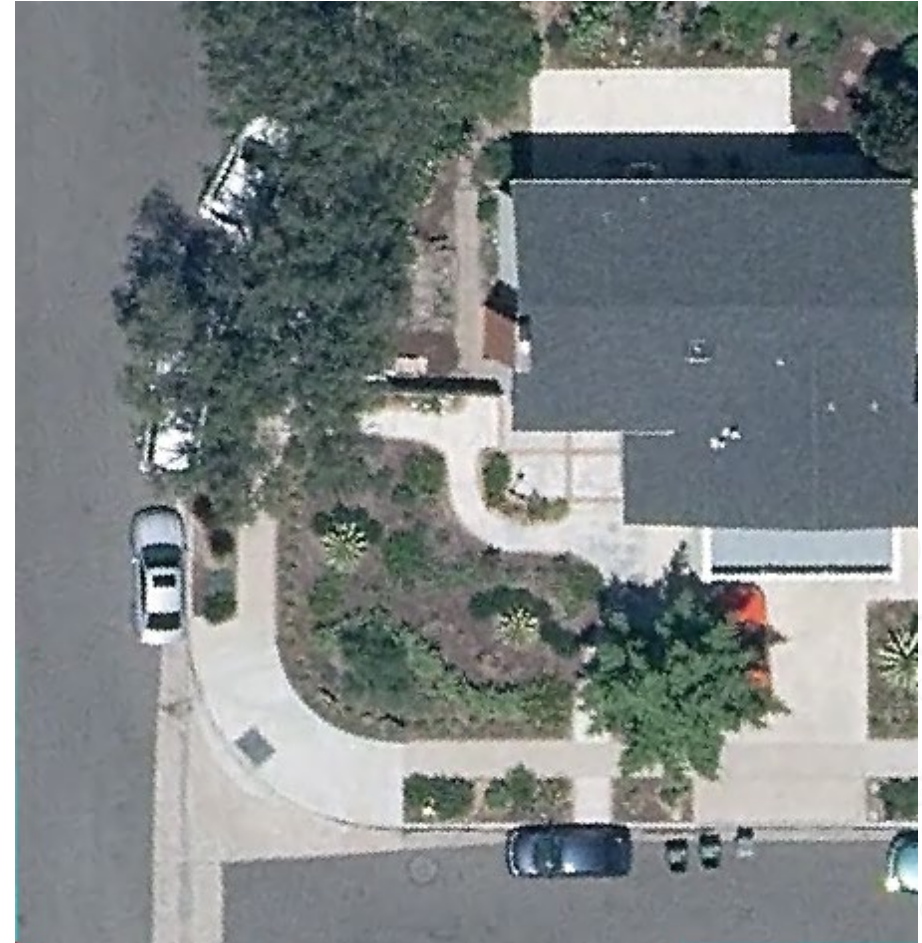


Query: extract residential houses with pool inside Greentree village

EVALUATION OF LANDSCAPE CHANGES OVER TIME



2016



2020

EVALUATION OF LANDSCAPE CHANGES OVER TIME

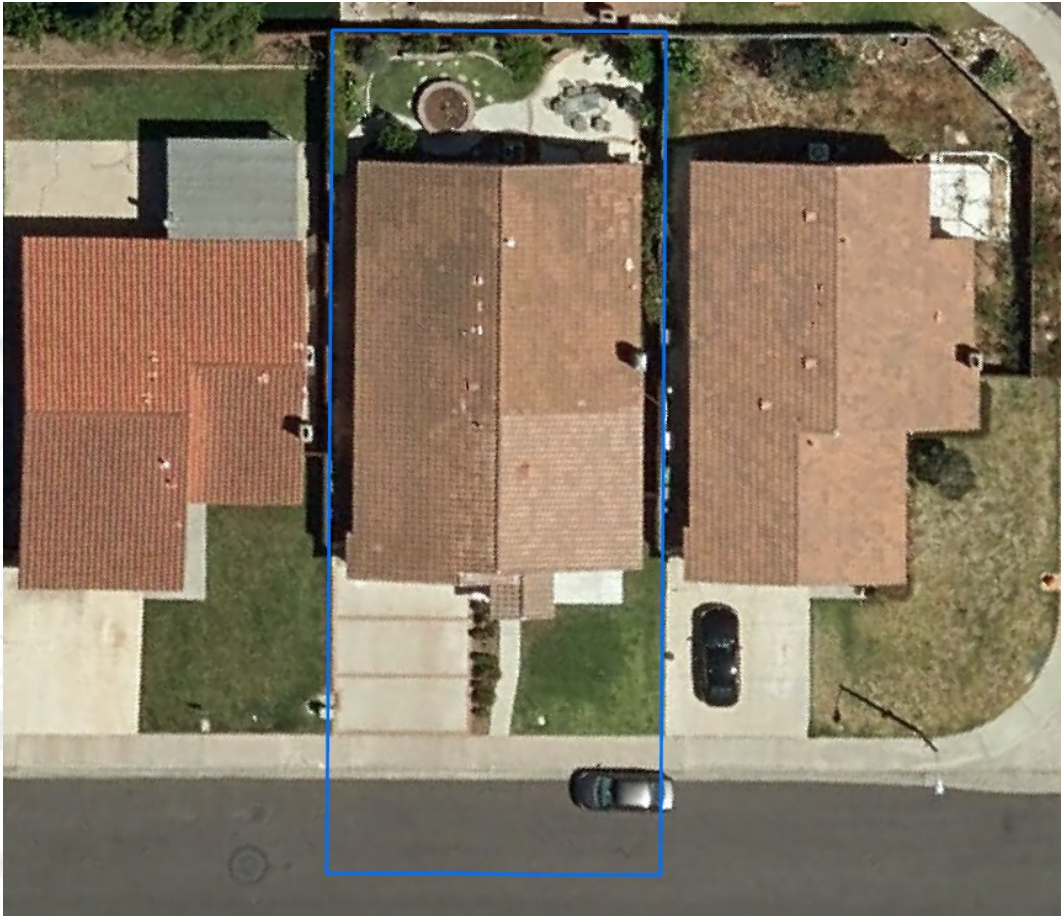


2016



2020

PROPERTY DATA



Property Data

SERVICE CONNECTION ID	3021100365
CUSTOMER NAME	Zanetti, Enrique
PARCELAPN	449-131-11
TAXAPN	449-131-11
YEAR BUILT	1971
BEDROOMS	4
TOTAL BATH	2
PARTIAL BATH	1
LAST SOLD	1991

PROPERTY DATA

Toilet Rebate Program

Query: to extract
residential houses within
Greentree village

GROUP	Number Of Connections	Total Bath	Full Bath	Part Bath
1 to 2	330	608	608	0
3 to 4	292	905	795	110
More than 4	4	21	18	3
Total	626	1534	1421	113

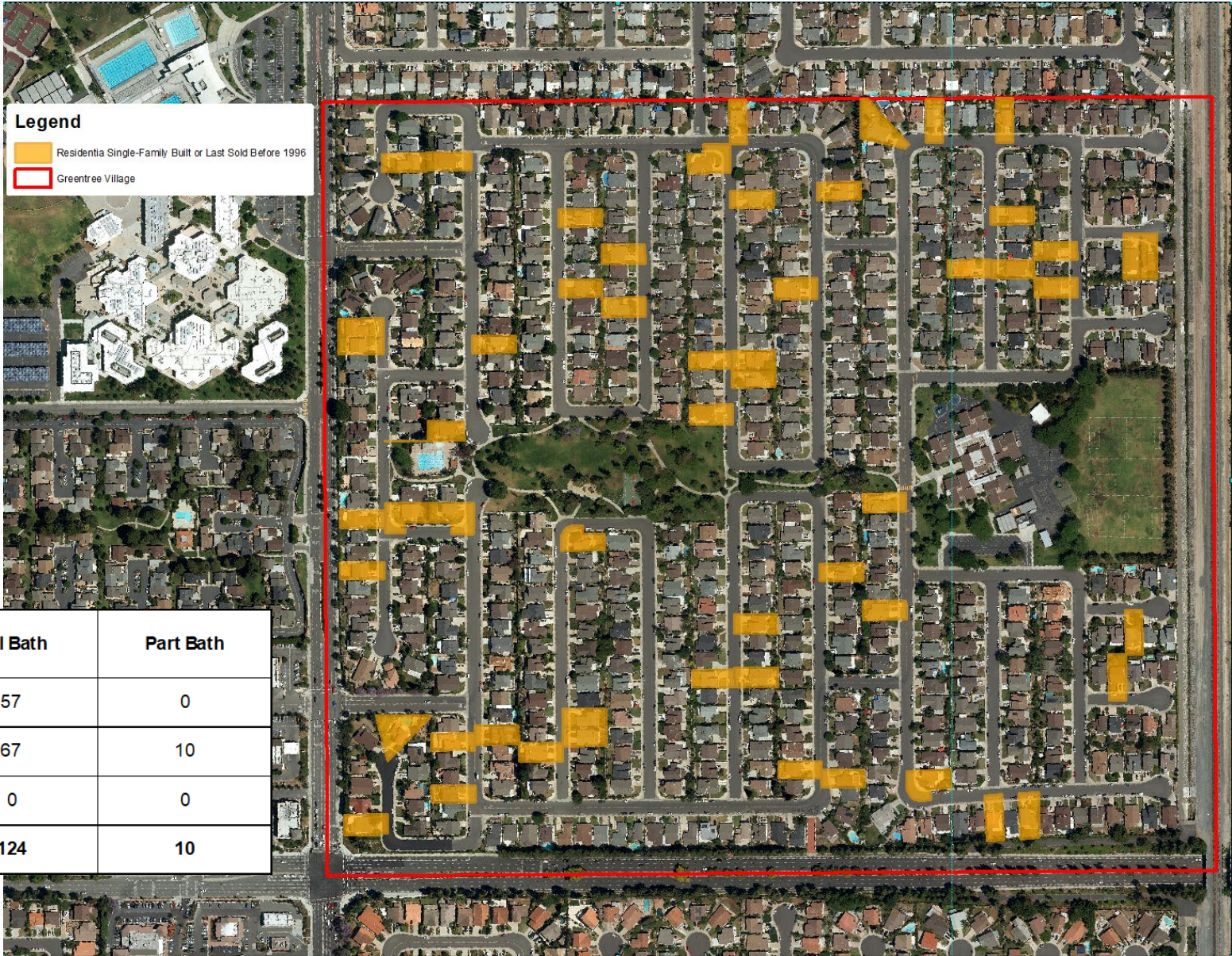


PROPERTY DATA

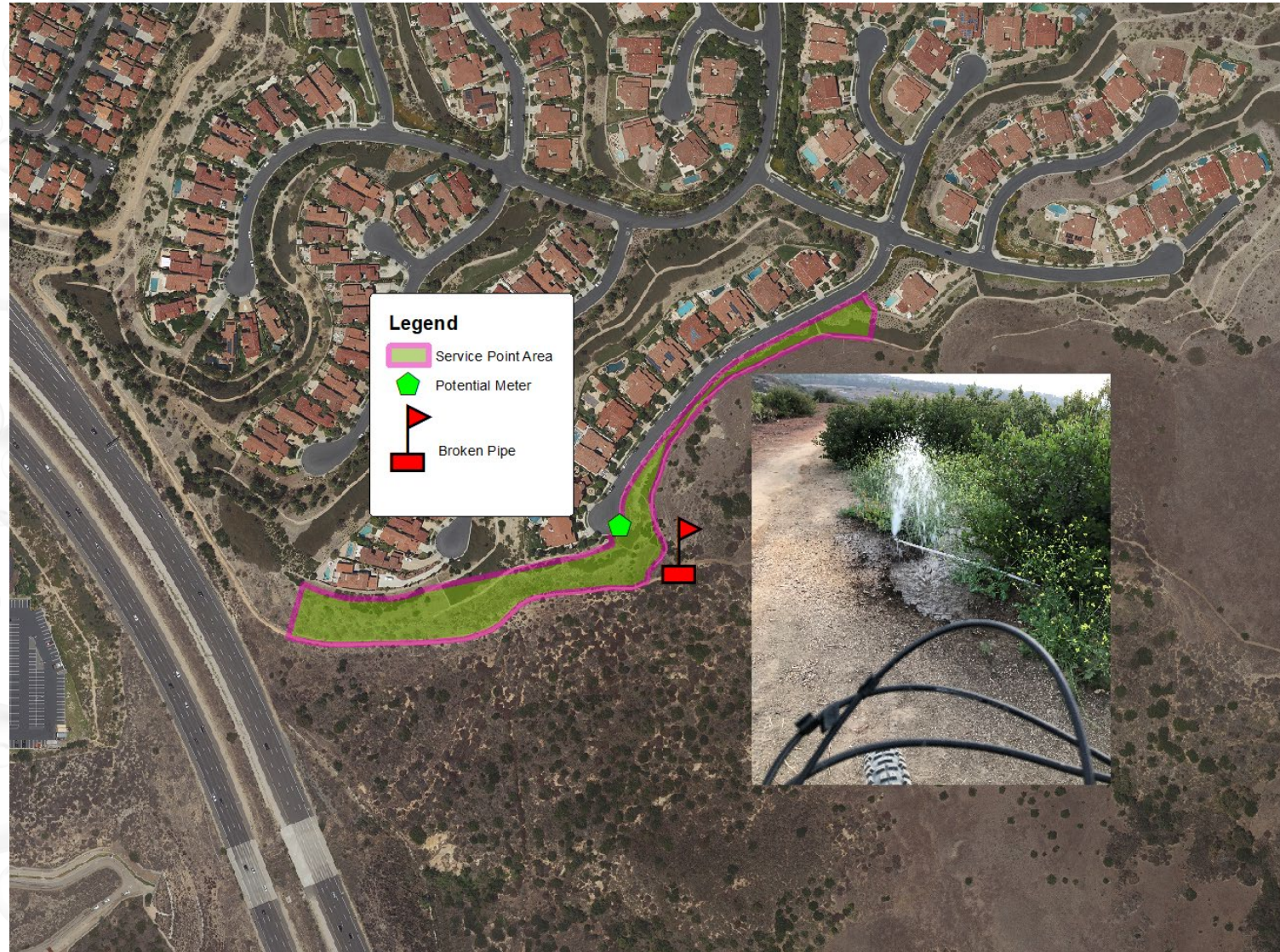
Toilet Rebate Program

Query: to extract residential houses that were built before 1996 or last sold were before 1996 and did not participate in any of our toilet rebate programs within Greentree village

GROUP	Number Of Connections	Total Bath	Full Bath	Part Bath
1 to 2	31	57	57	0
3 to 4	24	77	67	10
More than 4	0	0	0	0
Total	55	134	124	10



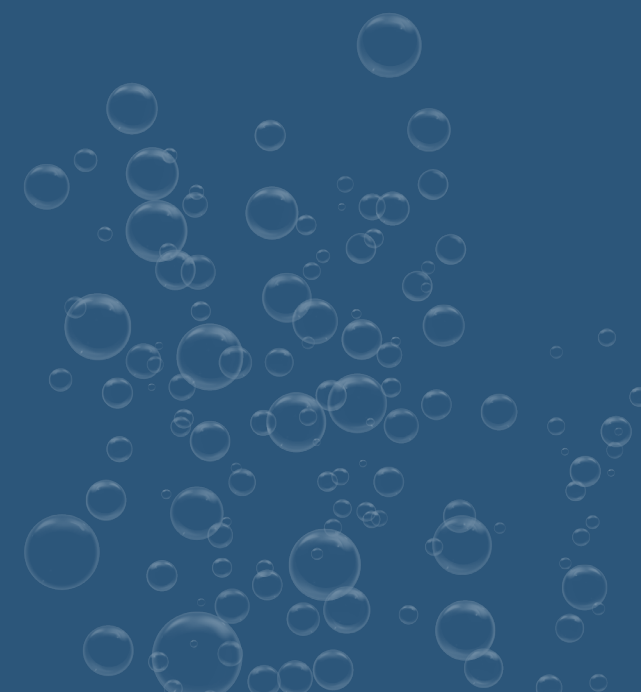
WATER WASTE APP





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NEXT STEPS



NEXT STEPS

Verify accuracy

NEXT STEPS

Verify accuracy



Continuous improvement

NEXT STEPS

Verify accuracy



Continuous improvement



Incorporate new accounts

NEXT STEPS

Verify accuracy

Continuous improvement

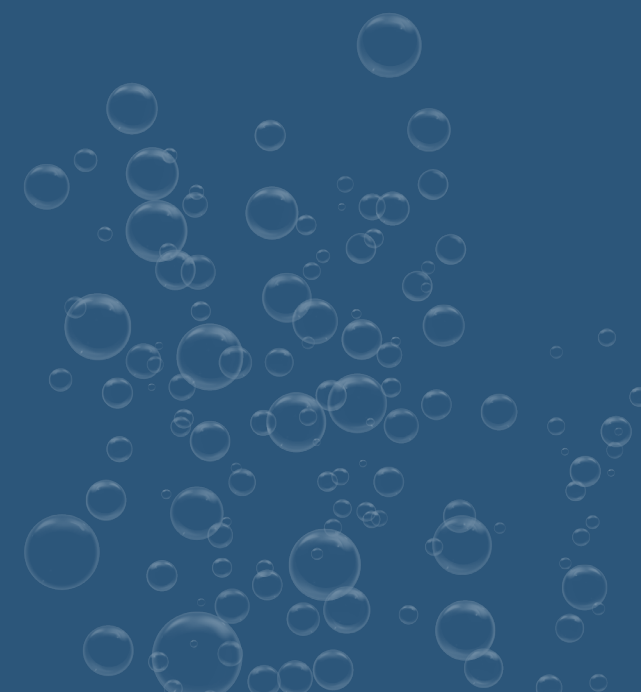
Incorporate new accounts

Evaluation of future applications



Irvine Ranch
WATER DISTRICT

QUESTIONS?



THANK YOU!

Enrique Zanetti

Senior Water Efficiency Analyst

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949-453-5457

