



Sunflower HOA

Turf & Water Use Calculations

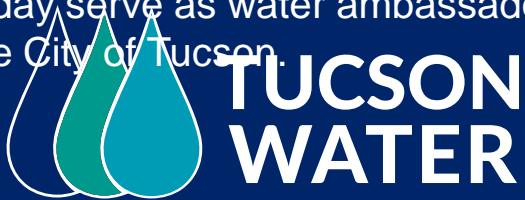
Public Information

Conservation Office (PICO)

Through education and a comprehensive inspection Zanjeros assist Tucson Water residential and commercial customers in identifying areas of concern with respect to excessive water use.

Although focused on conservation, this highly trained team has expanded their roles through extensive training and certifications, building a unique and expansive skill set.

The Zanjero's greatest strength is their ability to use their technical & customer service skills to solve customer concerns and to be a trusted source of information for the Tucson community. The Zanjero team was established in 1996 and today serve as water ambassadors for the City of Tucson.





Angel Vega is the Supervisor for the Zanjero team and has been with Tucson Water for 10 years and is fluent in Spanish. He holds a NGICP (National Green Infrastructure Certification), ABPA (Backflow Prevention Assembly Tester Certification), RWHD (Rainwater Harvesting



George Dowling has been with Tucson Water for 16 years. He holds a NGICP(National Green Infrastructure Certification), RWHD (Rainwater Harvesting Design Certification), WSI (Watershed Wise Landscaping Certification) and QWEL (Qualified Water Efficiency Landscaper)



Brian Morales has been with Tucson Water for 16 years. He is passionate about water education and conservation, holds a RWHD (Rainwater Harvesting Design Certification), ABPA (Backflow Prevention Assembly Tester Certification), WSI (Watershed Wise Landscape Irrigation Certification) and QWEL (Qualified



Frank Bencomo has been with Tucson Water for 9 years and is a Spanish speaker. He has 20 years construction experience. Frank holds a RWHD (Rainwater Harvesting Design Certification).





Our Watershed: The Colorado River Basin

- https://www.youtube.com/results?search_query=what+is+a+watershed
- Watershed in 7 states & Mexico
- Provides water to over 40 million people
- Irrigates 5.5 million acres of land
- Lifeblood for 22 tribes, 7 National Wildlife Refuges, 4 National Recreation Areas and 11 National Parks



The twenty-first century Colorado River hot drought and implications for the future

Bradley Udall Jonathan Overpeck


First published: 17 February 2017 | <https://doi.org/10.1002/2016WR019638> | Citations: 166

TOP STORY

We're parched: 2020 brought Tucson's driest year on record

Tony Davis Jan 4, 2021 Updated Feb 19, 2021

1 of 3



Hikers walk along a bridge crossing at the dry Sabino Creek near the Phoenline Trail at Sabino Canyon National Recreational Area, 5700 N. Sabino Canyon Rd., in Tucson, Ariz. on Dec. 30, 2020.

Rebecca Sasnett / Arizona Daily Star

TOP STORY

Tucson is the third-fastest-warming city in the U.S.

Tony Davis Apr 24, 2019 Updated Jun 25, 2021

Tucson and Phoenix were the third- and fourth-fastest-warming cities in the United States over the past 48 years, a new analysis of weather data shows.

They were among 10 cities whose average annual temperatures rose more than 4


OPINION

No exaggeration: Record lows at Lake Powell and Lake Mead call for drastic action

Opinion: Lake Powell's elevation requires immediate protective actions. Everyone will be asked to conserve to delay or reduce further mandatory reductions.

Tom Buschatzke and Ted Cooke, opinion contributors
Updated 1 day ago

[Water conservation](#) [Add Topic](#)



▶ Play | 01:11

Lake Powell's declining water levels

With water levels declining on Lake Powell, many are concerned about how to maintain access to the lake and...more

The lower basin inked a plan to save Lake Mead in just 4 months. But we're not done

Opinion: The 500-plus plan is both unsustainable and necessary - and a reminder of how much there is still to do to stabilize the Colorado River.

Joanna Allhands, Arizona Republic
6:01 a.m. MST Dec. 21, 2021

Arizona joins Nevada, California and tribes in a pledge to slash Colorado River water use

Brandon Loomis, Arizona Republic Updated 40 days ago

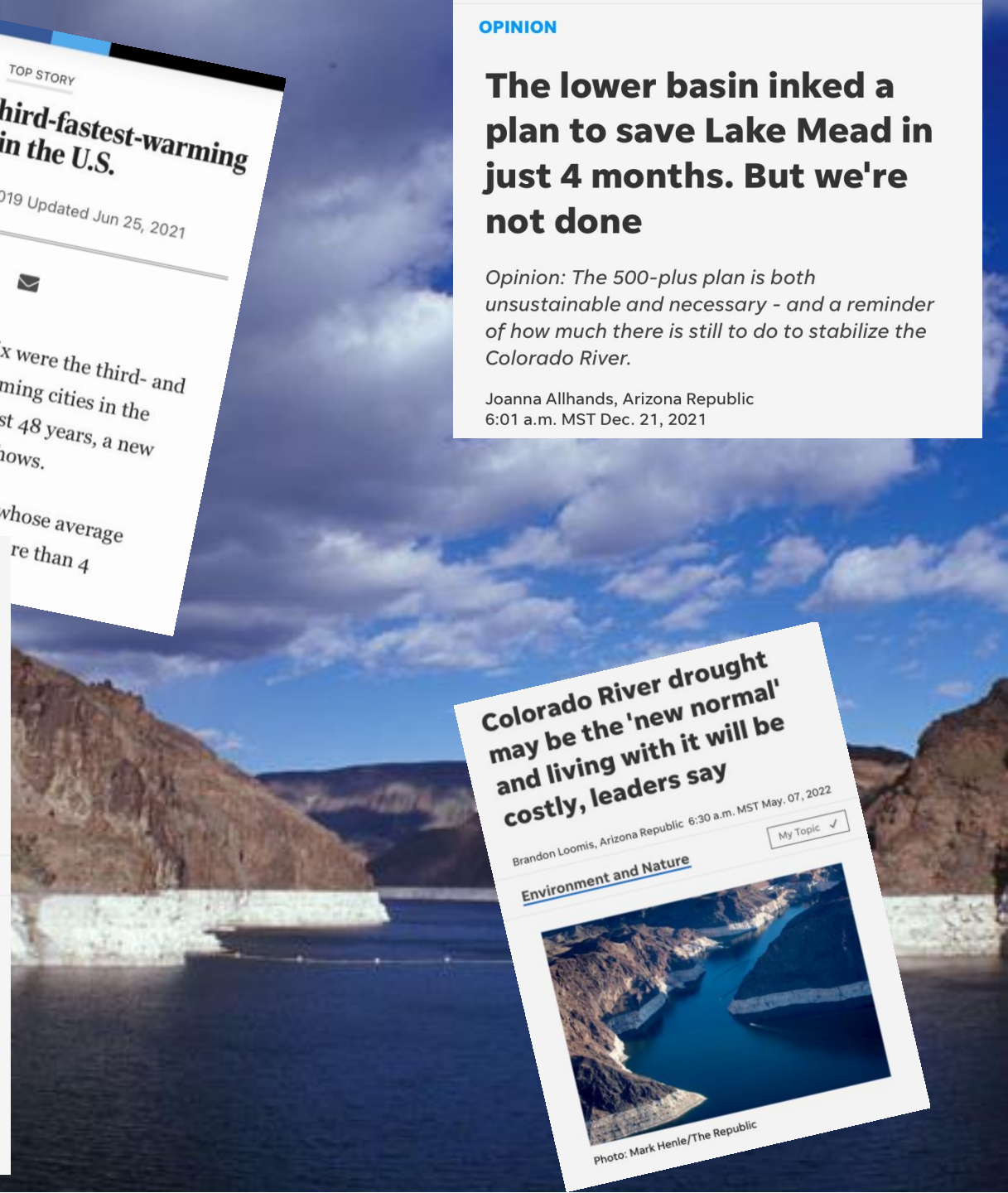
Colorado River drought may be the 'new normal' and living with it will be costly, leaders say

Brandon Loomis, Arizona Republic 6:30 a.m. MST May. 07, 2022

[Environment and Nature](#) [My Topic](#)

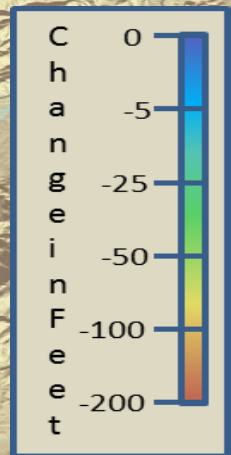
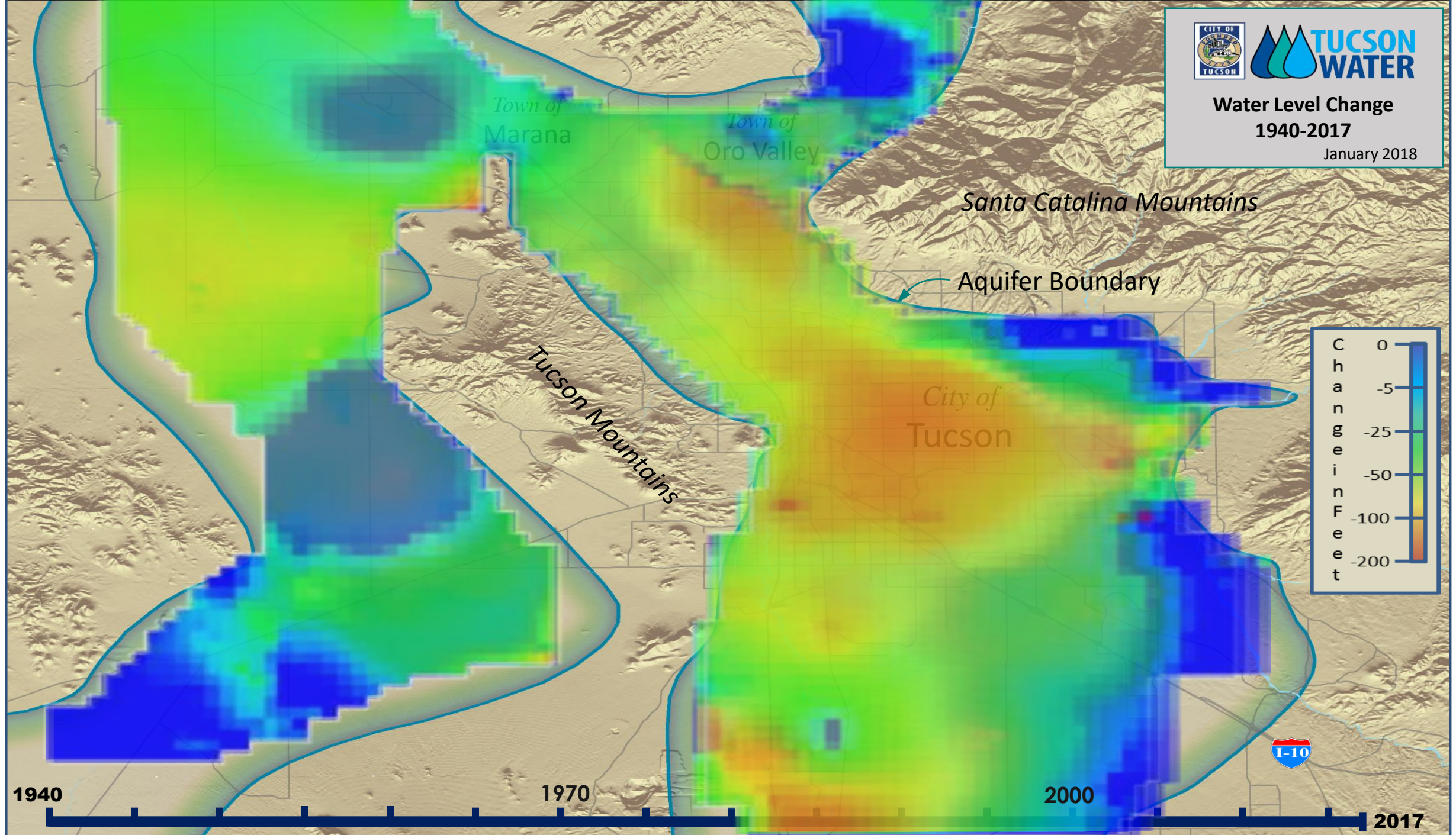


Photo: Mark Henle/The Republic



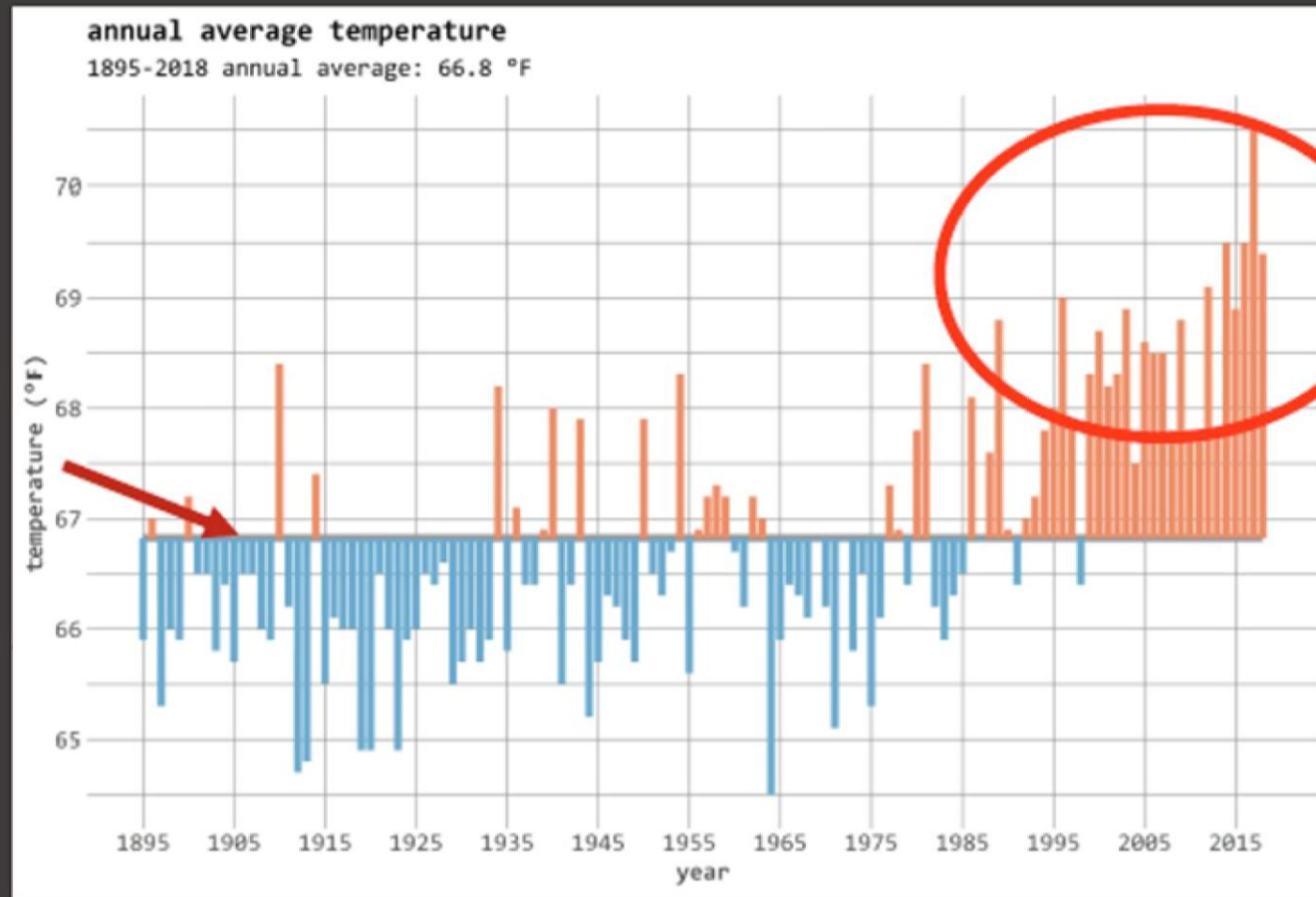


**Water Level Change
1940-2017**
January 2018

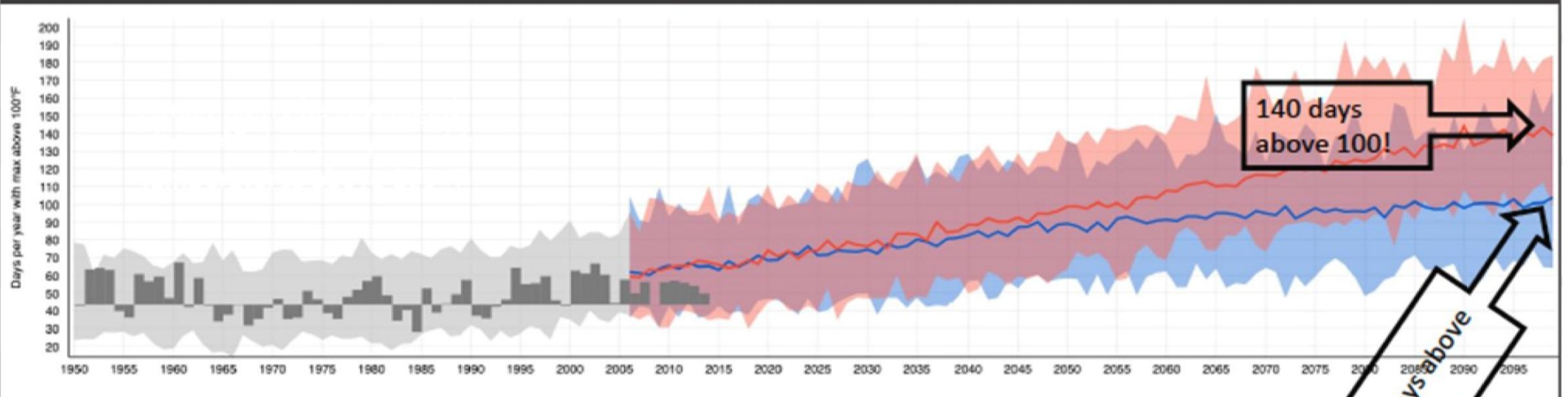


1940 1970 2000 2017

Pima County Average Temperatures: 1895 - 2018

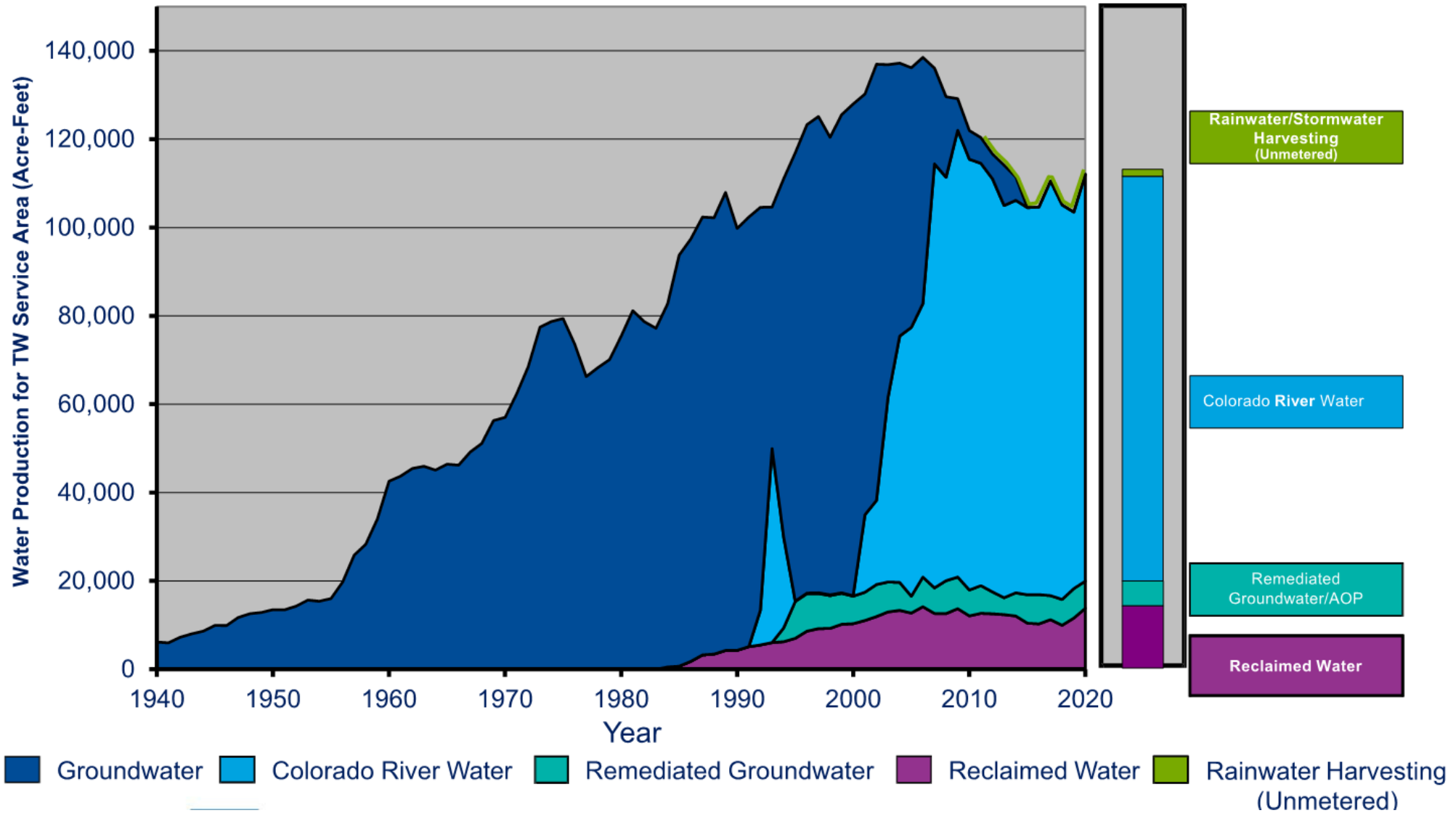


Days per year with maximum above 100° F

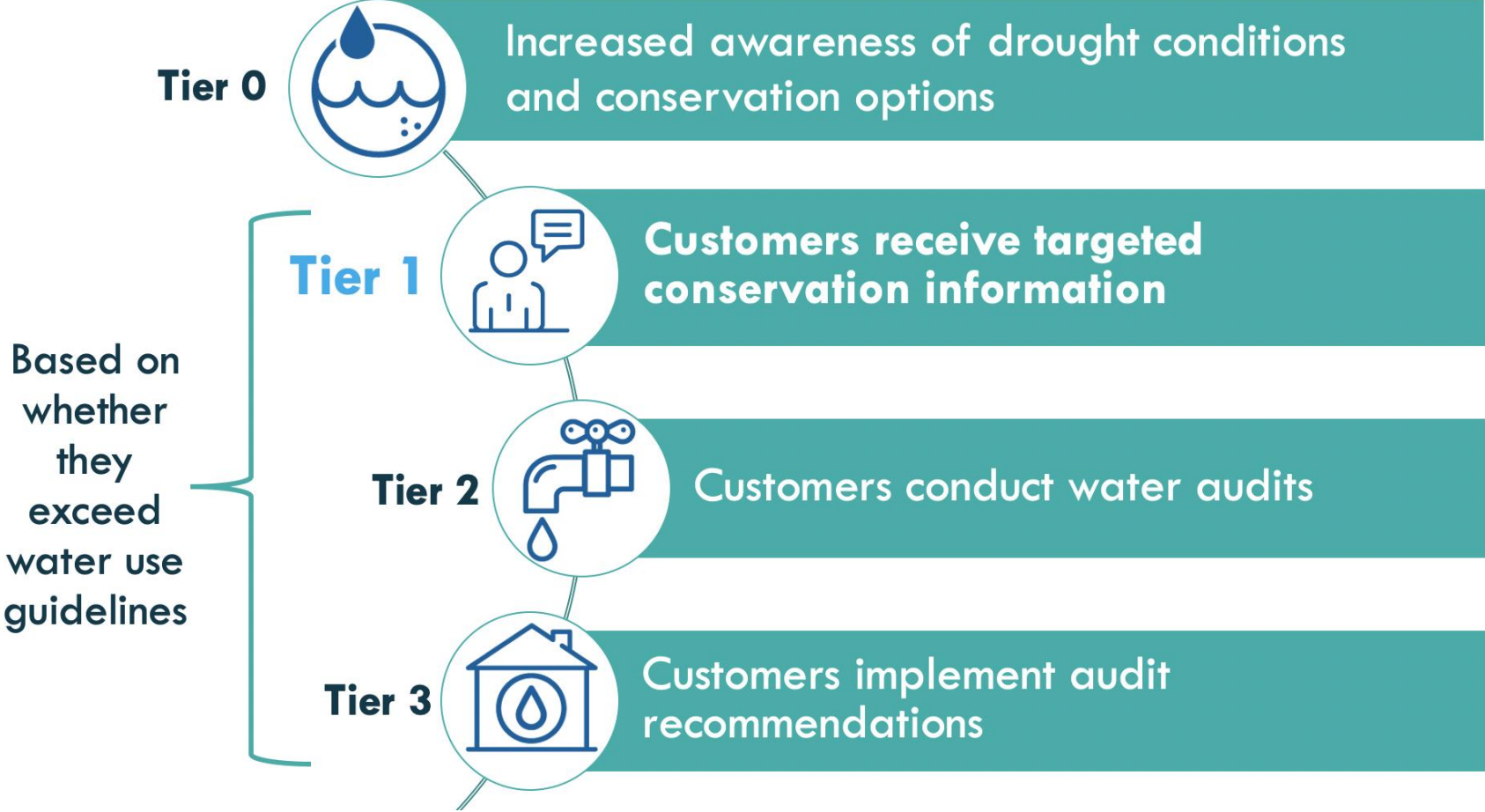


<https://crt-climate-explorer.nemac.org/>

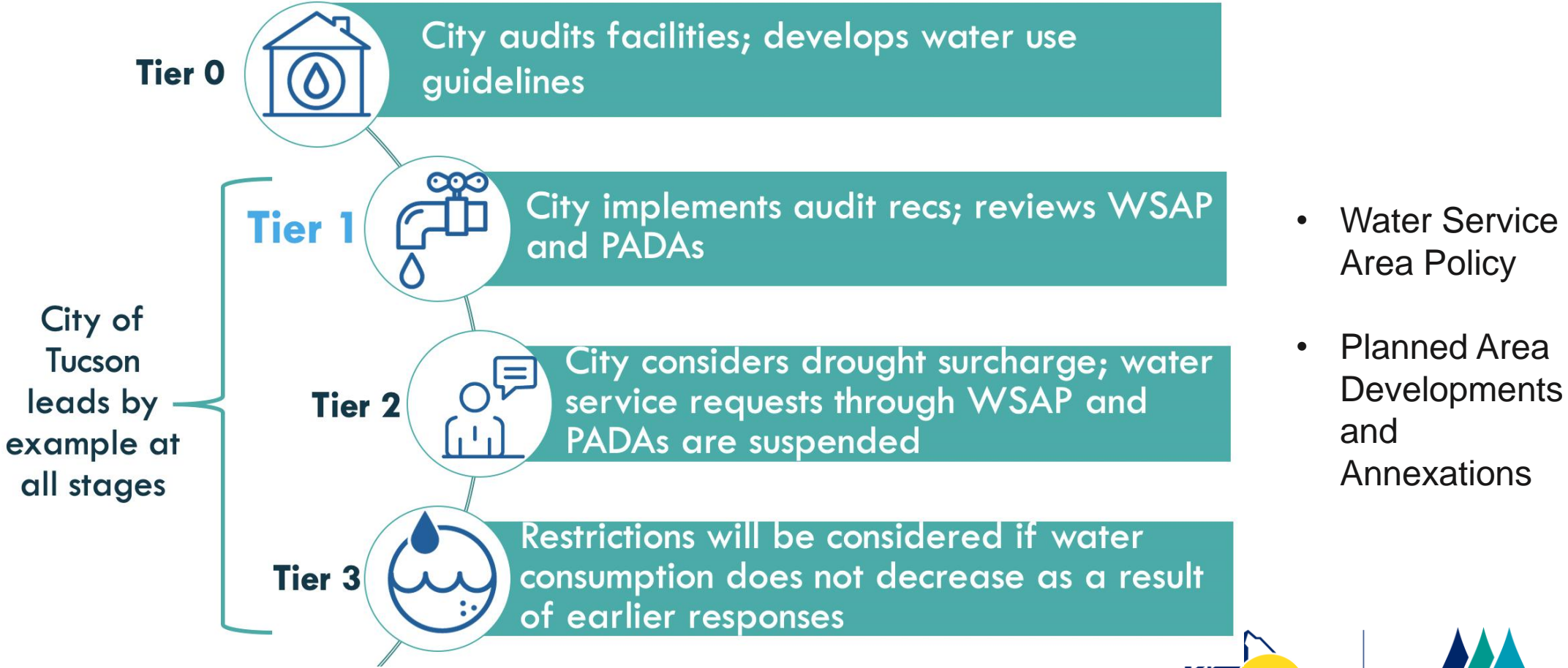
Water Production for Tucson Water Service Area (1940-2020)

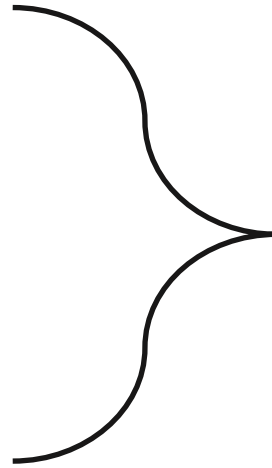
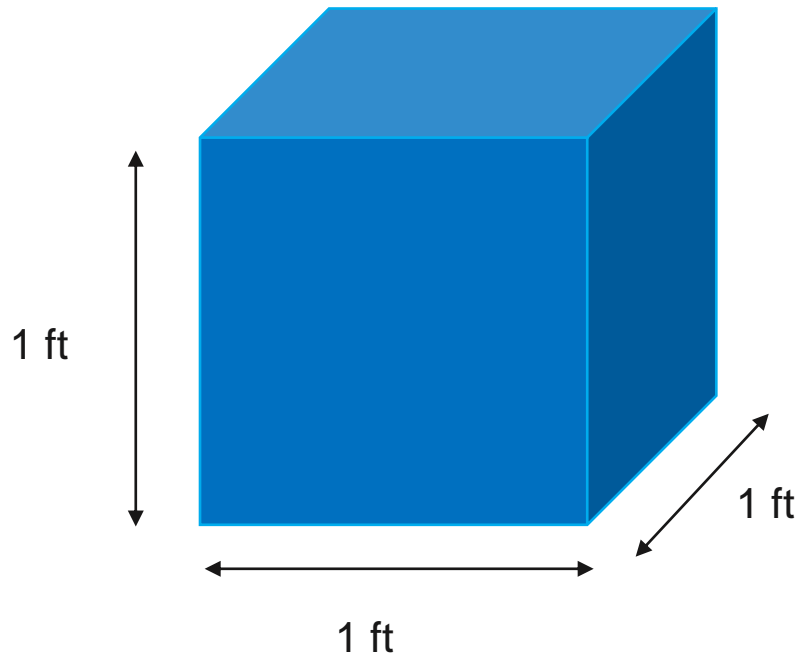


Customer Responses



City Responses

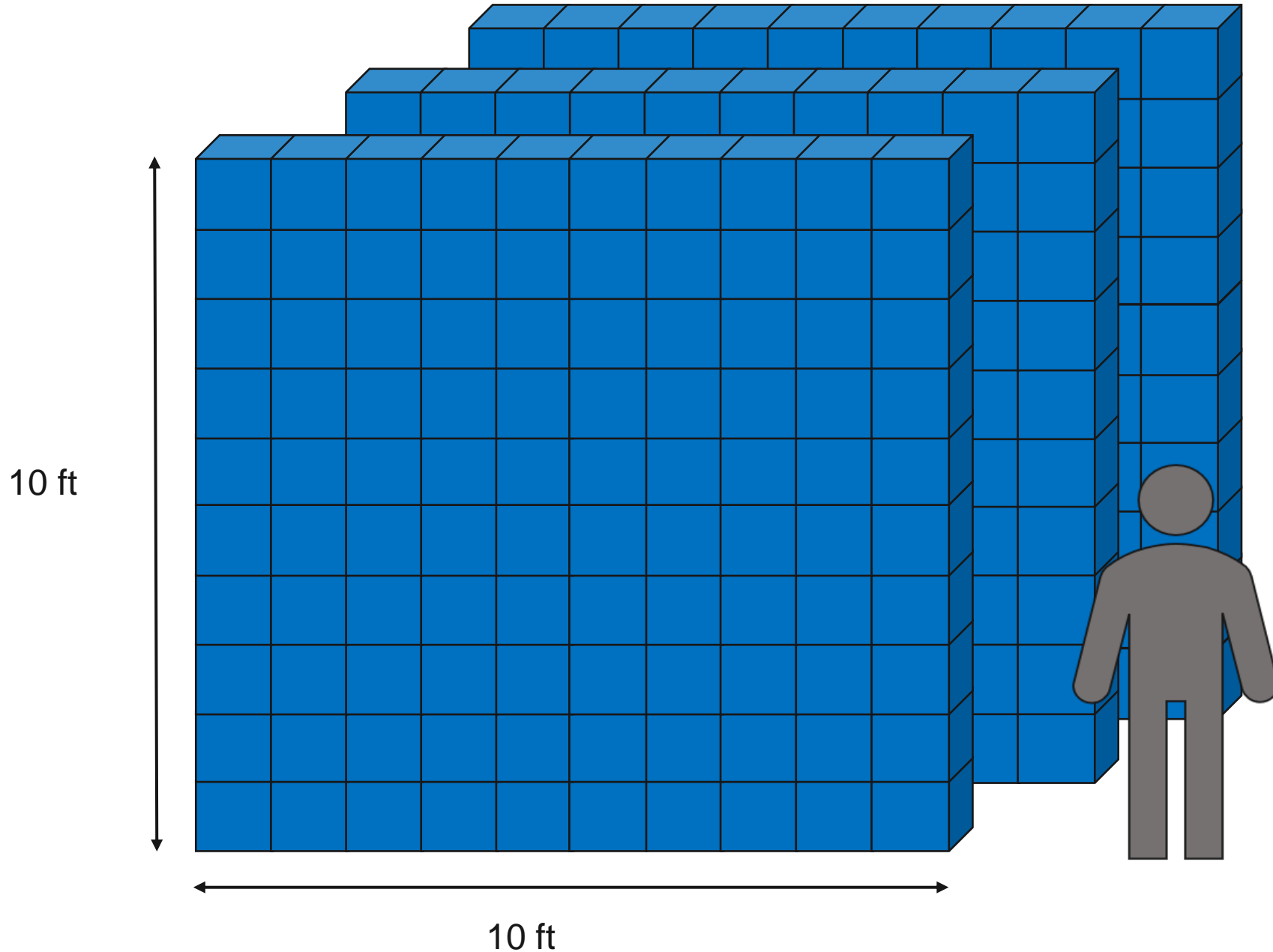




1cf = 7.48 gallons

100cf or 1Ccf = 748 gallons

A Cubic Foot of Water



How Much is a Ccf of Water?

- 1Ccf =748 gallons.
- The average adult uses between 2-4 Ccf per month (domestic use only).
- In Tucson the average daily use is 80 gallons per day.

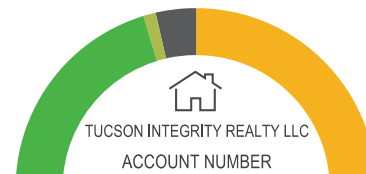
Updated Usage Graph on Bill



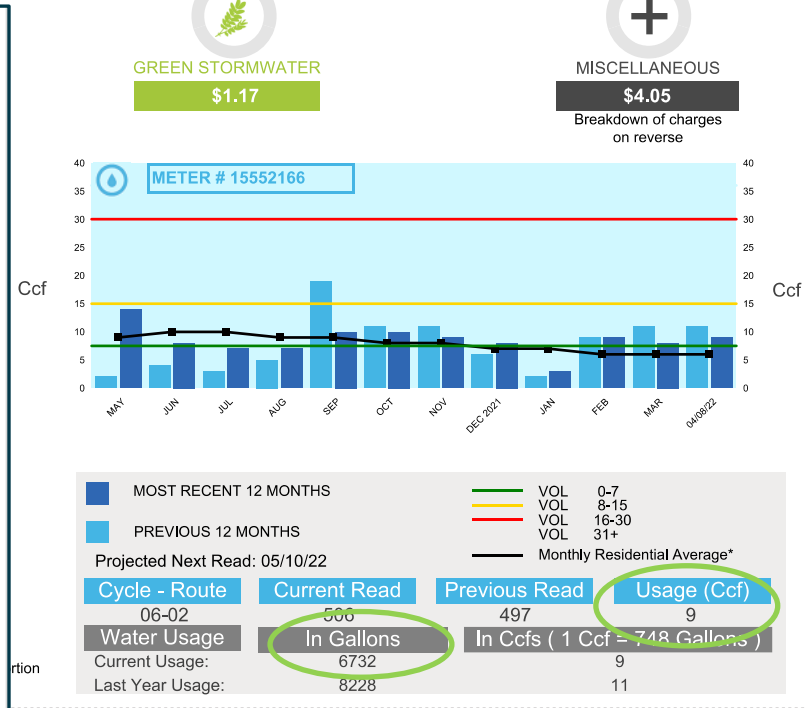
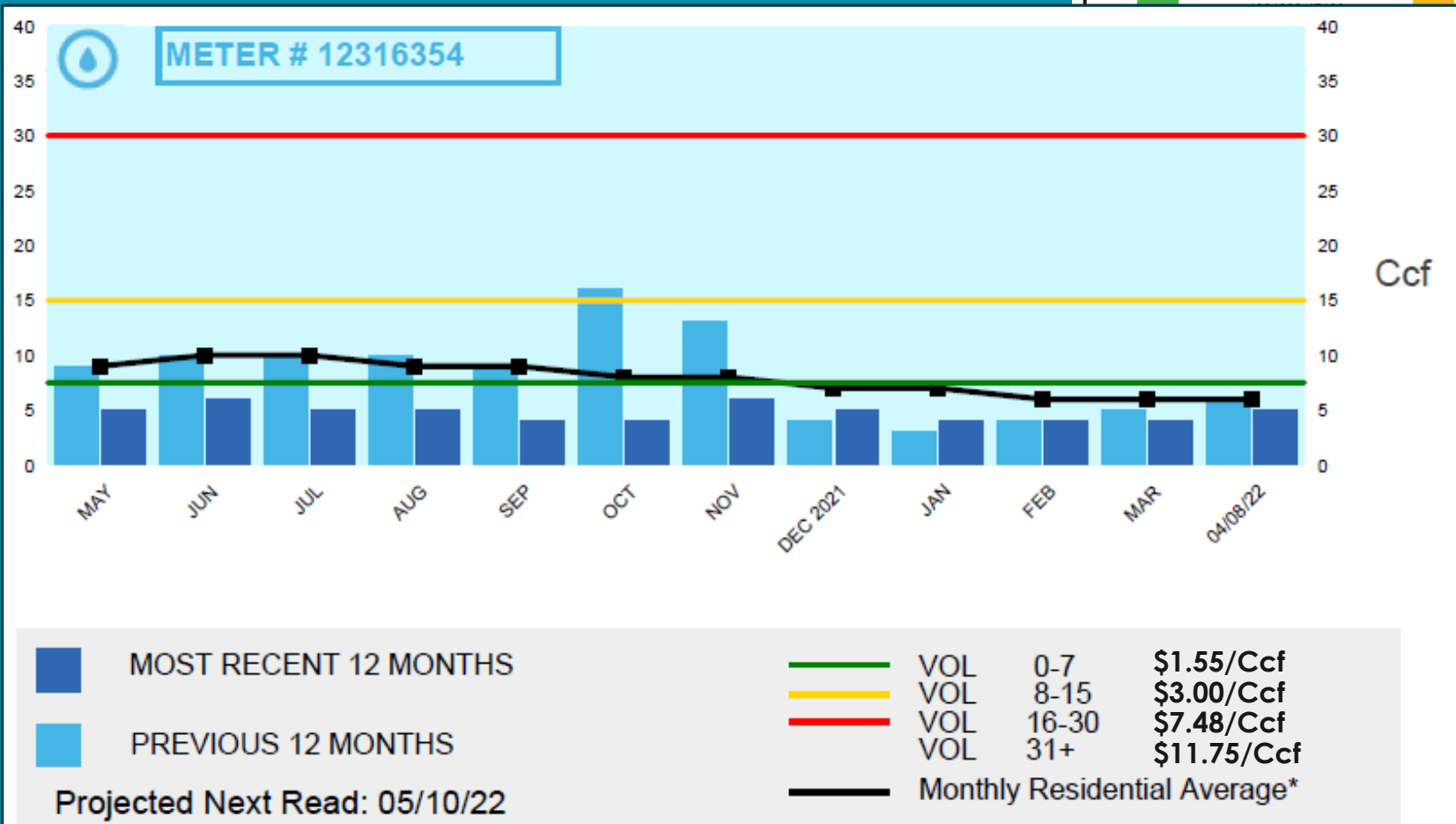
UTILITY SERVICES STATEMENT



Last Bill	Payments/Credits	Deposits	Adjustments	Balance Forward	Current Charges	Amount Due
\$107.84	-\$107.84	\$0.00	\$0.00	\$0.00	\$113.00	\$113.00
Bill Date	Service Period	Due Date				
04/11/22	03/09/22 to 04/08/22	05/02/22				



 SEWER \$33.54 Phone: 520-724-6609	 WATER \$45.66 Phone: 520-791-3242	 ENVIRON. SVC. \$28.58 Phone: 520-791-3171
 GREEN STORMWATER \$1.17	 MISCELLANEOUS \$4.05 Breakdown of charges on reverse	



One Water

- Establishes that **all water has value**
- Uses the right water for the right purpose
- Is an integrated approach to water resource management
- Learn More & Get Involved:

<https://www.tucsononewater.com/>



Our Water Ethic is Connected to Our Urban Landscapes

Our *Urban Landscapes* are connected to

- individual health and well-being
- a healthy environment
- a healthy community

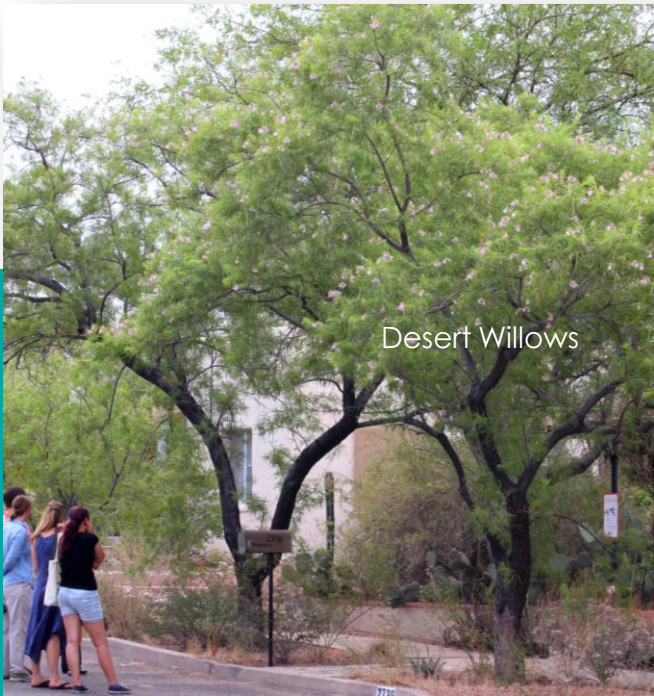
And *water* is an essential resource in the arid, southwest desert!

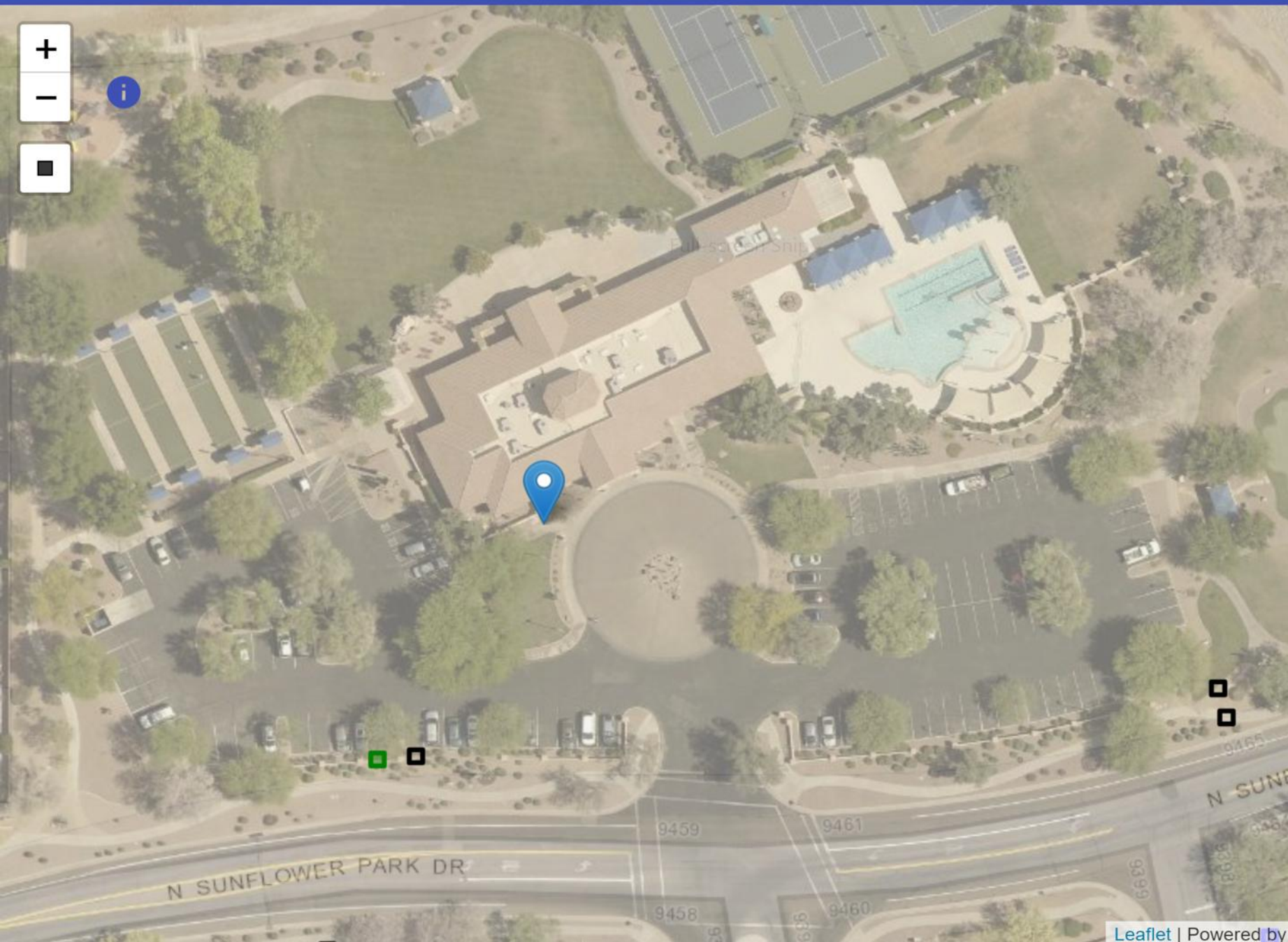


Our Water Ethic is Connected to Our Urban Landscapes

Designing and caring for our *urban landscapes* is essential for our community to adapt to a changing climate, that is hotter and drier; these include:

- **Select** native/near-native desert-adapted species that are accustomed to these conditions
 - Bonus: they will also provide habitat for wildlife
- **Maintain** the trees and plants in your landscape, they are an investment in your health and well-being
- **Water** efficiently
 - Design for rainwater harvesting





Service Types

-  Potable
-  Irrigation
-  Reclaimed
-  Construction
-  Dust Control
-  N/A



Area 5

Area 4,
HOA plans
to keep this
section of
turf.

Area 3

Area 2

Area
1F

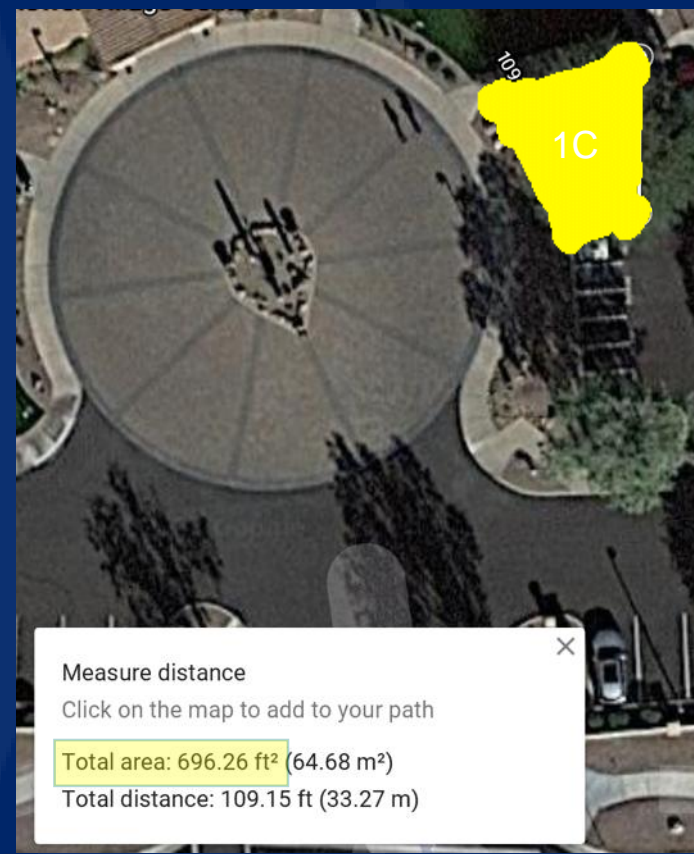
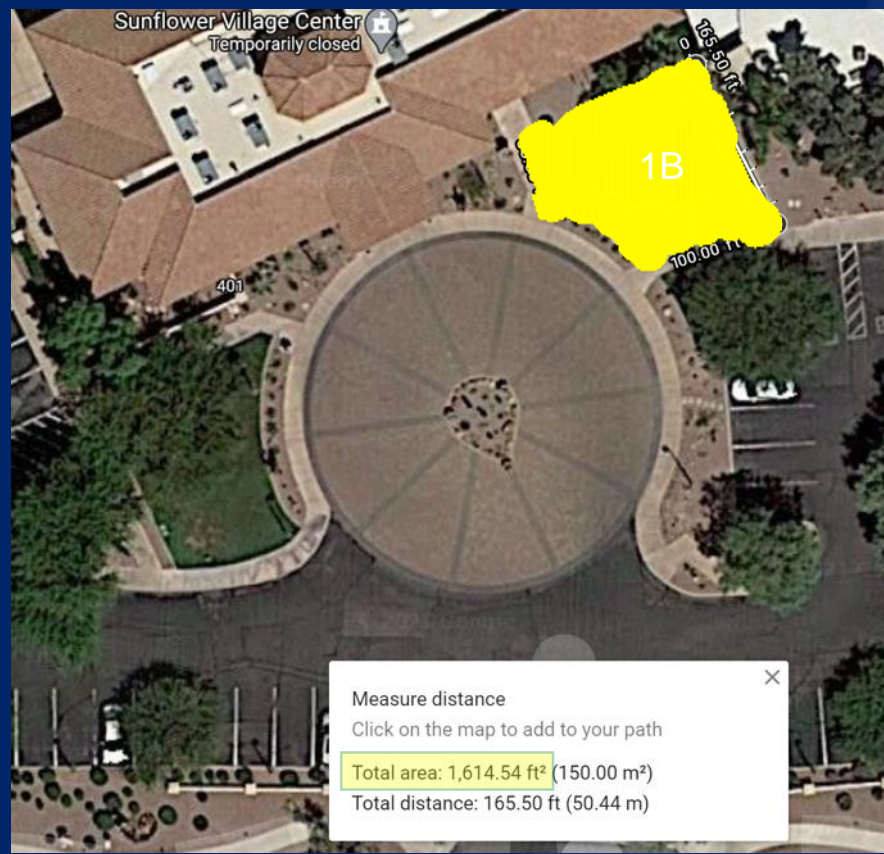
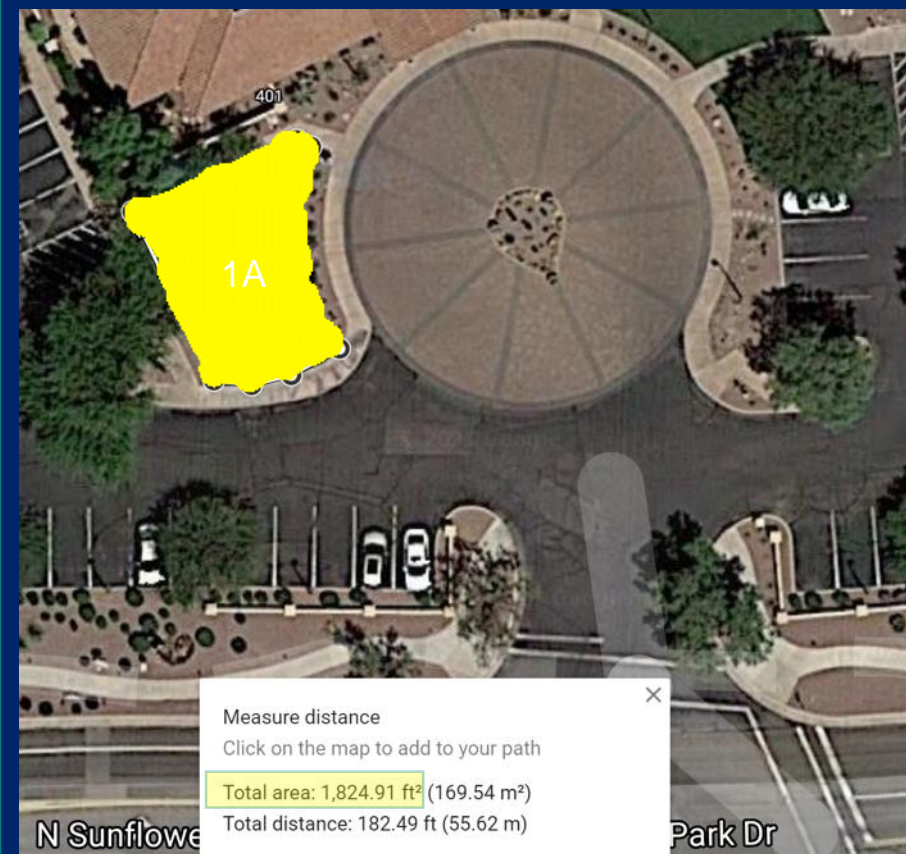
Area
1B

Area
1C

Area
1A

Area 1E

Area
1D

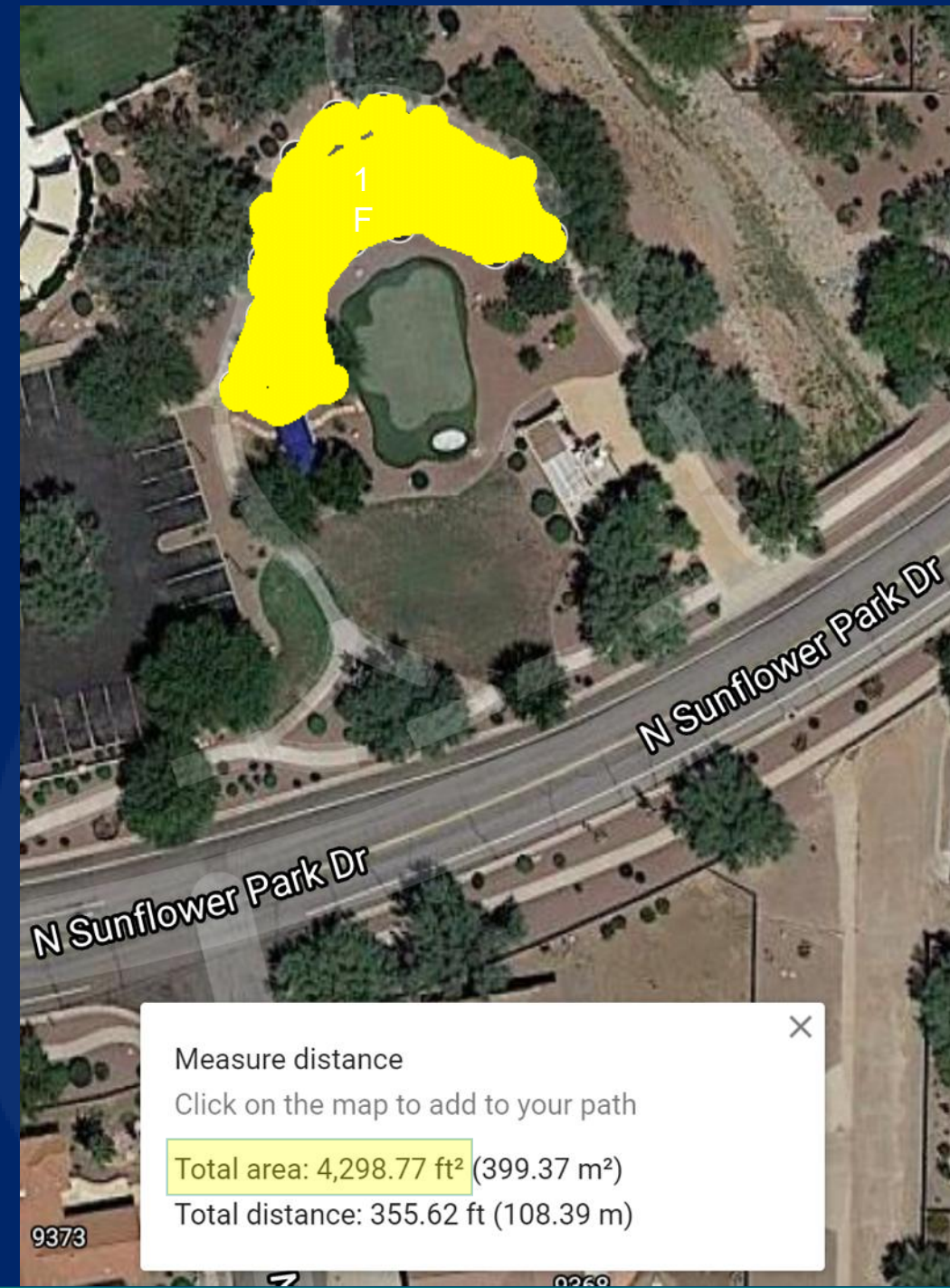
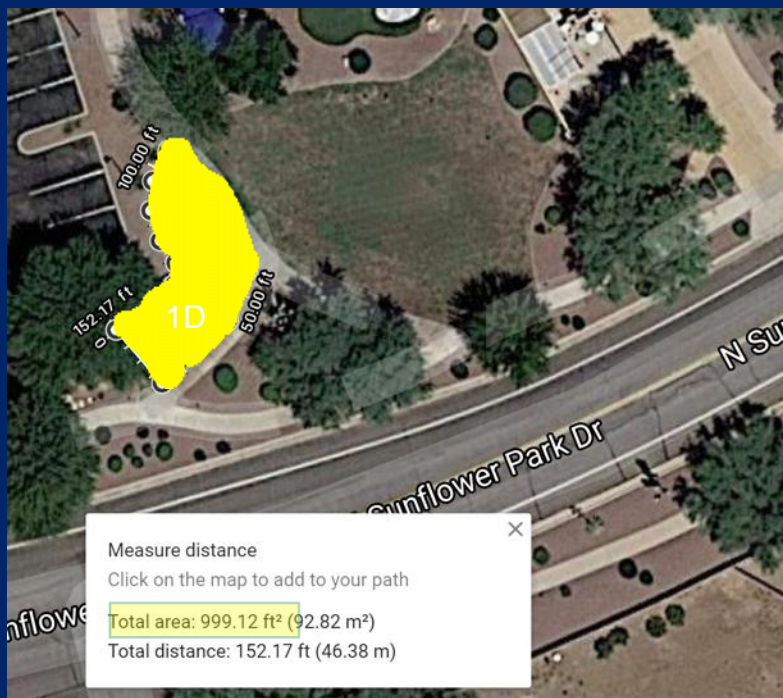


- *Please note the turf area calculations represented in these slides have been acquired using an aerial mapping system in order to provide estimates of total turf on property. For precise calculations and costs of turf removal please contact a licensed contractor.

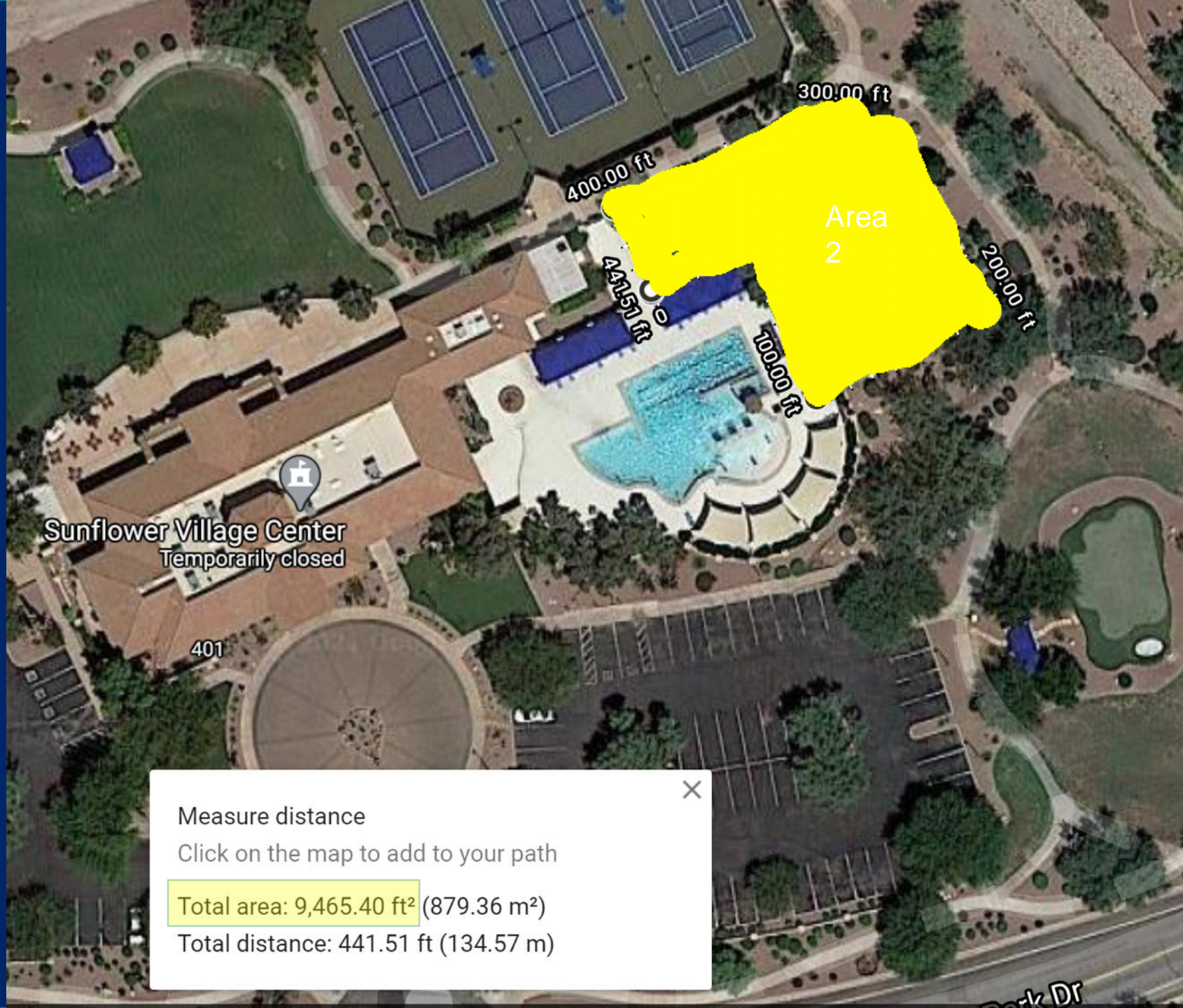


- Area 1A, 1B & 1C Club House front entrance, turf area total: 4,135.71 sf

Area 1D, 1E & 1F East
putting area turf total:
9,487.73 sf



Area 2 turf area next to pool total: 9,465.40 sf



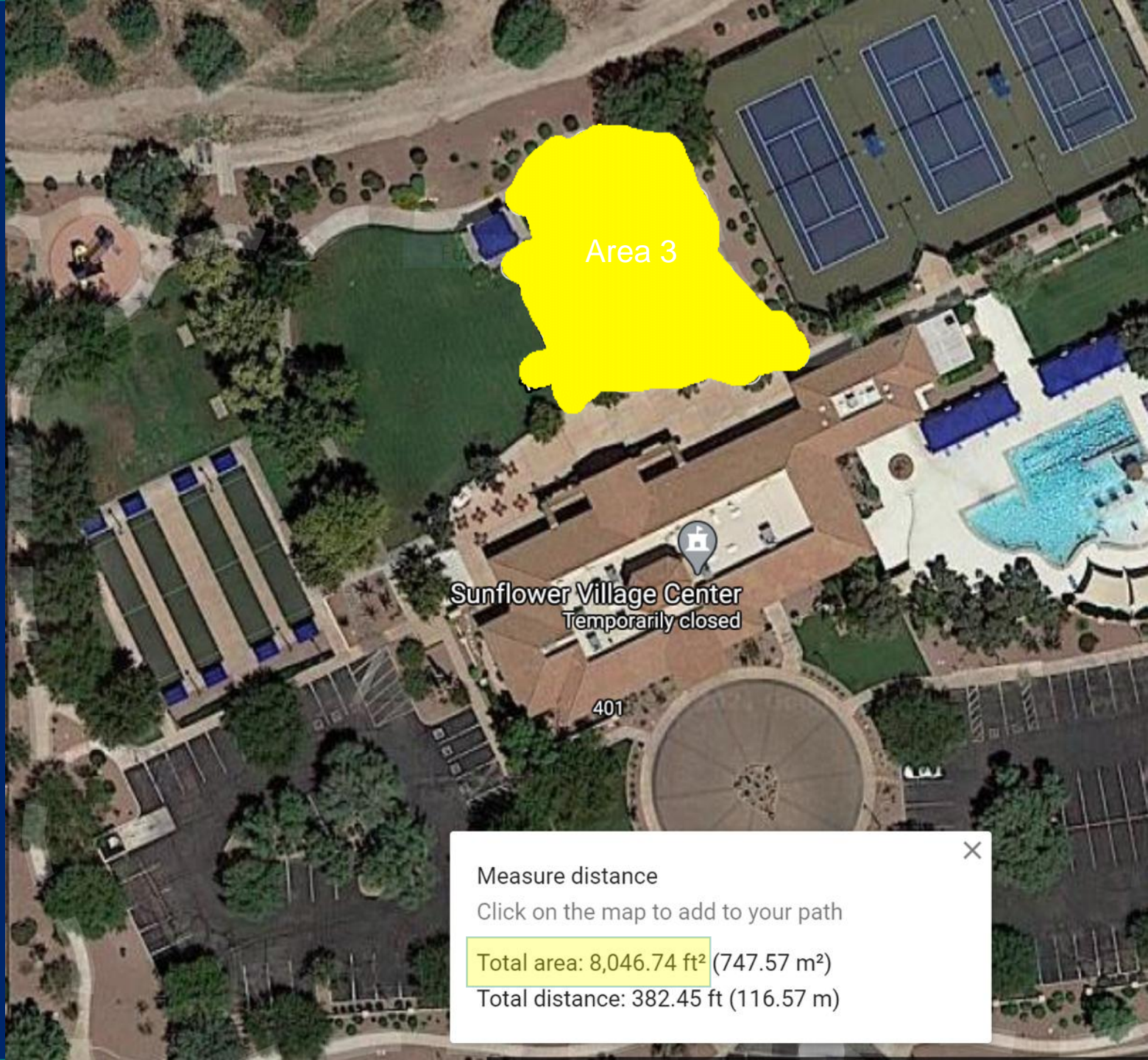
Measure distance ✕

Click on the map to add to your path

Total area: 9,465.40 ft² (879.36 m²)

Total distance: 441.51 ft (134.57 m)

Area 3 turf area behind
club house (half) total:
8,046.74 sf



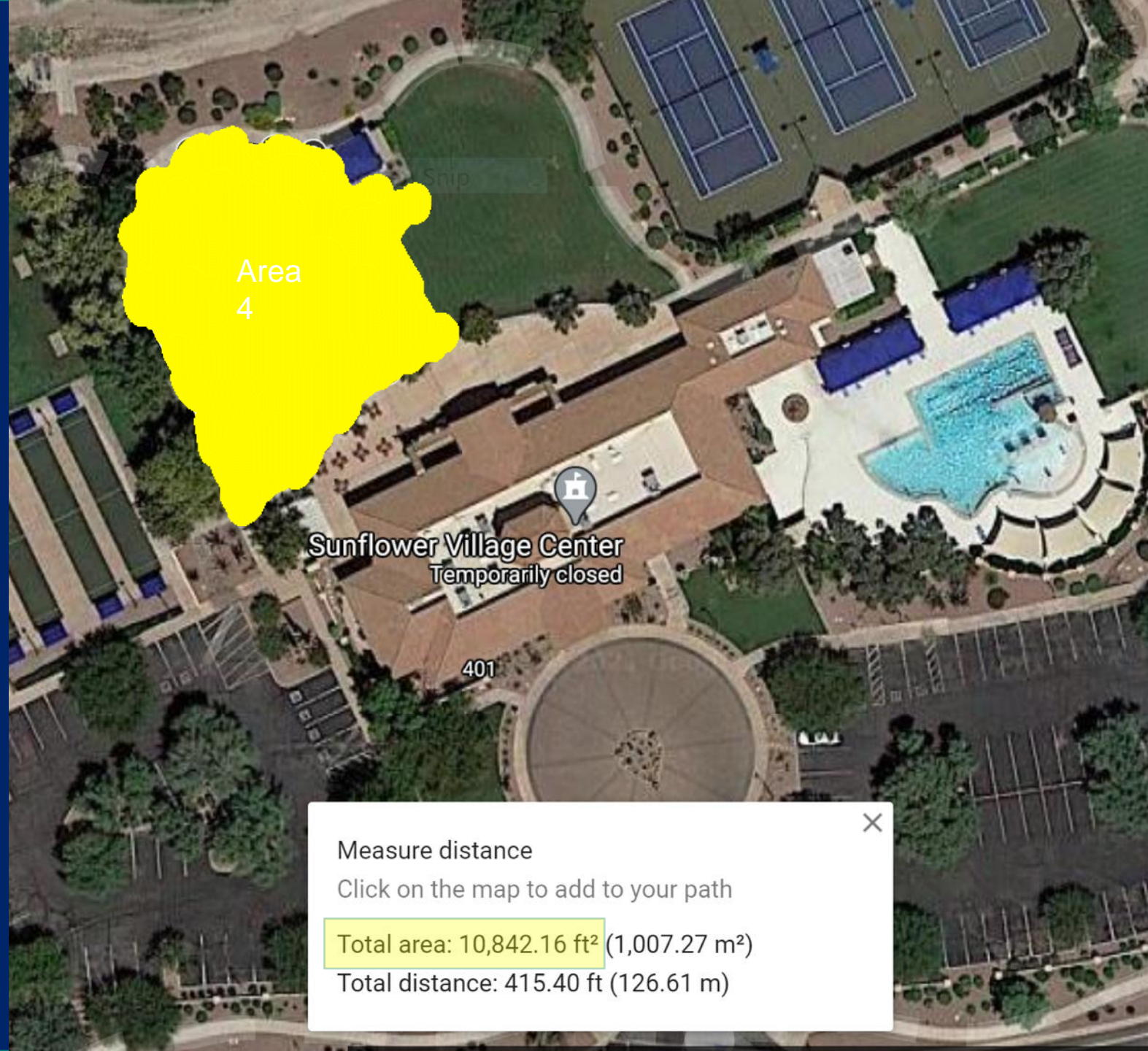
Measure distance ✕

Click on the map to add to your path

Total area: 8,046.74 ft² (747.57 m²)

Total distance: 382.45 ft (116.57 m)

Area 4 second half of turf
behind club house, HOA
plans to keep this section
total: 10,842.16 sf



Area
4

Sunflower Village Center
Temporarily closed

401

Measure distance

Click on the map to add to your path

Total area: 10,842.16 ft² (1,007.27 m²)

Total distance: 415.40 ft (126.61 m)

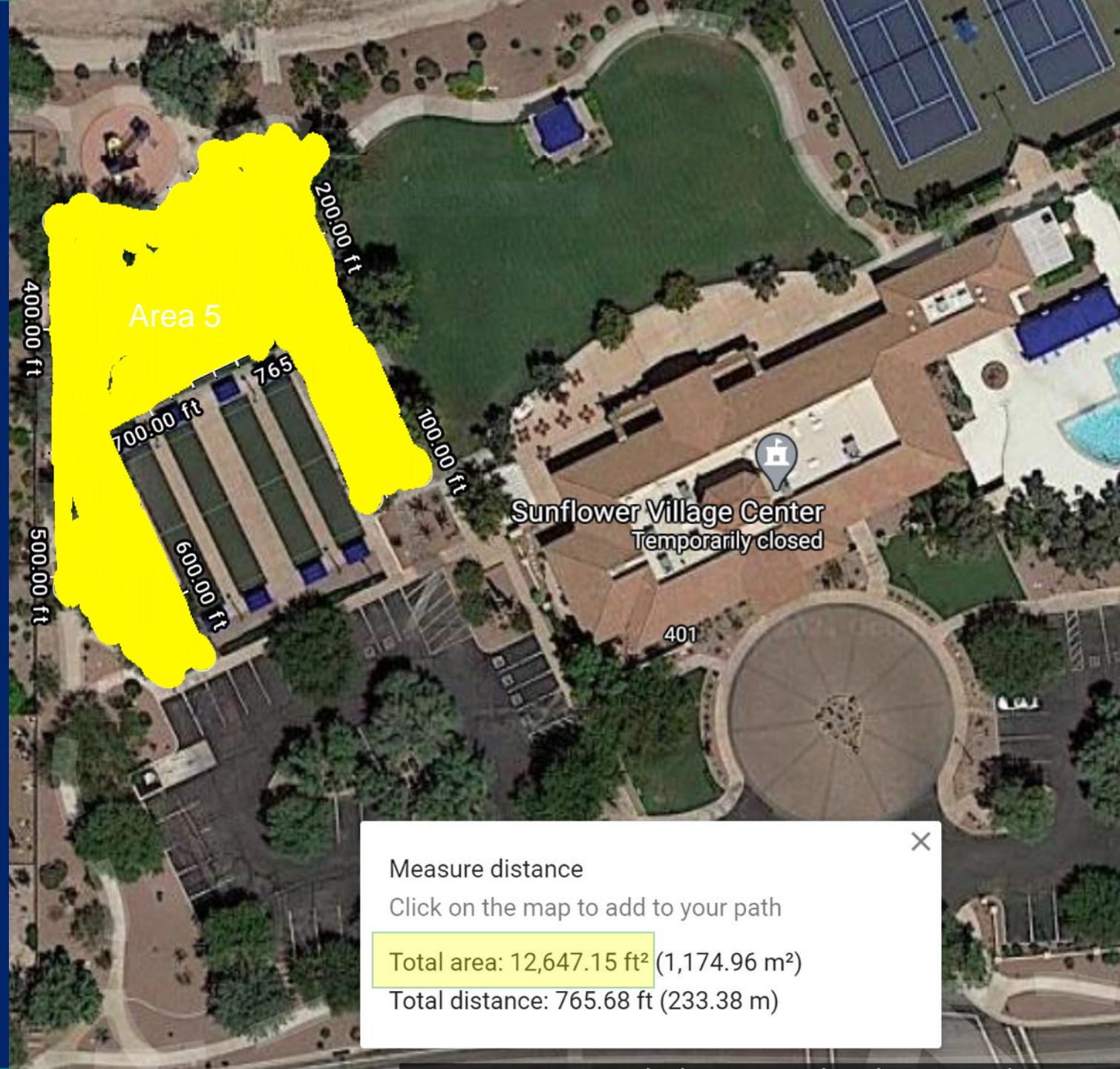
Area 5 North West corner of property
turf total: 12,647.15 sf

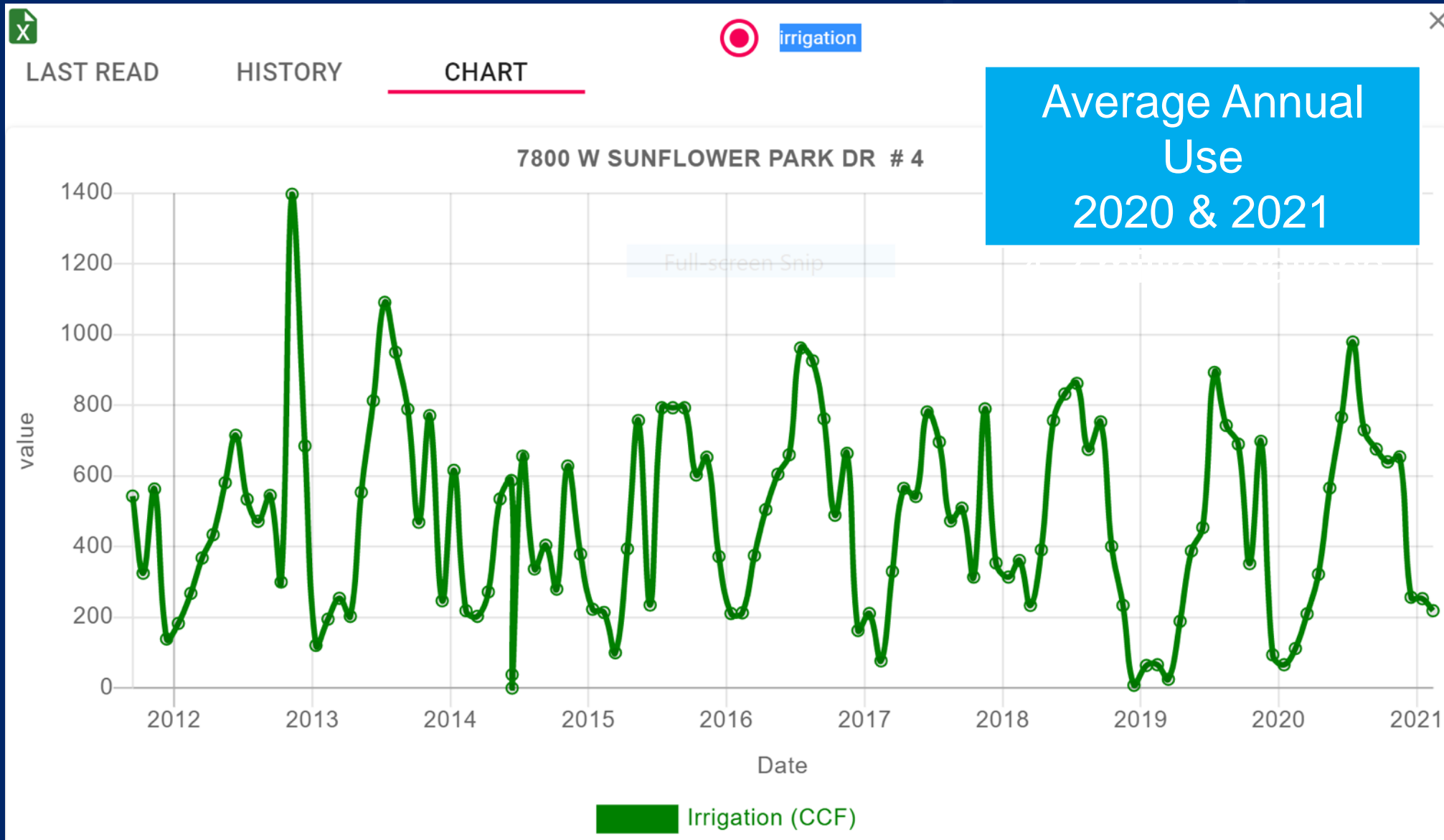
All areas combined total: **54,635 sf**

Average cost in Arizona for turf removal is
.68 cents per square foot plus disposal
fee

Highly recommended to conduct research
on different vendors/contractors that best
suit the specific needs for Sunflower HOA

https://homewyse.com/services/cost_to_remove_lawn.html





Irrigation meter yearly usage in CcF (1ccf =748 gallons)



IN COMPARISON

- Club House pool capacity is 75,000 gallons
- An audit inspection completed in March 2021 confirmed:
 - Winter use is 70,000 gallons per week
 - Summer use is 123,000 gallons per week

Water Use by Area

- Average annual bill for this meter is \$25,000
- Water Use per Area calculated by calculating % square footage for each Area compared to total
- Assumed drip areas ~5% total use
- Annual Water Use Comparisons:
 - Turf: 4-5 ft/sq ft (~35 gal/sf)
 - Smartscapes: 1-1.5 ft/sq ft (~10 gal/sf)

Turf Area	Square Feet	% total area	Cost per Area per Year
1A	1,825	3%	\$792
1B	1,615	3%	\$701
1C	700	1%	\$304
1D	1,000	2%	\$434
1E	4,190	7%	\$1,817
1F	4,300	7%	\$1,865
2	9,465	16%	\$4,106
3	8,050	14%	\$3,492
4	10,840	19%	\$4,702
5	12,650	22%	\$5,487
Drip	3,000	5%	\$1,301
Total	57,635		\$25,000

Section 1
 Total area: 23%
 Total square feet: 13,630
 Total cost: \$5,913



Irrigation Water Efficiency Recommendations

- Conduct frequent irrigation efficiency inspections in order to help identify leaks, stuck irrigation valves and other potential irrigation issues.
- Make seasonal adjustments to irrigation schedule.
- Plant native vegetation, including trees to provide additional shade.
- Implement Rainwater Harvesting techniques and install RWH features on property.
- Recommend installing flow sensor device (example: “Flume”) at meter to help track water use.
- Install smart irrigation controllers with rain sensors.

Resources:

- [epa.gov/watersense/weather-based-irrigation-controllers](https://www.epa.gov/watersense/weather-based-irrigation-controllers)
- lookforwatersense.epa.gov/Product-Search-Results-IrrigationController.html
- tucsonaz.gov/water/flow-devices





Angel Vega, Zanjero Water
Services Supervisor



angel.vega2@tucsonaz.gov



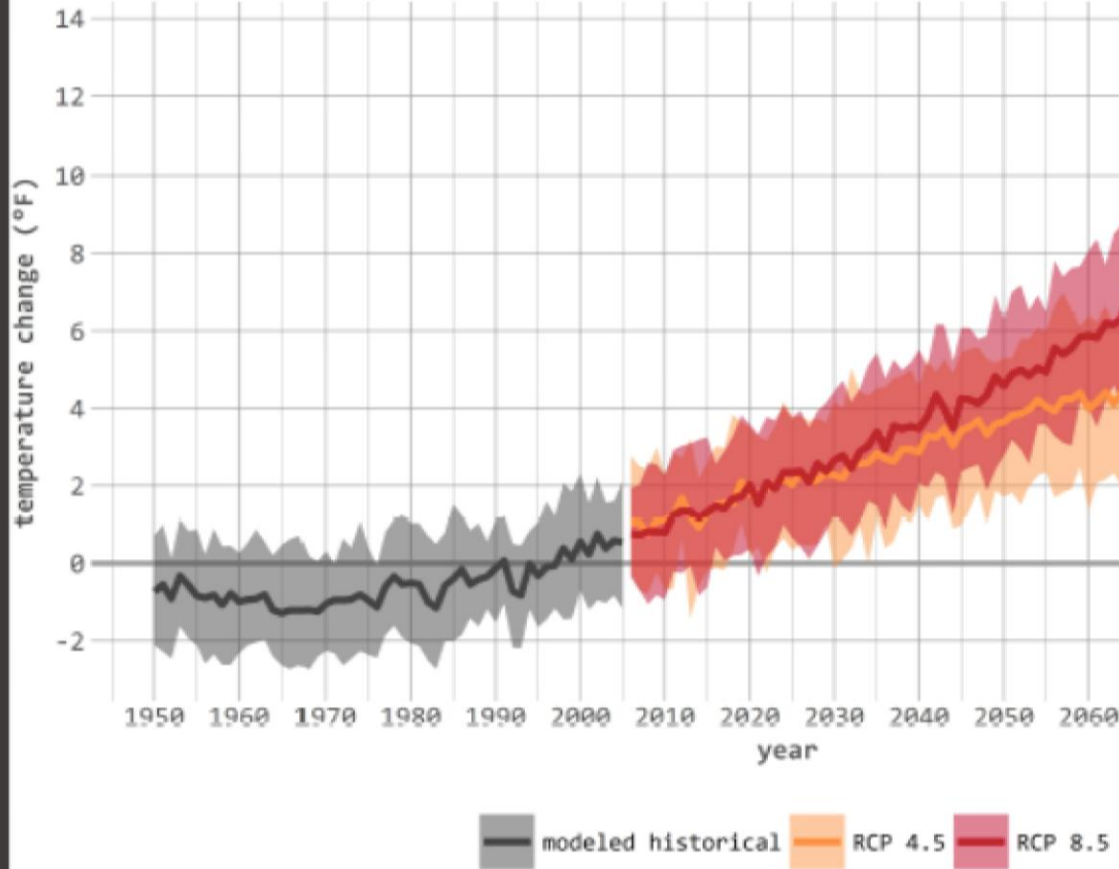
Candice Rupprecht, Water
Conservation Program
Manager



candice.rupprecht@tucsonaz.gov

Thank you!

projected changes in average temperature
Pima County, Arizona



Turf Area	Square Feet	% total area	Cost per Area per Year
1A	1,825	3%	\$792
1B	1,615	3%	\$701
1C	700	1%	\$304
2A	1,000	2%	\$434
2B	4,190	7%	\$1,817
2C	4,300	7%	\$1,865
3	9,465	16%	\$4,106
4A	8,050	14%	\$3,492
4B	10,840	19%	\$4,702
5	12,650	22%	\$5,487
Drip	3,000	5%	\$1,301
Total	57,635		\$25,000



RCP: Representative Concentration Pathway

Water Use by Area

- Average annual bill for this meter is \$25,000
- Water Use per Area calculated by calculating % square footage for each Area compared to total
- Assumed drip areas ~5% total use
- Annual Water Use Comparisons:
 - Turf: 4-5 ft/sq ft (~35 gal/sf)
 - Smartscapes: 1-1.5 ft/sq ft (~10 gal/sf)

Size and Cost of Annual Watering for each Turf Area

Turf Area	Square Feet	% total area	Cost per Area per Year
1A	1,825	3%	\$792
1B	1,615	3%	\$701
1C	700	1%	\$304
2A	1,000	2%	\$434
2B	4,190	7%	\$1,817
2C	4,300	7%	\$1,865
3	9,465	16%	\$4,106
4A	8,050	14%	\$3,492
4B	10,840	19%	\$4,702
5	12,650	22%	\$5,487
Drip	3,000	5%	\$1,301
Total	57,635		\$25,000

