

# City of Santa Rosa Landscape Measurements

California Water Efficiency Partnership  
Peer to Peer

3/15/2019



OUR FUTURE IN EVERY DROP

# ABOUT US

- Annual budget \$150 million
- Provide water and sewer service to 53,000+ customers in Santa Rosa
- Provide regional wastewater treatment for 213,000+ customers
- Maintain over 1,200 miles of water and sewer pipe
- Treat and beneficially reuse 17 million gallons of recycled water per day
- Employ 250 highly trained and skilled staff
- Manage Storm Water MS4 Permit for City



OUR FUTURE IN EVERY DRÖP

# Budget-based water targets

- Aggregated target



# Outdoor Residential Target



- Outdoor Budget = Some % Net ET x Area

# Landscape Measurements



1. Classify landscapes into distinct categories (Pools, turf, trees and shrubs, hardscape, etc.,)
2. Combine data into broader categories (Irrigated, Irrigable-Not Irrigated, Not irrigable)



# Issues with Santa Rosa's SFR measurements

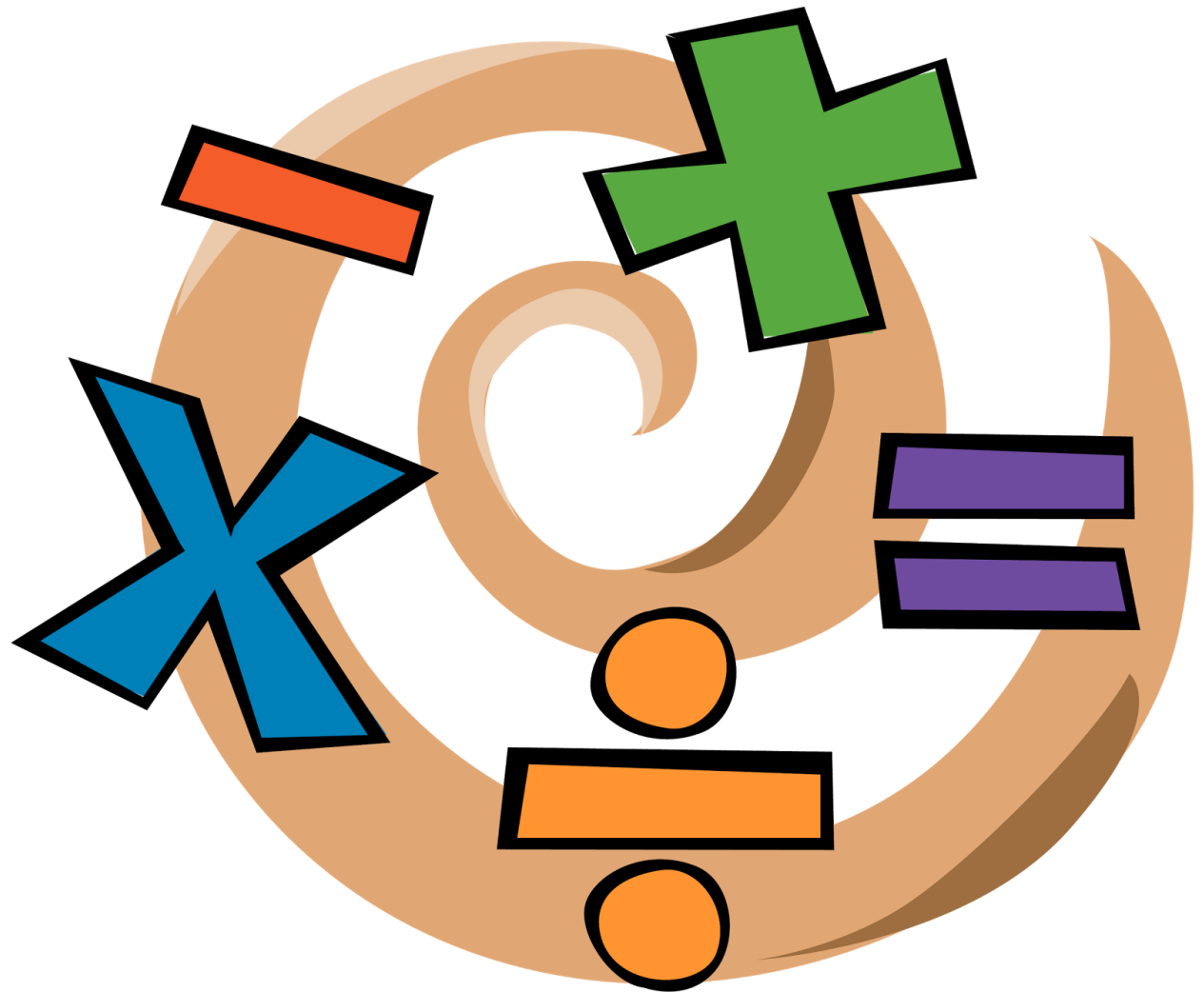
- Parcel Data
  - Planter strips
  - Median strips
- Trees
  - LIDAR in spring
  - Cannot differentiate growth



# Multi Family Residential (MFR) Complications

- Note: we did not measure MFR landscape
- MFR not consistently:
  - defined
  - metered
  - reported

Math





# Indoor Water Budget

- Santa Rosa: estimated SFR Pop. 115,515
- Indoor SFR Budget =  
SFR Pop. x 55 GPCD  
x 365 days per year
- Santa Rosa's Indoor SFR Budget =  
 $115,515 \times 55 \times 365 = 2.32 \text{ BG}$



# Outdoor Water Use

Draft  
Santa Rosa  
2016 Data

- Total SFR Water Use =  
2,671,000,000 (2.671 BG)
- Indoor Water Use =  
 $\text{Pop.} \times 55 \text{ gpcd} \times 365 = 2.32 \text{ BG}$
- Outdoor Water Use =  
Total – Indoor =  
 $2.67 - 2.32 = 0.352 \text{ BG}$   
( = 47,000,000 cu.ft.)

# Outdoor Water Budget

## Draft Santa Rosa 2016 Data

- Irrigable Area = 144 Million sq. ft.
- Applied Water Depth = 
$$\frac{\text{Water Volume Applied}}{\text{Irrigable Area}}$$
$$= \frac{47,000,000 \text{ cu.ft.}}{144,000,000 \text{ sq.ft.}} \times \frac{12 \text{ in.}}{\text{ft.}} = 3.8 \text{ in.}$$

# Outdoor Water Budget

Draft  
Santa Rosa  
2016 Data

- Outdoor budget =  
Landscape area x Outdoor  
standard x Net ET
- Applied Water Depth = 3.8"
- Net Et = 34.5"
- Water Applied = 11 % of Net ET
- No WELO standard below 11%  
Net ET
- The City would have met the  
target for SFR

# Single Family Irrigable Area

## City of Santa Rosa:

Total SF Parcel Area:  
327,418,317 sq. ft.

Irrigable Area:  
144,064,059 sq. ft.

Outdoor budget =  
Landscape area x Outdoor  
standard x Net ET