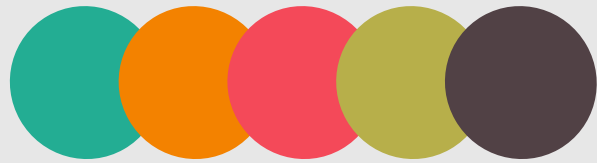


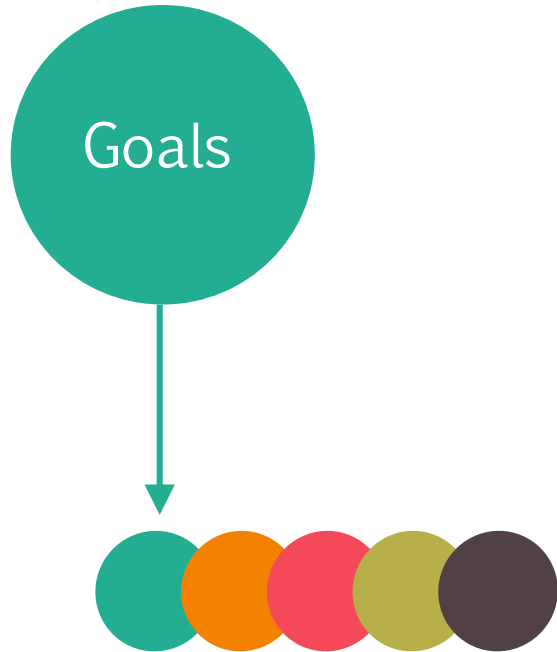
Water Reuse



Caltrans Recycled Water

Jack Broadbent
Supervising Landscape Architect
Caltrans, Division of Design

Caltrans



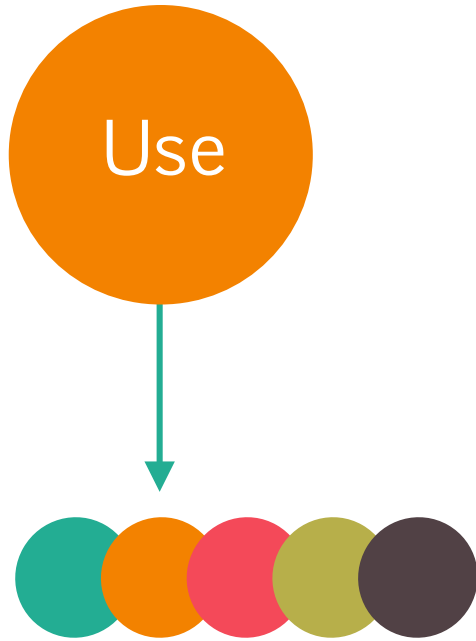
Goal Reduce potable water use by 50%
Achieved 62% in 2014

Actions reduce watering, delay planting, upgrade irrigation controllers to “Smart”, repair irrigation systems, convert potable water use to recycled water use

Long term Maximize recycled water use
(80% by 2030)



Recycled Water Use

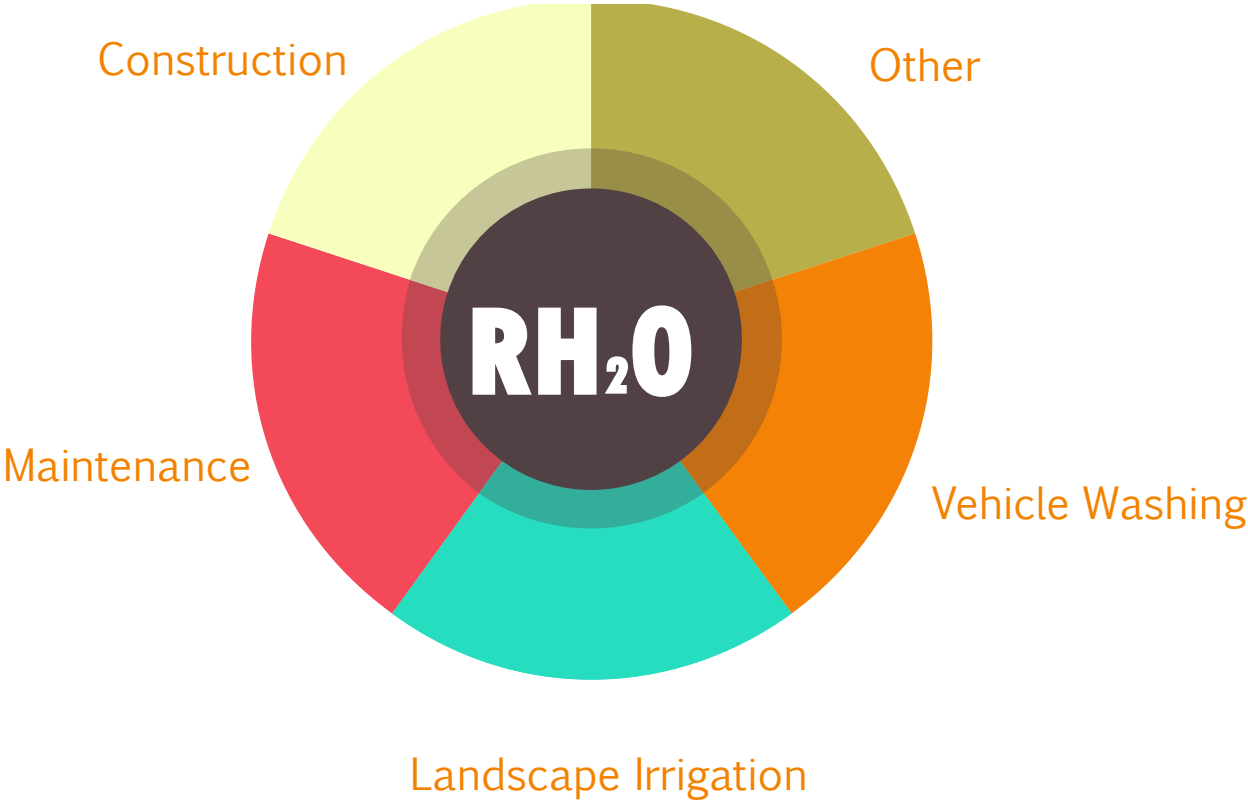


Landscaping 30,000 acres of irrigated landscape, about 17% percent is irrigating with recycled water

Construction Certain conditions contractors are directed to use recycled water



Recycled Water Use



Construction

Calculating Estimated Required Water

Construction Activity	Gallons Per Unit
Aggregate Base & Subbase	15/CY
Dust Control	2/CY
Subgrade Compaction	10/SQYD
Hot Mix Asphalt Compaction	7/Ton
Concrete	25/CY
Cold Planning Pavement	0.5/SQFT
Grind Concrete Pavement	6.5/SQFT
Groove Concrete Pavement	1.5/SQFT

Recycled Water Use 17%



Landscape Irrigation Water usage

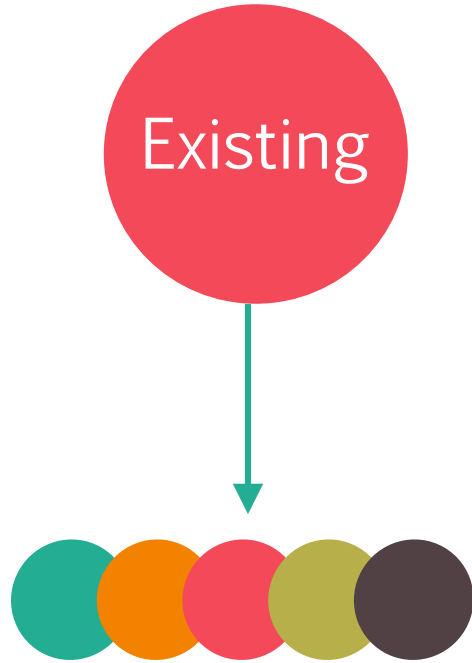
Jan – Oct 2015

Potable 1,776B gallons

Recycled 358M gallons

Total 2,134B gallons

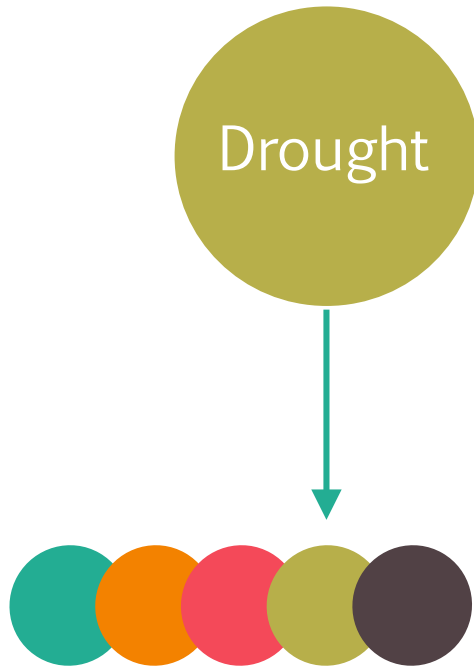
Existing Recycled Water Policy



Highway Design Manual Whenever available, water sources should be non potable

Project Development Manual Cost for the water system does not exceed 125% of all costs associated with using a potable water source

Recycled Water and Drought



Director Policy Existing maintenance and construction practices shall utilize recycled water wherever feasible

Chief Engineer Policy Memo Delay planting unless irrigated with recycled or non-potable water

Emergency Contracts Cost constraints relaxed, approximately \$30 million in contracts to convert irrigation to recycled.

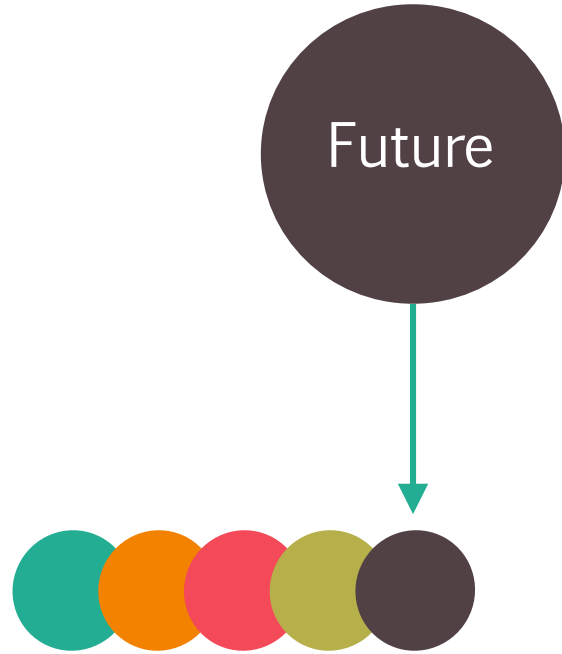
funded with emergency dollars

Current Recycled Water Projects



- 19 Recycled Water Projects
 - 11 projects in So Cal
 - 1 in Los Angeles, 2 in San Bernardino, 2 in Irvine, 6 in San Diego
- Transmission line (outside CT ROW)
range 6 ft – 3 miles to POC
- Lateral line (inside CT ROW)
range 315 ft – 11,000ft
- \$22,000 avg /water meter

Opportunities and Challenges



How can we Partner to maximize recycled water usage

Goal 80 % of Caltrans landscape irrigation will use recycled water by 2030

Location and Access

- Truck loading stand pipes
- Mapped transmission lines

Ownership

- State Highway Right-of-Way
- Local Road / Private lands

Maintenance and Operation

- Cost and Access fees (meters)
- Water reliability
- Quantity
- Quality

