

# This presentation premiered at WaterSmart Innovations

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# **Building a Park For Conservation Education and Recreation**



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**Chino Basin Water Conservation**

**District**





## Protect Chino Basin Groundwater

Manage 8 Storm Water Basins

Capture Storm Runoff and Recharge State Project Water



## Education

Tours

Classes for Residents and Professionals



## Community Outreach

Earth Day Celebrations for

Elementary Students

Water Fair



## Landscape Evaluation Audits

Commercial, Industrial, Institutional  
Residential and Multi Family

# Chino Basin Water Conservation District

A local  
government  
special district  
that...



# THE PROCESS

## NINE 'EASY' STEPS

- 1) Deciding to Change
- 2) Budget Developed
- 3) Architect and Design
- 4) Tree Selection
- 5) Bid
- 6) Closed Park during construction and two months post
- 7) Construction (January 2009 thru April 2009)
  - Tree removal
  - Irrigation
  - Boulder Delivery and Placement
  - Mulching
  - Pathway and mow curb installation
  - Tables, benches, waste receptacles, signage
  - Turf area grading
  - Aeration of existing turf
  - Reseeding of existing turf
- 8) Develop Educational Materials
- 9) Park Opens – June 2009



# GOALS

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CREATE AN ACTIVE DEMONSTRATION PARK FACILITY

USE OF RECLAIMED WATER

COST EFFECTIVE

EDUCATIONAL

ENHANCED RECREATION

FUNCTIONAL

COMMUNITY ORIENTED

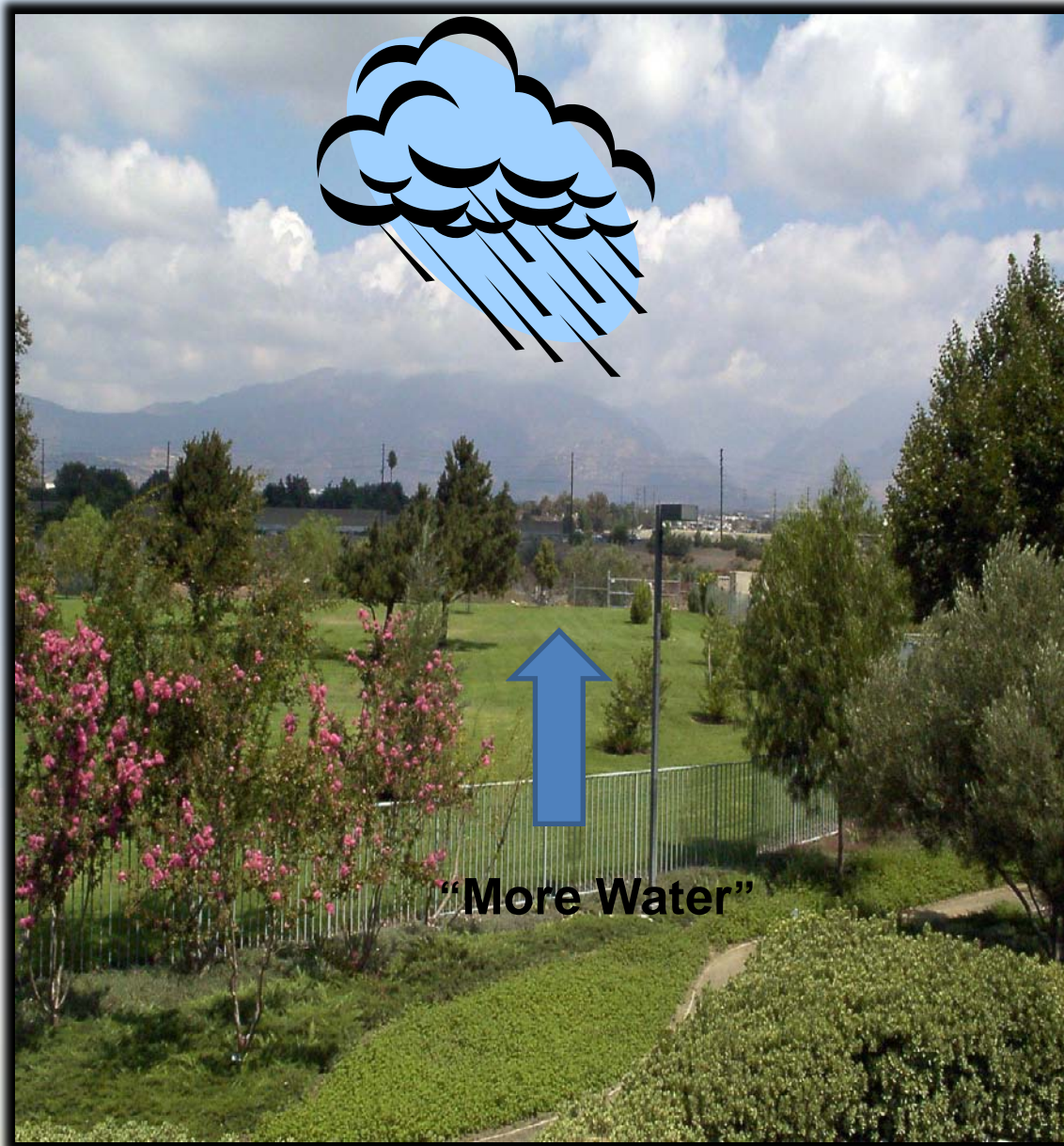
Water Conservation





# Chino Basin Water Conservation District Park Before

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**"More Water"**

Pretty....

But lots of thirsty turf  
and the park was in  
need of appropriate  
trees

Park Area:

84,000 sq. ft.

Turf Removal:

61,500 sq. ft.



# Removal of Existing trees



## **Removal of 24 Existing Trees**

**These trees were:**

- **Surface rooted**
- **Diseased**
- **Unsafe**





# Removal of Existing Trees



**Surface Rooted, Diseased,  
Unsafe, Not appropriate**







# BOUNDARIES DRAWN



Remaining turf areas did not undergo removal. All other areas of turf received multiple applications of Glyphosate

Turf Removal: 61,500 sq. ft.

73% of Turf Removed



# Irrigation

## Purple Pipe Irrigation Installation

Reclaimed H<sub>2</sub>O







# Irrigation

## Obstacles encountered during construction

Concrete blocks from historical sand, rock and gravel operations at park site.

Often times causing trenching and piping to be 'detoured'







# Irrigation

## Trenching



Concrete slag from  
historical sand rock and  
gravel operations at park  
site





# Irrigation

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# Tree Planting



Preparing deep  
water irrigation tube

Additional trees and irrigation added by in house staff



# Tree Irrigation



Most trees were installed with four deep water tubes





# Tree Placement

38 new species of trees  
added to new park.

The tree species that  
remained included:

Eucalyptus, Oak, Pepper,  
Sycamore and Camphor







# Tree Placement





Tree installations complete

‘Zoning’ - Seven valves operate the tree irrigation system







# Staging Mulch



Approximately 600-700 cubic yards of donated tree chip mulch was applied at three to four inches in depth  
Mulched Area: 50,000 sq. ft.





# Boulder Selection



Collecting the 'Smaller' Rocks  
500 -1000 lb. rocks (From District properties)





# Boulder Delivery



Delivery of 3  
to 5 Ton  
Boulders



# Boulder Placement



Small Boulders were carried, larger ones were 'pushed' into place  
72 Boulders placed in park





# Pathway and Mow Curb - Border Construction

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Curbing construction followed most of the boulder placements  
Concrete Mow Strip: 1,300 sq. ft.





# Pathway Prep



Permeable cloth barrier installation  
DG Pathway: 10,200 sq. ft.





# DG Pathway Installation



Application of  
decomposed granite with  
added stabilizer.

Water was applied  
followed by mechanical  
compaction



# Reseeding



Minor grading with added soil for low spots, aeration prep, fertilizer and top dressing of fine mulch over seed mix





# Features



Benches, tables,  
& waste containers



Dog waste & recycling bins



## Signage & Receptacle







# List of Irrigation Equipment

- 2" Wilkins Pressure Reducer
- 2" Wilkins 'Y' Strainer
- Brass Globe Valves- Superior 950 – DWPRS
- Hunter I-25 Rotor Sprinklers
- Hunter PGP Rotor Sprinklers
- Hunter Root Watering System-RZWS-36-50-CV
- Purple PVC Sch 40
- Quick Couplers
- Brass Ball Valves
- Purple Valve Box Enclosures
- Reclaimed Water Signage







# Irrigation Audit

Six valve stations are used to irrigate the turf

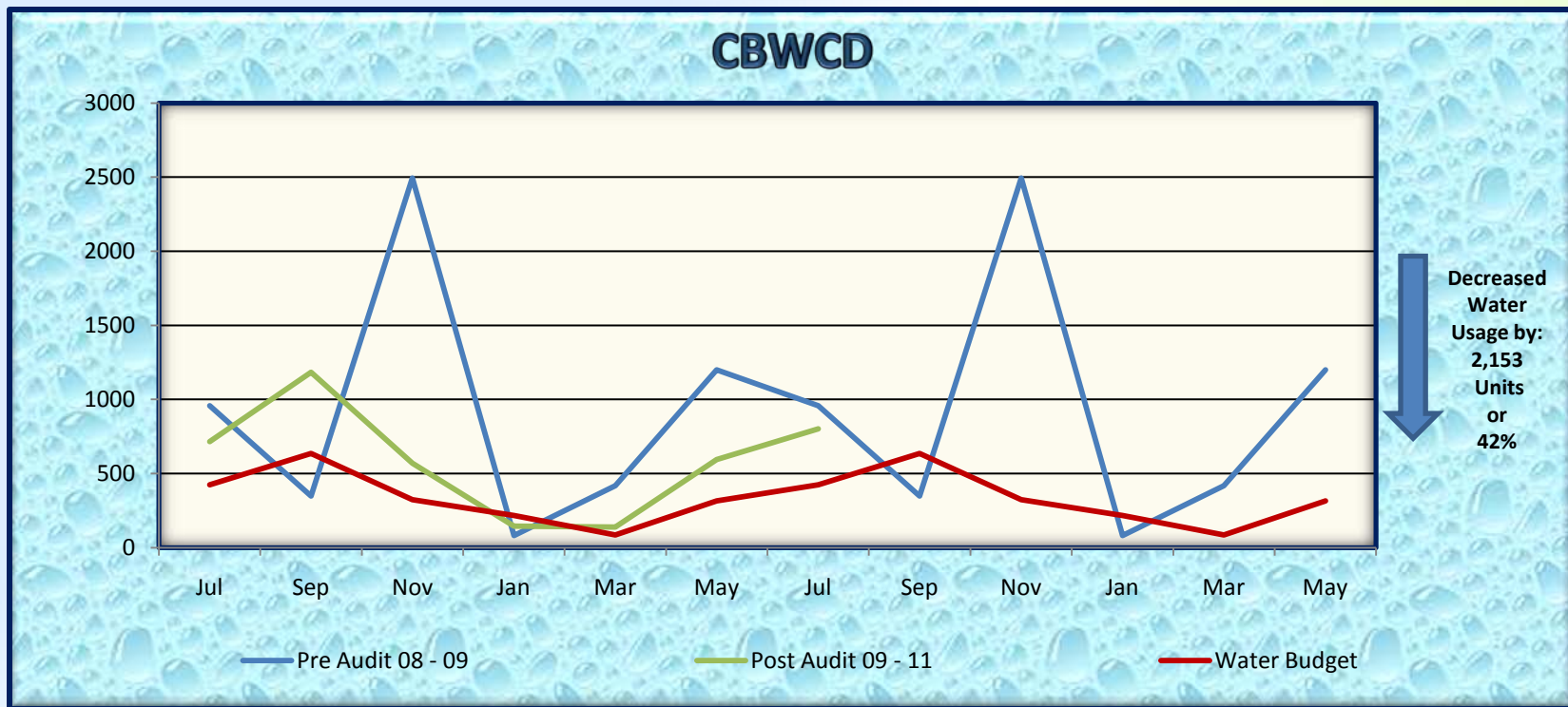
New Turf Area: 22,500 sq. ft.

61 % DU / Precipitation Rate: 0.5 inches per hour





# Water Use



## Costs

Potable Water Rate 2010:

\$1.61/unit

Recycled Water Rate 2010 :

\$1.14/unit

Cost Savings Per Unit:

29%





# First Year Tree Maintenance



At about eight to twelve months after planting, all newly planted trees received light structural pruning

Trees: 7 Valves 110 GPM  
Approximately \$160.00 per year for young trees.



# First Year Tree Maintenance

Light pruning



to establish good structure and shape





# Finished Product

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# Finished Product



Old Park Potable Water Use - Turf: 17 valves at 555 GPM=  
Average of 33 GPM per valve. Approximately  
\$4,500.00/year.

New Park Recycled Water Use - Turf: 6 valves at 178  
GPM= Average 30 GPM per valve. Approximately  
\$900.00/year





# What the Park is Used for:

- District Events
  - Earth Day
  - Water Fair
  - Dog Day in the Park
- Recreation
  - Sports
  - Walking / Jogging
- Education
- Emergency Medical Transport Landing







# Earth Day



Old Design

New Design





# Annual Landscape and Water Conservation Fair



Pumpkin Patch



Drought Tolerant Plants





# Dog Day in the Park

**Even the Fire  
Departments Mascots  
Join the Fun**



**Sloppiest Water Drinker Competition**



**Always Watch Where You're Stepping!**





# Recreation



Recreation- Walking-Sports



Recreation-Kids Play



# Emergency Landing

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# Sample Educational Brochure



**Scientific Name:** *Olea europaea*

**Common Name:** Fruitless Olive Tree

**Size:** Height 15-30 ft. x Width 15-30 ft.

**Flowers:** Normally none, but can have white to yellowish flowers in late spring.

**Exposure:** Full sun

**Water:** Little to moderate water

**Origin:** Mediterranean

**Sunset Zones:** 8, 9, 12, 11-24; H1, H2

**Maintenance:** Low. Prune to shape or to size. Prune water- sprouts from trunk base.

**Comments:** A fruitless olive tree with striking multiple gnarled trunks if pruned to a multi-trunked tree. Stays green all year long (Evergreen). Once established, very drought tolerant. Can take heat and wind. Is long lived.



**Chino Basin Water  
Conservation District**

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# Sample Educational Brochure

## Chino Basin Water Conservation District's Tree Comparison Chart

Chino Basin Water Conservation District's Wilderness Park has 43 different trees.

If you are interested in planting a tree in your yard, the information chart below will provide you with details on the various trees. Remember, think about how big the mature tree will be and where you are putting it (i.e.: next to the house or driveway, in an area to provide shade). For more info, please check with CBWCD staff.

#	Tree Name (Common)	Size	Deciduous Evergreen	Water Needs	Blooms	Bloom Season	Maintenance & Comments
1	Fruitless Olive Tree	15-30' h x 15-30' w	E	Low	Not significant	N/A	Prune watersprouts from trunk base.
2	Saint Mary Magnolia	20' h x 20' w	E	Moderate	White	Summer and fall	Prune roots circling the tree. Good for lawn areas. Susceptible to a soil fungus.
3	Purple Leaf Plum	18' h x 12' w	D	Moderate	Lt. pink to white	Spring	Fast grower. Tends to sucker.
4	Japanese Blueberry Tree	30-60' h x 20-30' w	E	Moderate	White	Summer	Needs well drained, neutral to alkaline soils. Wind resistant. Relatively pest free.
5	Fruitless Sweet Gum	60'h x 20-25' w	D	Moderate	Not significant	N/A	Low maintenance. Good in lawns. Don't plant near sidewalk, curb or water line. No seed balls.
6	Golden Trumpet Tree	25-50' h x 25-50' w	D	Moderate	Golden yellow	Spring	Prune for shape and structure.
9	Pink Trumpet Tree	25-50' h x 25-50' w	D	Moderate	White to light pink	Late winter or spring	Best as a single trunk. Handling plant may cause skin irritation.
10	Chinese Flame Tree	20-40' h x 20-40' w	D	Moderate	Yellow	Summer	Rake seeds from the ground before they germinate. Hardy.
11	Bay Laurel	12-40' h x 12-40' w	E	Moderate	Yellow	Spring	Prune as single leader. Remove suckers from the base of the trunk.



# San Joaquin Basin Water Conservation District Wilderness Park



1. **WILLOW OLE**  
*Salix lasiolepis*  
2. **WILLOW OLE**  
*Salix lasiolepis*  
3. **WILLOW OLE**  
*Salix lasiolepis*  
4. **WILLOW OLE**  
*Salix lasiolepis*  
5. **WILLOW OLE**  
*Salix lasiolepis*  
6. **WILLOW OLE**  
*Salix lasiolepis*  
7. **WILLOW OLE**  
*Salix lasiolepis*

8. **WILLOW PITTOSPORUM**  
*Pittosporum phylliraeoides*  
9. **PINK TRUMPET TREE**  
*Tabebuia impetiginosa*  
10. **CHINESE FLAME TREE**  
*Koelreuteria bipinnata*  
11. **BAY LAUREL**  
*Laurus nobilis*  
12. **CHINESE DATE TREE**  
*Ziziphus jujuba*  
13. **CHILEAN MESQUITE**  
*Prosopis chilensis*  
14. **CAMPHOR TREE**  
*Cinnamomum camphora*

15. **CALIFORNIA PEPPER**  
*Schinus molle*  
16. **CAJEPUT TREE**  
*Melaleuca quinquenervia*  
17. **DESERT IRONWOOD**  
*Olneya tesota*  
18. **BLUE PALO VERDE**  
*Cercidium floridum*  
19. **AFRICAN SUMAC**  
*Rhus lancea*  
20. **COAST LIVE OAK**  
*Quercus agrifolia*  
21. **DESERT MUSEUM PALO VERDE**  
*Cercidium 'Desert Museum'*

22. **FLAXLEAF PAPERBARK**  
*Melaleuca linariifolia*  
23. **BRONZE LOQUAT**  
*Eriobotrya deflexa*  
24. **CALIFORNIA SYCAMORE**  
*Platanus racemosa*  
25. **PEPPERMINT TREE**  
*Agonis flexuosa*  
26. **PURPLE SMOKE TREE**  
*Cotinus coggygria 'Atropurpurea'*  
27. **BOTTLE TREE**  
*Brachychiton populneus*  
28. **DEEP COVE HIMALAYAN CEDAR**  
*Cedrus deodara 'Deep Cove'*

29. **INCENSE CEDAR**  
*Calocedrus decurrens*  
30. **WESTERN REDBUD**  
*Cercis occidentalis*  
31. **STRAWBERRY TREE**  
*Arbutus unedo 'Manna'*  
32. **BLUE GUM**  
*Eucalyptus globulus*  
33. **BLUE ATLAS CEDAR**  
*Cedrus atlantica 'Glaucua'*  
34. **MAYTEN TREE**  
*Maytenus boaria*  
35. **CHINESE FRINGE TREE**  
*Chionanthus retusus*

36. **MAIDENHAIR TREE**  
*Ginkgo biloba 'Autumn G'*  
37. **EASTERN REDBUD**  
*Cercis canadensis*  
38. **AUSTRALIAN WILLOW**  
*Geijera parviflora*  
39. **SAWLEAF ZELKOVA**  
*Zelkova serrata 'Village G'*  
40. **CHINESE PISTACHE**  
*Pistacia chinensis*  
41. **MAIDENHAIR TREE**  
*Ginkgo biloba 'Princeton'*  
42. **FIREWHEEL TREE**  
*Stenocarpus sinuatus*  
43. **FOREST PANSY REDBU**  
*Cercis canadensis 'Fores'*

FOR MORE DETAILED INFORMATION REGARDING THESE TREES, SEE THE OFFICE STAFF.



# Questions?







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## TITLE

### Building a Park For Conservation, Education and Recreation

**ABSTRACT:** In a water conservation project to conserve California's most valuable resource and to provide educational and recreational opportunities for the public, educators, water agencies and others, the Chino Basin Water Conservation District has remodeled its 2.0 acre park to a 'Greener', sustainable landscape. The utilization of several water conservation technologies and practices are demonstrated throughout the new landscape.

In the new design, the pre-existing turf area was reduced by 73% and the remaining park space is planted with 43 species of trees appropriate to the local area. Tree selections demonstrate special considerations to size, water usage, hardiness and maintenance.

The latest in irrigation technology and equipment are included for both the turf and trees, with all plant materials utilizing the newly installed recycled water system. The total volume of water now being used has been significantly reduced from historical usage because of the reduction of turf and the high efficiency irrigation system. The use of recycled water eliminated all potable water use for irrigation and an immediate cost savings of 25-29% per unit of water was realized.

The use of native and natural materials has added to the total aesthetics of the design. These materials include permeable decomposed granite pathways, boulders and mulch from local tree trimming companies.

A feeling of community is being felt with the installation of benches, picnic tables, and trash and dog waste receptacles. This community atmosphere is also realized with multiple recreational sports being played within the reduced turf area. Tree information signage is also provided for every tree with a legend map to provide the visitor with the location and identification of each tree species. Additional detailed information for trees, irrigation, and landscaping and water conservation have been created by the District and are provided in various brochures.