



Assistance from DWR



Materials and Literature

Model Water Efficient Landscape Ordinance

September 10, 2009

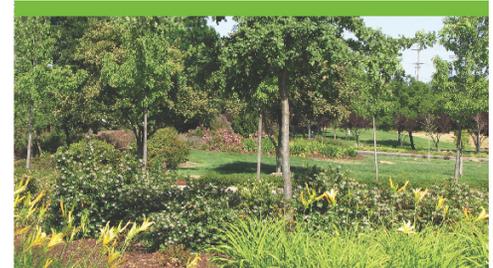
Includes Text of Statute
AB1881



FAQ's

Coming Soon
?

Answers to Frequently Asked Questions



The Updated Model Water Efficient Landscape Ordinance
CALIFORNIA DEPARTMENT OF WATER RESOURCES

Landscapes are essential to the quality of life in California. They provide areas for recreation, enhance the environment, clean the air and water, prevent erosion, offer fire protection and replace ecosystems lost to development. California's economic prosperity and environmental quality are dependant on an adequate supply of water for all beneficial uses.

In California more than half of urban water supplies may be used for landscape irrigation. Ensuring [efficient landscapes](#) in new developments and reducing water waste in existing landscapes are some of the most cost-effective ways to stretch our limited water supplies and ensure that we continue to have the water we need.

The Water Conservation in Landscaping Act of 2006 (Assembly Bill 1881, Laird) requires cities, counties, charter cities, and charter counties to adopt landscape water conservation.



<http://www.water.ca.gov/wateruseefficiency/landscapeordinance/>

If adopting State Model Ordinance...

Spreadsheet detailing needed changes

For example...

492.7(a)(1)(D)	(D) Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions . Irrigation should be avoided during windy or freezing weather or during rain.	Local agency shall decide which sensors are required based on the local climate.
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Educational Materials

PARKS & COMMERCIAL LANDSCAPES

WATER USE EFFICIENCY IDEAS



- Reduce employee awareness of water use efficiency.**
 - Encourage employees to conserve water by using efficient practices.
 - Install signs encouraging water conservation to employees and customer interactions.
 - When cleaning with water, use water-saving techniques.
 - Install sub-meters and read water meters weekly to monitor water use and efficiency efforts and to help detect leaks.
 - Assign an employee to monitor water use and needs.
 - Seek employee suggestions on water use efficiency. Encourage suggestions from all employees.
- Determine the quantity and location of water being used.**
- Monitor the facility.**
- Identify water source points.**
- Review a schedule of all water-using points. Know where your faucets, toilets, showers, bidets, fountains, sinks, and other water-using fixtures are located.**
- Determine specific uses for each entry point.**
- Identify capacity of each water entry point.**

water efficient LANDSCAPES

In California, the largest use of all other water (excluding landscapes). When a landscape or irrigation system is poorly designed or poorly maintained, or the landscape consists of plants not suited to the dry and often hot California climate, water demand increases as a result of excessive evaporation, leaks, and runoff. Water conservation can be greatly reduced with careful planning, good plant selection, efficient irrigation systems, and good water management and maintenance practices.

These California experiences frequent and sometimes prolonged droughts together with an ever increasing demand for water is a great need for us to use water efficiently. For the most part we have to plan as we live. We can use water more efficiently and still have beautiful, aesthetically pleasing landscapes including annual lawns for recreation.

The brochure is intended to help you make a landscape that is not only water efficient, but attractive, useful, and low maintenance. The landscape features here are typical back yards, but the principles of water efficient gardening apply to all back yards as well.



RESIDENTIAL LANDSCAPES

WATER USE EFFICIENCY IDEAS



- Check for leaks in irrigation heads and filters.**
- Use granular heads with matched precipitation rates.**
- Check soil moisture before watering.**
- Water only during the late afternoon, night and early morning to minimize evaporation.**
- Water slowly and evenly.**
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- Water slowly and evenly.**

IRRIGATION CONTROLLERS FOR THE HOMEOWNER

Recommended Water Saving Features



- Water saving features:**
 - Programmable controller
 - Flow sensor
 - Weather sensor
 - Soil moisture sensor
- Water saving features:**
 - Programmable controller
 - Flow sensor
 - Weather sensor
 - Soil moisture sensor

Water—too precious to waste!

The Essential Tool Kit for Making Your Home Landscape Water Efficient




Available in Spanish

<http://www.water.ca.gov/wateruseefficiency/landscapeordinance/technical.cfm/>

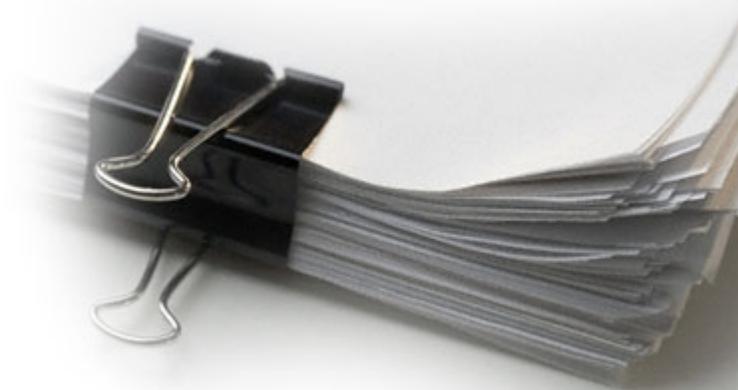


www.saveourH2O.org

- Print ads for local newspapers
- Television and radio PSAs
- Outdoor advertisements (i.e., billboards, transit ads, mall banners, etc.)
- Brochures and bumper stickers
- Web ads

Example Ordinances

When local agencies notify DWR with ordinances,
DWR will post ordinances to our website



Sample Forms

Sample forms
directly from
the Model Ordinance

HYDROZONE INFORMATION TABLE

Please complete the hydrozone table(s) for each hydrozone. Use as many tables as necessary to provide the square footage of landscape area per hydrozone.

Hydrozone*	Zone or Valve	Irrigation Method**	Area (Sq. Ft.)	% of Landscape Area
	Total			100%

* **Hydrozone**
HW = High Water Use Plants
MW = Moderate Water Use Plants
LW = Low Water Use Plants

****Irrigation Method**
MS = Micro-spray
S = Spray
R = Rotor
B = Bubbler
D = Drip
O = Other

Reference Materials

From DWR's Rulemaking File

Examples from the file:

- *“A Guide to Estimating Irrigation Needs of Landscape Plantings in California: The Landscape Coefficient Method and WUCOLS III”*
- *“Protecting Urban Soil Quality: Examples for Landscape Codes and Specifications”*, USDA Natural Resources Conservation Service, December 2003
- *“California Health Laws Related to Recycled Water: The Purple Book”* California Department of Health Services, June 2001
- *“Reference Evapotranspiration Zones”* map, UC Department of Land, Air and Water Resources and California Department of Water Resources 1999.
- Others



Water Budget

CIMIS

Evapotranspiration Data for Calculating Water Budgets and Irrigation Scheduling

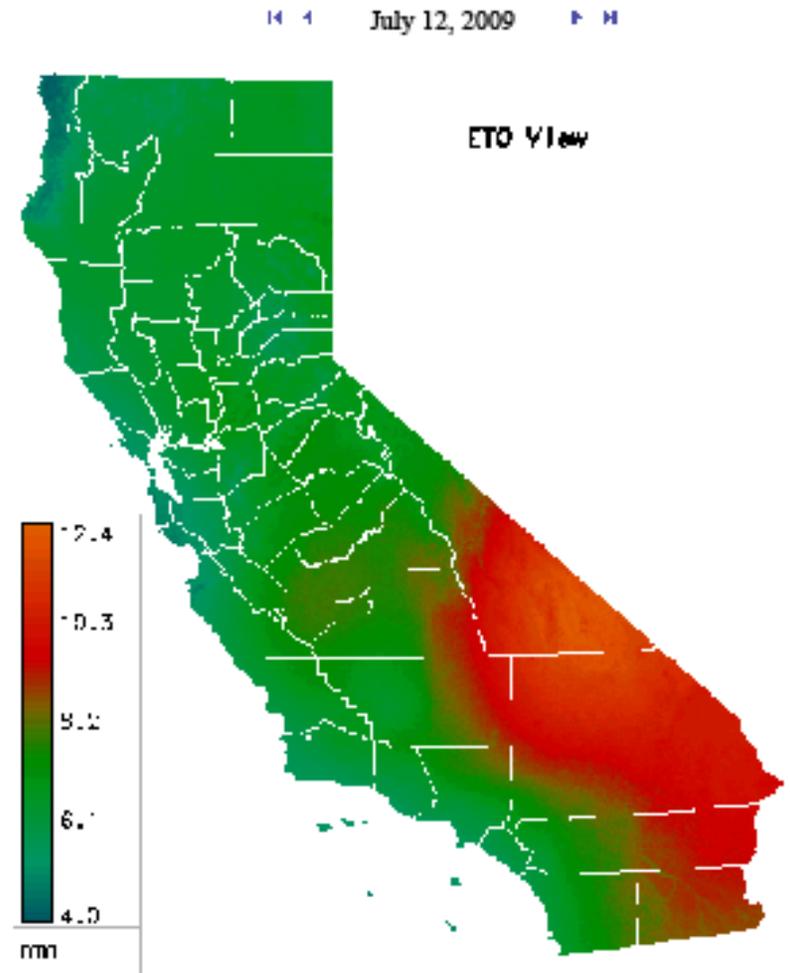


County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
ALAMEDA													
Fremont	1.5	1.9	3.4	4.7	5.4	6.3	6.7	6.0	4.5	3.4	1.8	1.5	47.0
Livermore	1.2	1.5	2.9	4.4	5.9	6.6	7.4	6.4	5.3	3.2	1.5	0.9	47.2
Oakland	1.5	1.5	2.8	3.9	5.1	5.3	6.0	5.5	4.8	3.1	1.4	0.9	41.8
Oakland Foothills	1.1	1.4	2.7	3.7	5.1	6.4	5.8	4.9	3.6	2.6	1.4	1.0	39.6
Pleasanton	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
Union City	1.4	1.8	3.1	4.2	5.4	5.9	6.4	5.7	4.4	3.1	1.5	1.2	44.2

www.cimis.water.ca.gov

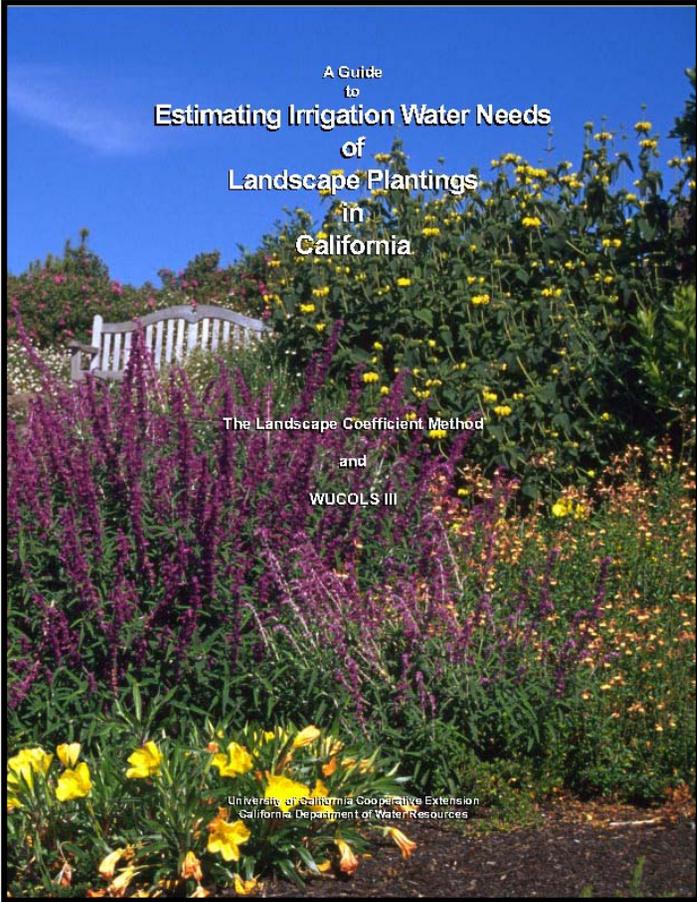
CIMIS Daily ETo Maps

- Archived data from Feb. 2003
- 2 kilometer resolution
- Can request data by geographic coordinate, zip code, or address
- Available CIMIS web site, or automated email reports
- Coming soon to web services



WUCOLS

Water Use Classification of Landscape Species



A Guide
to
Estimating Irrigation Water Needs
of
Landscape Plantings
in
California

The Landscape Coefficient Method
and
WUCOLS III

University of California Cooperative Extension
California Department of Water Resources

Used to estimate
the water needs
of landscape plants

<http://www.water.ca.gov/wateruseefficiency/landscape/>

<http://www.water.ca.gov/wateruseefficiency/landscapeordinance/>

Water Budget Spreadsheets

Maximum Applied Water Allowance (MAWA) Calculations

$$\text{MAWA} = (\text{ET}_o) \times (0.62) \times [0.7 \times \text{LA}) + (0.3 \times \text{SLA})]$$

Evapotranspiration Rate

Landscape Area

Special
Landscape Area

Estimated Total Water Use (ETWU) Calculations

$$\text{ETWU} = (\text{ET}_o) \times (0.62) \times [(\text{PF} \times \text{HA}/\text{IE}) + \text{SLA}]$$

Evapotranspiration Rate

Plant Factor

Hydrozone
Area

Irrigation
Efficiency

Special
Landscape Area

Maximum Applied Water Allowance

Coming Soon

DATA NEEDED	
City name (drop down menu)	
Landscape Area (Sq. ft.)	
Special Landscape Area (Sq.ft.)	
RESULTS	
Maximum Applied Water Allowance (MAWA) =	

Maximum Applied Water Allowance Calculations

Equation:

$$\text{MAWA} = (\text{ET}_o) \times (0.62) \times [(0.7 \times \text{LA}) + (0.3 \times \text{SLA})]$$

Pale Blue Cells = Enter value in

Tan Cells = Shows results

Click on the blue cell to Pick City Name

Bryte

Name of City

ET_o of City from Appendix A

51

ET_o (inches/year)

Enter area of landscape

50,000

LA (ft²)

Enter area of Special Landscape

0

SLA (ft²)

Results:

MAWA=

1,106,700

Gallons

147,945

Cubic Feet

3.40

Acre-feet

1.11

Millions of Gallons

MAWA calculation incorporating Effective Precipitation

Pick City Name

Bryte

Name of City

ET_o of City from Appendix A

51

ET_o (inches/year)

Enter area of landscape

50,000

LA (ft²)

Enter area of Special Landscape

0

SLA (ft²)

Enter Effective Precipitation

4.00

Eppt (in/yr)

Results:

Aerial Imagery

<http://www.water.ca.gov/wateruseefficiency/landscapeordinance/>

ftp://ftp.water.ca.gov/California_Imagery/Aerial_Imagery/2005_IR

- 2005 Available now
- 2009 Available end of year
- Must have GIS Software
- FREE !



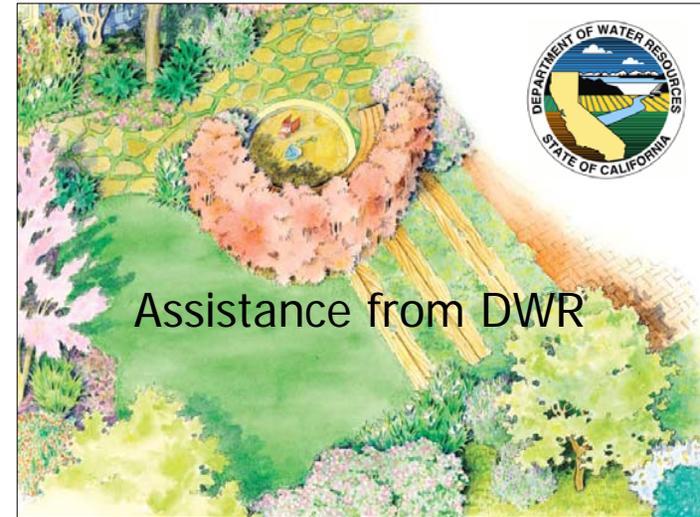
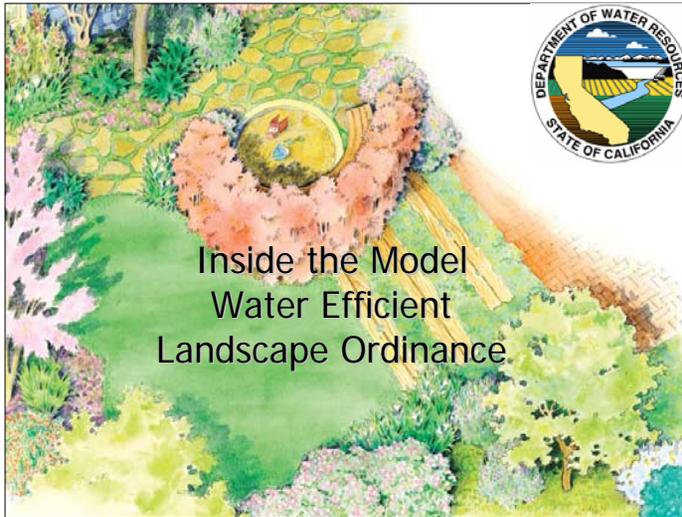
Existing Landscapes One Acre or Greater



Select Landscape Area



Powerpoint Presentations



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<http://www.water.ca.gov/wateruseefficiency/landscapeordinance/>



Water Use and Efficiency

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