

**NOTE:** A permit is required for most work, repairs, and modifications that will be done on a property. Contact the Community Development Department at (310) 973-3230 before doing any work on a property to verify if permits will be required.

## Chapter 17.88 Water-Efficient Landscape

### 17.88.010 Purpose.

A. The city council finds and declares that it is in the interest of public health, safety, and welfare to promote water-efficient landscape design, installation, and management while ensuring that the aesthetic, recreational, functional, economic, environmental, and social benefits are achieved. The purpose of the regulations set forth in this chapter is to establish standards for designing, installing, and maintaining water efficient landscapes in new and substantially altered or expanded existing development projects.

B. This chapter shall not preclude compliance with the landscaping performance standards contained in Section 17.72.074 of the Lawndale Municipal Code. (Ord. 709-92 § 1)

### 17.88.020 Applicability.

This chapter shall apply to all new and substantially altered or expanded existing development projects, except that the following projects shall be exempt from this chapter:

A. Development projects containing less than two thousand five hundred square feet of new or renovated irrigated landscaped area;

B. Homeowner-provided landscaping for a single-family lot or for a private yard within a multifamily development;

C. Cemeteries;

D. Registered or city-designated historic districts, sites, and structures;

E. Ecological restoration projects that do not require a permanent irrigation system;

F. Landscaping that is irrigated solely with reclaimed water or well water, where an irrigation connection to the city water is not proposed;

G. Public parks and recreation areas, golf courses, and school playgrounds. (Ord. 709-92 § 1)

### **17.88.030 Definitions.**

The terms used in this chapter shall be defined as follows:

A. “Anti-drain valve” means a valve located under a sprinkler head to hold water in the system so it minimizes drainage from the lower elevation sprinkler heads.

B. “Application rate” means the depth of water applied to a given area, usually measured in inches per hour.

C. “Applied water” means the portion of water supplied by the irrigation system to the landscape.

D. “Backflow prevention device” means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

E. “Bubbler” means an irrigation head that delivers water to the root zone by flooding the planted area, usually measured in gallons per minute. Bubblers exhibit a trickle, umbrella, or short stream pattern.

F. “Conversion factor (0.62)” means a number that converts the landscape water allowance and estimated water use from acre-inches per acre to gallons per square foot per year.

G. “Drip emitter” means drip irrigation fittings that deliver water slowly at the root zone of the plant, usually measured in gallons per hour.

H. “Drought-tolerant plant” means a plant that can survive without irrigation throughout the year once established, although supplemental water may be desirable during drought periods for improved appearance and disease resistance.

I. “Estimated landscape water use” means the annual total amount of water estimated to be needed to keep the plants in the landscape area healthy. It is based upon the local reference evapotranspiration rate, the size of the landscape area, the types of plants, and the efficiency of the irrigation system, as described in Section 17.88.070.

J. “ET adjustment factor” means a factor applied to reference evapotranspiration that adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. For the purpose of this chapter, the plant factor shall be 0.5 and irrigation efficiency shall be 0.625. Therefore,

ET Adjustment Factor (0.5/0.625) = 0.8.

K. “Evapotranspiration” means the quantity of water evaporated from adjacent soil surfaces and transpired by plants during a specific time, expressed in inches per day, month, or year.

L. “Flow rate” means the rate at which water flows through pipes and valves (gallons per minute or cubic feet per second).

M. “Hydrozone” means a portion of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule. A hydrozone may be irrigated or nonirrigated. For example, a naturalized area planted with native vegetation that will not need supplemental irrigation once established is a nonirrigated hydrozone.

N. “Irrigated landscaped area” means all portions of a development site to be improved with planting and irrigation. Natural open space areas shall not be included in the irrigated landscaped area.

O. “Irrigation efficiency” means the measurement of the amount of water beneficially used by plants divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum irrigation efficiency for purposes of this chapter is 0.625. Greater irrigation efficiency can be expected from well designed and maintained systems.

P. “Landscape area” means the parcel minus building pad(s), driveways, parking areas, impervious hardscapes such as decks and patios, and other nonporous walkways and natural areas. A natural area is one occupied by mature plants, native or acclimated plants growing on undisturbed grades, and which is not irrigated.

Q. “Maximum applied water allowance” means, for design purposes, the upper limit of annual applied water for the established landscaped area as specified in Section 17.88.070. It is based upon the area’s reference evapotranspiration, the ET adjustment factor, and the size of the landscaped area. The estimated applied water use shall not exceed the maximum applied water allowance.

R. “Mulch” means any material such as leaves, bark, straw or other materials left loose and applied to the soil surface to reduce evaporation.

S. “Nondrought-tolerant plant” means a plant which will require regular irrigation for adequate appearance, growth, and disease resistance.

T. “Plant factor” means a factor that, when multiplied by reference evapotranspiration, estimates the amount of water used by plants. For purposes of this chapter, the average plant factor of low water using plants is 0.3, for moderate water using plants is 0.5, and for high water using plants is 0.7.

U. "Precipitation rate" means the depth of water applied to a given area, usually measured in inches per hour.

V. "Rain shutoff or rain sensing device" means a device wired to the automatic controller that shuts off the irrigation system when it rains.

W. "Recycled water," or "reclaimed water" or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for nonpotable uses such as landscape irrigation, not intended for human consumption.

X. "Reference evapotranspiration (ET)" means a standard measurement of environmental parameters which affect the water use of plants. ET is measured in inches per day, month, or year and is derived from measurements of evapotranspiration from a test plot of four to seven-inch tall turf in an open field that is well-watered. The historic ET for the Lawndale area is approximately forty-three inches per year.

Y. "Spray sprinkler" means an irrigation head that sprays water through a nozzle.

Z. "Stream sprinkler" means an irrigation head that projects water through a gear rotor in single or multiple streams.

AA. "Turf" means a surface layer of earth containing mowed grass with its roots. (Ord. 709-92 § 1)

### **17.88.040 Review and approval requirements.**

A. Prior to issuance of a building permit for a project, the following landscaping documents shall be submitted for review and approval by the director of community development/case planner:

1. Landscape planting plan;
2. Irrigation design plan;
3. Landscape water use statement, except for developer-installed, landscaping on single-family lots;
4. Soils report, if required per Section 17.88.080;
5. A certificate of compliance.

B. Prior to issuance of a certificate of occupancy for a development project, an irrigation schedule, and a certificate of substantial completion shall be submitted to the director of community development/case planner for review and approval.

C. The documents listed in Section 17.88.040(A) shall be prepared by a landscape architect, or certified irrigation designer, except that the soils report shall be prepared by a qualified soil and plant laboratory. The documents listed in Section 17.88.040 (B) may be prepared by a licensed landscape contractor. (Ord. 709-92 § 1)

### **17.88.050 Landscape planting plan.**

A detailed planting plan shall be drawn at a scale that clearly identifies the following:

- A. Designation of all hydrozones;
- B. Landscape materials, trees, shrubs, ground- cover, turf, and other vegetation. Planting symbols shall be clearly drawn and plants labeled by botanical name, common name, container size, spacing, and quantities of each group of plants indicated;
- C. Property lines and street names;
- D. Streets, driveways, and other paved areas;
- E. Pools, ponds, water features, fences, and retaining walls;
- F. Existing and proposed buildings, structures including elevation, if possible;
- G. Existing trees and plant materials to be removed or retained;
- H. Natural features including, but not limited to, rock outcroppings, existing trees, and shrubs that will remain;
- I. Details and specifications for tree staking, soil preparation, and other applicable planting work;
- J. Where landscaped areas exceed ten percent slope, contour lines and/or spot elevations as necessary for the proposed finished grade;
- K. A calculation of the total landscaped area in square feet. (Ord. 709-92 § 1)

### **17.88.060 Irrigation design plan.**

A detailed irrigation plan shall be drawn at the same scale as the landscape planting plan and shall contain the following information:

- A. Layout of the irrigation system and a legend summarizing the type and size of all components of the irrigation system, including manufacturer name and model numbers;

B. All irrigation systems shall be designed to avoid runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways, or structures. Proper irrigation equipment shall be used to closely match application rates to infiltration rates therefore minimizing runoff;

C. A maximum water allowance shall be established. For the purpose of determining the maximum water allowance, irrigation efficiency is assumed to be 0.625. Irrigation systems shall be designed, maintained, and managed to meet or exceed 0.625 efficiency;

D. A separate water meter shall be installed to irrigate each approved landscape. This meter shall be designated as an irrigation account and no other utilities will be billed on such accounts. (Ord. 709-92 § 1)

### **17.88.070 Landscape water use statement.**

The landscape water use statement shall contain the following information:

A. Maximum Applied Water Allowance:

MAWA	=	(ET) (0.8) (LA) (0.62) where
MAWA	=	Maximum applied water allowance (gallons per year)
ET	=	Reference evapotranspiration rate (ET) for the Lawndale area (in inches per year) is 42
0.8	=	ET adjustment factor
0.62	=	Conversion factor (to gallons per square feet)
LA	=	Total irrigated landscaped area (square feet)

B. Estimated Landscape Water Use.

1. The estimated landscaped water use (ELWU) for the site shall be based on the landscape planting and irrigation design plans prepared for the development project.

2. The total ELWU for a site shall consist of summing the ELWU for all landscape zones within the irrigated landscape area. The ELWU for each hydrozone shall be calculated using the following formula:

ELWU	=	(ET) (PF) (HA) (0.62), where (IE)
ELWU	=	Estimated landscape water use (gallons per year)
ET	=	Reference evapotranspiration (inches per year)
PF	=	Plant factor
HA	=	Hydrozone area (square feet)
0.62	=	Conversion factor
IE	=	Irrigation efficiency

C. For the purpose of this chapter, the average plant factor (PF) shall be the following for each type of plant material, which are based on an average density planting and average microclimate conditions:

<b>Plant Type</b>	<b>Water Use Category</b>	<b>Plant Factor</b>
Turf	High	0.7
Nondrought-tolerant trees, shrubs, and groundcover	High	0.7
Drought-tolerant trees, shrubs, and groundcover	Moderate	0.5
Extra drought-tolerant trees, shrubs and groundcover	Low	0.3

D. For the purpose of this chapter, the irrigation efficiency (EI) shall be the following for the irrigation type:

<b>Irrigation Type</b>	<b>Irrigation Efficiency (IF)</b>
Bubblers	0.9
Drip emitters	0.9
Stream sprinklers in planter	0.80
Spray sprinklers in planter	0.75
Sprinklers in planter strips less than 8 feet wide	0.625

E. The estimated applied water use shall not exceed the maximum applied water allowance. (Ord. 709-92 § 1)

### **17.88.080 Soils report.**

A soils report may be required where irrigated landscaped areas exceed ten thousand square feet or where difficult soil or landscaping conditions exist at the project site. The soils report shall describe the depth, composition, fertility, and landscaping suitability of the soil at the project site, and shall include recommendations for soil amendment, fertilizer, and other items as needed. The landscape planting plan shall incorporate the recommendations of the soils report into the planting specifications. (Ord. 709-92 § 1)

### **17.88.090 Certificate of compliance.**

A certificate of compliance, stating full compliance with the landscape design standards, and the irrigation design standards as in Section 17.88.050 and Section 17.88.060 of the Municipal Code, shall be signed by a landscape architect and submitted to the city prior to issuance of a building permit. (Ord. 709-92 § 1)

### **17.88.100 Irrigation schedule.**

A. A monthly irrigation schedule shall be prepared that covers the initial ninety-day plant-establishment period and the following one-year period. This irrigation schedule shall consist of a table with the following information for each valve:

1. Plant type (i.e., turf, trees, water-conserving plants, nondrought-tolerant plants, etc.);
2. Irrigation type (i.e., sprinklers, drip, or bubblers);
3. Flow rate in gallons per minute;
4. Precipitation rate in inches per hour (for valves with sprinklers only);
5. Run times in minutes per day;
6. Number of watering days per week;

B. The irrigation schedule shall rely on the estimated landscape water use (ELWU) determined in Section 17.88.070 and the monthly ET data for the Lawndale area. The amount of water applied per valve shall be adjusted as necessary for irrigation efficiency, local rainfall, microclimate conditions, depth of root zone, soil conditions, and slope. (Ord. 709-92 § 1)

### **17.88.110 Certificate of substantial completion.**

Upon completing the installation of the landscaping and the irrigation system, a licensed landscape architect, or a certified irrigation designer shall conduct a final field observation and shall provide a certificate of substantial completion to the city. The certificate of substantial completion shall indicate that:

A. The landscaping has been installed in substantial conformance to the approved landscape planting and irrigation plans and specifications;

B. The irrigation system has been adjusted to maximize irrigation efficiency and minimize over-spray and runoff; and

C. A copy of the irrigation schedule has been given to the property owner. (Ord. 709-92 § 1)

### **17.88.120 Landscape design standards.**



A. Estimated Landscape Water Use. The estimated landscape water use (ELWU) shall not exceed the maximum applied water allowance (MAWA), as determined in subsections A and B of Section 17.88.070. This standard shall not apply to developer-installed front yard landscaping on single-family lots.

B. Plant Selection. Plants selected for nonturf areas shall consist of plants that are well-suited to the microclimate and soil conditions at the project site. Plants with similar water needs shall be grouped together as much as possible.

C. Turf Limitation and Type. Turf shall be a variety with a water requirement less than or equal to tall fescue. Exceptions may be granted where turf will be added contiguous to an existing turf area. Turf shall not be installed on slopes exceeding fifteen percent, unless justified to match existing conditions or surrounding development. Developer-installed front yard landscaping on single-family lots shall be limited to fifty percent turf.

D. Mulch. After completion of all planting, all irrigated nonturf areas shall be covered with a minimum two-inch layer of wood chip or bark to retain water, inhibit weed growth, and moderate soil temperature. Nonporous material shall not be placed under the mulch. (Ord. 709-92 § 1)

### **17.88.130 Irrigation design standards.**

A. All irrigation systems shall include an electric automatic controller with multiple program and multiple repeat cycle capabilities and a flexible calendar program.

B. On slopes exceeding fifteen percent, the irrigation system shall consist of drip emitters, bubblers, or sprinklers with a maximum precipitation rate of 0.85 inches per hour.

C. Each valve shall irrigate a hydrozone with similar site, slope and soil conditions and plant materials with similar watering needs. Turf and nonturf areas shall be irrigated on separate valves. Drip emitters and sprinklers shall be placed on separate valves.

D. Drip emitters or a bubbler shall be provided to each tree. Bubblers shall not exceed 1.5 gallons per minute per device.

E. Sprinklers shall have matched precipitation rates within each control valve circuit.

F. Sprinklers located next to paving shall be pop-up heads. Pop-up heads shall have a minimum four-inch height in turf areas and a minimum six-inch height in ground cover areas.

G. Check valves shall be required where elevation differences will cause low-head drainage. Pressure compensating valves and sprinklers shall be required where a significant variation in water pressure will occur within the irrigation system due to elevation differences.

H. Sprinkler spacing shall be designed for head-to-head coverage (i.e., maximum spacing of heads shall be equal to design radius of heads). The irrigation system shall be designed for minimum runoff and overspray onto nonirrigated areas.

I. A rain shutoff device shall be installed to prevent irrigation during rainy weather.

J. A pressure regulator shall be provided when the static water pressure exceeds the maximum recommended operating pressure of the irrigation system.

K. Drip irrigation lines shall be undergrounded, except for emitters and where approved as a temporary installation.

L. Valves with sprinklers shall be scheduled to operate between seven p.m. and ten a.m. to reduce water loss from wind and evaporation. (Ord. 709-92 § 1)

### **17.88.140 Exceptions to design standards.**

Exceptions to the landscaping and irrigation standards contained in Section 17.88.110 and Section 17.88.120 may be granted by the community development director where:

A. Unique soil, site conditions, or design constraints render compliance with certain standards infeasible;

B. The functional or recreational purpose of the landscaping warrants exceptions to specific standards; or

C. Alternative water-efficient design techniques or materials are proposed to justify exceptions to specific standards. (Ord. 709-92 § 1)

### **17.88.150 Administration and appeal process.**

The director of community development shall have the duty and authority to administer and enforce this chapter. The director's action to approve, conditionally approve, or disapprove landscaping documents required under this section may be appealed to the planning commission by the property owner or applicant by filing written request with the planning department within thirty days of the date of notification of such action. The planning commission shall hear an appeal as a nonpublic hearing item within thirty days of the receipt of the appeal application. (Ord. 709-92 § 1)

# Drought Tolerant Landscaping

## Train Your Plants to Use Less Water

When first establishing low-water use plants, water as needed to keep the roots system moist but not saturated for the first year or so until the plants become established. As your plants mature, decrease the frequency and increase the depth of irrigation. They will benefit from deep, slow, and less frequent watering. Water only as needed to keep plants healthy. This practice takes advantage of the drought tolerant characteristics of these plants. Many traditional plants can perform acceptably on less water also, you can achieve water savings without removing many of your existing plants.

## Landscape Maintenance Practices

- Whether you recently purchased a pre-owned home or have lived in the same home for many years, the following recommended landscape maintenance practices are essential for plant health and water conservation.

### Trees, Shrubs & Groundcovers

- Keep turf grass and other vegetation at least 20 inches from tree trunks. This promotes faster tree growth and reduces competition for water.
- Do not routinely fertilize landscape trees, shrubs and groundcovers. Over fertilization (particularly nitrogen) can result in excessive growth, requiring additional water. Fertilize if nutrient deficiencies appear.
- Apply mulch around trees and shrubs, but keep it several inches away from tree trunks. Mulch reduces soil evaporation, buffers soil temperature and reduces weeds. Remember to apply water long enough to soak through the mulch layer into the roots.
- Avoid soil compaction around trees and shrubs, which results in poor water infiltration and runoff.
- Control weeds around trees, shrubs and groundcovers. They compete for water.
- Irrigate trees and shrubs separately from surrounding vegetation whenever possible. Drip systems (which include mini-sprinklers) are excellent for this purpose. Consider using a water budget.
- Irrigate trees, shrubs and groundcovers based on seasonal water demand. Preliminary research indicates that many species do well on about the same amount of water as warm season turf grasses, or even less.
- Prune trees when necessary. Remove dead and diseased wood, crossed limbs, suckers and weak vertical growth. Pruning stimulates additional shoot growth, increasing the water requirement.

### Notes:

Californians continue to spend up to 70% of our drinking water supply on lawns and landscape. The most effective means of conserving water used in urban landscapes is irrigating properly, reducing the quantity of irrigated turf, limit turf to recreational areas, use climate appropriate plants.

# Drought Tolerant Landscaping

## Shrubs – Low Water Use



**Strawberry Tree Shrub**



**Silverberry**



**Lemon Bottlebrush Shrub**



**Toyon**



**Red Kangaroo Paw**



**Orchid Rockrose**



**Kangaroo Paw**



**Bougainvillea**



**Red Leaf Japanese Barberry**



**Petite Pink Oleander**



**Dwarf Bottle Brush**



**Tuscan Blue Rosemary**



**Feathery Cassia**



**Cleveland Sage**



**Furman's Red Salvia**



**Coast Rosemary**

## Ornamental Grasses – Low Water Use



**Thinggrass**



**Deer Grass**



**Littleseed  
Muhly**



**Alkali Barley**



**Nodding  
Needlegrass**



**Small Fescue**



**Imperfect  
Melic**



**Purple  
Fountain  
Grass**

## Ground Cover Palette – Low Water Use



**Bank Catclaw**



**Trailing  
Lantana**



**Coyote Bush**

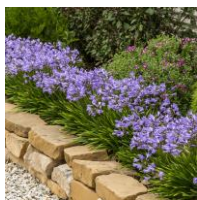


**Huntington  
Carpet  
Rosemary**



**Putah Creek  
Myoporum**

## Ground Cover Palette – Medium Water Use



**Dwarf Blue  
Lily of the Nile**



**Pink Rose  
Flower Carpet**



**Star Jasmine**



**Yellow Daylily**



**Red Rose  
Carpet Flower**

## Low Water Use Trees



**Little Leaf Paloverde**



**Crape Myrtle**



**Desert Ironwood**



**Chitalpa**

## Succulents



**Black Aeonium**



**Dudleya Brittonii**



**Urbicum**



**Echeveria Agavoides**



**Decorum**



**Echeveria Imbricata**



**Aloe Aristata**



**Haworthia Fasciata**



**Striata**



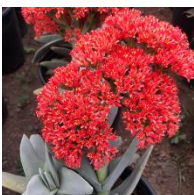
**Agave**



**Cotyledon Undulata**



**Rubroinctum**



**Crassula Falcata**



**Spathulifolium**

## Mulch, Decomposed Granite and Boulders



**Bark-Mulch**



**Boulders**



**Decomposed Granite**

## Turf Grasses-Low Water Use

Warm season grasses use 20% less water. Limit turf to recreational areas and keep in an easy to irrigate shape to avoid sprinkler over spray.



**Zoysia Grass**



**St. Augustine Grass**



**Bermuda Grass**