

**ORDINANCE NO. 859
(AS AMENDED THROUGH 859.2)
AN ORDINANCE OF THE COUNTY OF RIVERSIDE
AMENDING ORDINANCE NO. 859 THE WATER EFFICIENT
LANDSCAPE REQUIREMENTS**

The Board of Supervisors of the County of Riverside ordains as follows:

Section 1. Ordinance No. 859 is hereby amended in its entirety to read as follows:

Section 1. **SHORT TITLE.** This Ordinance shall be known as the Water Efficient Landscape Requirements Ordinance.

Section 2. **INTENT.** It is the intent of the Board of Supervisors in adopting this Ordinance to:

- A. Establish provisions for water management practices and water waste prevention;
- B. Establish a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new and rehabilitated projects;
- C. To reduce the water demands from landscapes without a decline in landscape quality or quantity;
- D. To retain flexibility and encourage creativity through appropriate design;
- E. To assure the attainment of water efficient landscape goals by requiring that landscapes not exceed a maximum water demand of seventy percent (70%) of its reference evapotranspiration (ET_o) or any lower percentage as may be required by state legislation, whichever is stricter;
- F. To eliminate water waste from overspray and/or runoff;
- G. To achieve water conservation by raising the public awareness of the need to conserve water through education and motivation to embrace an effective water demand management program; and
- H. To implement the requirements of the California Water Conservation in Landscaping Act 2006 and the California Code of Regulations Title 23, Division 2, Chapter 2.7.

Section 3. **DEFINITIONS.** The terms used in this Ordinance shall have the meaning set forth below:

- a. "backfilling" means to refill an excavation, usually with excavated material.
- b. "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.
- c. "check valve" or "anti-drain valve" means a valve located under a sprinkler head or other location in the irrigation system to hold water in the system to prevent drainage from the sprinkler heads when the system is off.
- d. "established landscape" means the point at which plants in the landscape have developed a significant root growth into the site. Typically, most plants are established after one or two years of growth.
- e. "estimated annual water use" or "EAWU" means estimated total water use per year as calculated by the formula contained in Section 5.B.12.n.

- f. “hydrozone” means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.
- g. “invasive species” are non-indigenous species (e.g. plants or animals) that adversely affect the habitats they invade economically, environmentally, or ecologically. Lists of invasive species are included within the Western Riverside County Multiple Species Habitat Conservation Plan and the Coachella Valley Multiple Species Habitat Conservation Plan. Said lists are hereby incorporated by reference.
- h. “landscape architect” means a person who holds a license to practice landscape architecture in the State of California.
- i. “landscaped area” or “LA” means all of the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance (MAWA) calculation. The landscape area does not include footprints of buildings, or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or impervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open space and existing native vegetation).
- j. “local water purveyor” means any entity, including a public agency or private water company that provides retail water service to customers in the unincorporated area of Riverside County.
- k. “low volume irrigation” means the application of irrigation water at low pressure through a system of tubing or lateral lines and low volume emitters such as drip, to apply small volumes of water slowly at or near the root zone of plants.
- l. “Maximum Applied Water Allowance” or “MAWA” means the upper limit of annual applied water allowed for the established landscaped area.
- m. “overhead sprinkler irrigation systems” means systems that deliver water through the air (e.g. pop ups, impulse sprinklers, spray heads and rotors, etc.).
- n. “reference evapotranspiration” or “ET_o” means a standard measurement of environmental parameters which affect the water use of plants. ET_o is given in inches per day, month, or year. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowances so that regional differences in climate can be accommodated. Reference evapotranspiration numbers shall be taken from the most current EvapoTranspiration Zones Map developed by the California Department of Water Resources. For geographic areas not covered by the EvapoTranspiration Zones Map, data from nearby areas shall be used.
- o. “rehabilitated landscapes” means any re-landscaping of a project that requires a discretionary permit.
- p. “special landscape area” means an area of the landscape dedicated to edible plants, areas irrigated with recycled water, and publicly accessible areas dedicated to active play such as parks, sports fields, golf courses, where turf provides a playing field or where turf is needed for high traffic activities.
- q. “temporarily irrigated” means irrigation for the purposes of establishing plants, or irrigation which will not continue after plant establishment. Temporary irrigation is for a period of six months or less.

- r. "water-intensive landscaping" means a landscape with a WUCOLS plant factor of 0.7 or greater.
- s. "WUCOLS" means the publication entitled "Water Use Classification of Landscape Species" by the University of California Cooperative Extension (1999 or most current version).

Section 4. APPLICABILITY.

- A. The water-efficient landscape requirements contained in this Ordinance shall be applicable to all new and rehabilitated landscapes associated with residential uses (including single family and multi-family units/projects) with a total landscape area equal to or greater than 2,500 square feet which require a discretionary permit and/or approval and all new and rehabilitated landscapes associated with commercial or industrial uses which require a discretionary permit and/or approval.
- B. In the event Covenants, Conditions and Restrictions are required for any permit subject to this Ordinance, a condition shall be incorporated into any project approval prohibiting the use of water-intensive landscaping and requiring the use of low water use landscaping pursuant to the provisions of this Ordinance in connection with common area/open space landscaping. Additionally, such a condition shall also require the Covenants, Conditions and Restrictions to incorporate provisions concerning landscape irrigation system management and maintenance. This Ordinance shall not be construed as requiring landscaping of common areas or open space that is intended to remain natural. Covenants, Conditions and Restrictions shall not prohibit use of low-water use plants or the replacement of turf with less water intensive plant species.
- C. Recognizing the special landscape needs of cemeteries, new and rehabilitated landscapes within a cemetery are subject only to the provisions set forth in Sections 6.A. and 6.B. of this Ordinance.
- D. The following uses and/or projects are exempt from the provisions of this Ordinance:
 - 1. Registered local, state or federal historical sites;
 - 2. Ecological restoration projects that do not require a permanent irrigation system and have an establishment period of less than 5 years;
 - 3. Mined land reclamation projects that do not require a permanent irrigation system; and
 - 4. Botanical gardens and arboretums open to the public.

Section 5. LANDSCAPE DOCUMENTATION REQUIREMENTS. An applicant proposing any new or rehabilitated landscape for a project subject to the requirements of Section 4 of this Ordinance shall prepare and submit to the Planning Director documentation including the following: 1. project information; 2. a planting plan; 3. an irrigation design plan; 4. a soil management plan; and 5. a grading design plan. The "Riverside County Guide to California Friendly Landscaping" (Landscaping Guide) as may be periodically amended by the Planning Director is hereby incorporated by reference to assist in designing, constructing and maintaining a water efficient landscape and efficient irrigation system.

It is recommended that an applicant proposing any new or rehabilitated landscape that is designated for recycled water use consult with the appropriate local water purveyor early in the development review process to ensure that future recycled water facilities meet the projected demand and that the aforementioned plans when submitted comply with the applicable standards, approvals and implementation requirements of this Ordinance, the local water purveyor and any applicable maintenance entity.

Water systems for common open space areas shall use non-potable water if approved facilities are made available by the local water purveyor. Provisions for a non-potable water system shall be provided within the irrigation design plan. Water systems designed to utilize non-potable water shall be designed to meet all applicable standards of the applicable Regional Water Quality Control Board and the Riverside County Health Department.

A. PROJECT INFORMATION.

1. date;
2. name of applicant and contact information;
3. name of project owner and contact information;
4. project address including parcel and lot numbers;
5. total landscape area in square feet;
6. project type (e.g. new or rehabilitated, and residential, commercial, or industrial);
7. water supply (e.g. potable, well, recycled; use of recycled water is encouraged);
8. applicant's signature and date with statement, "I agree to comply with the requirements of Ordinance No. 859 and submit a complete Landscape Documentation Package."

B. PLANTING PLAN REQUIREMENTS.

1. Plant types shall be grouped together in regards to their water, soil, sun and shade requirements and in relationship to the buildings. Plants with different water needs shall be irrigated separately. Plants with the following classifications shall be grouped accordingly: high and moderate, moderate and low, low and very low. Deviation from these groupings shall be not be permitted.
2. Trees for shade shall be provided for residential, commercial and industrial buildings, parking lots and open space areas. These trees can be deciduous or evergreen and are to be incorporated to provide natural cooling opportunities for the purpose of energy and water conservation.
3. Plants shall be placed in a manner considerate of solar orientation to maximize summer shade and winter solar gain.
4. Plant selection for projects in high fire hazard areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required pursuant to Public Resources Code Section 4291 and Ordinance No. 695. Fire-prone plant materials and highly flammable mulches shall be avoided.
5. Invasive species of plants shall be avoided especially near parks, buffers, greenbelts, water bodies, conservation areas/reserves and other open space areas because of their potential to cause harm to environmentally sensitive areas.

6. All exposed surfaces of non-turf areas within the developed landscape area shall be mulched with a minimum three inch (3") layer of material, except in areas with groundcover planted from flats where mulch depth shall be one and one half inches (1 ½").
7. Stabilizing mulching products shall be used on slopes.
8. Turf areas shall be used in response to functional needs and in compliance with the water budget.
9. Decorative water features shall use re-circulating water systems.
10. Where available, recycled water shall be used as the source for irrigation and decorative water features.
11. Planting plans shall identify and site the following:
 - a. new and existing trees, shrubs, ground covers, and turf areas within the proposed landscaped area;
 - b. a planting legend indicating all plant species by botanical name and common name, spacing, and quantities of each type of plant by container size;
 - c. designation of hydrozones;
 - d. area, in square feet, devoted to landscaping and a breakdown of the total area by landscape hydrozones;
 - e. property lines, streets, and street names;
 - f. building locations, driveways, sidewalks, retaining walls, and other hardscape features;
 - g. appropriate scale and north arrow;
 - h. any special landscape areas;
 - i. type of mulch and application depth;
 - j. type and surface area of water features;
 - k. type and installation details of any applicable stormwater best management practices;
 - l. planting specifications and details, including the recommendations from the soils analysis, if applicable;
 - m. maximum Applied Water Allowance (MAWA):
 - i. Planting plans shall be prepared using the following Water Budget Formula:

$$\text{MAWA (in gallons)} = (\text{ETo})(0.62)[0.7 \times \text{LA} + 0.3 \times \text{SLA}]$$
 where ETo is reference evapotranspiration
 SLA is the amount of special landscape area in square feet
 LA is total landscape area (including the SLA) in square feet; and
 - ii. For the purposes of determining the MAWA, average irrigation efficiency is assumed to be 0.71. Irrigation systems shall be designed, maintained, and managed to meet or exceed an average irrigation efficiency of 0.71.
 - n. Estimated Annual Water Use (EAWU):
 - i. EAWU for a given hydrozone is calculated as follows:

$$\text{EAWU (in gallons)} = (\text{ETo})(0.62)[((\text{PF} \times \text{HA})/\text{IE}) + \text{LA}]$$
 where ETo is reference vapotranspiration
 PF is Plant Factor
 HA is hydrozone area in square feet
 IE is

- irrigation efficiency (minimum 0.71) SLA is the amount of special landscape area in square feet;
 - ii. Landscaping plans shall provide EAWU (in the same units as the MAWA) for each valve circuit in the irrigation hydrozone. The sum of all EAWU calculations shall not exceed the MAWA for the project;
 - iii. The plant factor used shall be from WUCOLS. The plant factor for low water use plants range from 0 to 0.3, for moderate water use plants range from 0.4 to 0.6, and for high water use plants range from 0.7 to 1.0.
 - iv. The plant factor calculation is based on the proportions of the respective plant water uses and their plant factor, or the factor of the higher water using plant used.
 - v. The surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation and temporarily irrigated areas in the low water use hydrozone.
12. Planting plans and Irrigation plans (Section 5.C.) shall be drawn at the same size and scale.
 13. The Planting plan shall be prepared by a Landscape Architect licensed by the State of California.

C. IRRIGATION DESIGN PLAN REQUIREMENTS.

1. Irrigation systems shall be designed, maintained, and managed to meet or exceed an average irrigation efficiency of 0.71.
2. All irrigation systems shall be designed to prevent runoff, overspray, lowhead drainage and other similar conditions where water flows off-site on to adjacent property, non-irrigated areas, walk, roadways, or structures. Irrigation systems shall be designed, constructed, managed, and maintained to achieve as high an overall efficiency as possible. The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
3. Landscaped areas shall be provided with a smart irrigation controller which automatically adjusts the frequency and/or duration of irrigation events in response to changing weather conditions unless the use of the property would otherwise prohibit use of a timer. The planting areas shall be grouped in relation to moisture control zones based on similarity of water requirements (i.e., turf separate from shrub and groundcover, full sun exposure areas separate from shade areas, top of slope separate from toe of slope). Additional water conservation technology may be required, where necessary, at the discretion of the Planning Director.
4. Water systems for common open space areas shall use non-potable water, if approved facilities are made available by the water

- purveyor. Provisions for the conversion to a non-potable water system shall be provided within the landscape plan. Water systems designed to utilize non-potable water shall be designed to meet all applicable standards of the California Regional Water Quality Control Board and the Riverside County Health Department.
5. Separate valves shall be provided for separate water use planting areas, so that plants with similar water needs are irrigated by the same irrigation valve. All installations shall rely on highly efficient state of the art irrigation systems to eliminate runoff and maximize irrigation efficiency as required by the Landscaping Guide.
 6. Static water pressure, dynamic or operating pressure and flow reading of the water supply shall be measured. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at the installation.
 7. The capacity of the irrigation system shall not exceed:
 - a. the capacity required for peak water demand based on water budget calculations;
 - b. meter capacity; or
 - c. backflow preventer type and device capacity.
 8. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer.
 9. In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
 10. Slopes greater than 25 percent shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the landscape documentation required to be submitted pursuant to this Ordinance, and if there is a clear demonstration that no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.
 11. Long-narrow, or irregularly shaped areas including turf less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or low-volume irrigation technology.
 12. Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. There are no restrictions on the irrigation system type if the landscape area is adjacent to permeable surfacing and no overspray and runoff occurs.
 13. Overhead irrigation shall be limited to the hours of 8 p.m. to 9 a.m.
 14. All irrigation systems shall be equipped with the following:
 - a. A smart irrigation controller as defined in Section 5.C.4. of this Ordinance;
 - b. A rain sensing device to prevent irrigation during rainy weather;
 - c. Anti-drain check valves installed at strategic points to minimize or prevent low-head drainage;
 - d. A manual shut-off valve shall be required as close as possible to the point of connection of the water supply, to

- minimize water loss in case of an emergency or routine repair;
 - e. A pressure regulator when the static water pressure is above or below the recommended operating pressure of the irrigation system;
 - f. Backflow prevention devices; and
 - g. Riser protection components for all risers in high traffic areas.
15. Dedicated landscape meters shall be required for all projects greater than 2,500 square feet except single-family residences.
16. Irrigation design plans shall identify and site the following:
- a. Hydrozones:
 - i. Each hydrozone shall be designated by number, letter or other designation.
 - ii. A hydrozone information table shall be prepared for each hydrozone;
 - b. The areas irrigated by each valve;
 - c. Irrigation point of connection (POC) to the water system;
 - d. Static water pressure at POC
 - e. Location and size of water meter(s), service laterals, and backflow preventers;
 - f. Location, size, and type of all components of the irrigation system, including automatic controllers, main and lateral lines, valves, sprinkler heads and nozzles, pressure regulator, drip and low volume irrigation equipment;
 - g. Total flow rate (gallons per minute), and design operating pressure (psi) for each overhead spray and bubbler circuit, and total flow rate (gallons per hour) and psi for each drip and low volume irrigation circuit;
 - h. Precipitation rate (inches per hour) for each overhead spray circuit;
 - i. Irrigation legend with the manufacturer name, model number, and general description for all specified equipment, separate symbols for all irrigation equipment with different spray patterns, spray radius, and precipitation rate;
 - j. Irrigation system details for assembly and installation;
 - k. Recommended irrigation schedule for each month, including number of irrigation days per week, number of start times (cycles) per day, minutes of run time per cycle, and estimated amount of applied irrigation water, expressed in gallons per month and gallons per year, for the established landscape; and
 - l. Irrigation design plans shall contain the following statement, "I agree to comply with the criteria of Ordinance No. 859 and to apply the criteria for the efficient use of water in the irrigation design plan."
17. For each valve, two irrigation schedules shall be prepared, one for the initial establishment period of six months and one for the

established landscape, which incorporate the specific water needs of the plants and turf throughout the calendar year.

18. Irrigation design plans and planting plans (Section 5.B.) shall be drawn at the same size and scale.

D. SOIL MANAGEMENT PLAN REQUIREMENTS.

1. After mass grading, the project applicant shall:
 - a. perform a preliminary site inspection;
 - b. determine the appropriate level of soil sampling and sampling method needed to obtain representative soil sample(s);
 - c. conduct a soil probe test to determine if the soil in the landscape area has sufficient depth to support the intended plants; and
 - d. obtain appropriate soil sample(s).
2. The project applicant shall submit soil sample(s) to a laboratory for analysis and recommendation. The soil analysis may include:
 - a. soil texture;
 - b. infiltration rate determined by laboratory test or soil texture infiltration rate tables;
 - c. pH;
 - d. total soluble salts;
 - e. sodium; and
 - f. recommendations.
3. The project applicant shall prepare documentation describing the following:
 - a. soil type;
 - b. identification of limiting soil characteristics;
 - c. identification of planned soil management actions to remediate limiting soil characteristics; and
 - d. submit the soil analysis report and documentation verifying implementation of soil analysis report recommendations to the County pursuant to the requirements of Section 7.C.

E. GRADING DESIGN PLAN REQUIREMENTS.

1. The landscape documentation submitted shall also include rough/precise grade elevations prepared for the project by a licensed civil engineer.

Section 6. LANDSCAPE IRRIGATION AND MAINTENANCE. This section shall apply to all projects subject to the provisions of this Ordinance as set forth in Section 4.

- A. Two irrigation schedules shall be prepared, one for the initial establishment period of six months and one for the established landscape, which incorporate the specific water needs of the plants and turf throughout the calendar year. The irrigation schedule shall take into account the particular characteristics of the soil; shall be continuously available on site to those responsible for the landscape maintenance; and shall contain specifics as to optimum run time and frequency of watering, and irrigation hours per day. The schedule currently in effect shall be posted at the controller.

- B. A regular maintenance schedule and Certificate of Completion shall be submitted to the Planning Director, property owner, and water purveyor. A regular maintenance schedule shall include, but not be limited to, routine inspection, adjustments, and repair of the irrigation system and its components; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; weeding in all landscape areas and removing any obstruction to irrigation devices. Repair of all irrigation equipment shall be done with the originally installed components or equivalent.
- C. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this Ordinance.
- D. Information shall be provided to owners of new, single family residential homes regarding the design, installation, management, and maintenance of water efficient landscapes.

Section 7. COMPLIANCE/PLAN SUBMITTAL PROCESS. Prior to issuance of a building permit for the project, the project applicant shall:

- A. Submit all landscape documents for review and approval by the Planning Director. The planting plan, irrigation design plan, and soils management plan shall be reviewed by an independent licensed landscape architect to ensure that all components of the plans adhere to the requirements of this Ordinance. The licensed landscape architect shall sign the plans verifying that the plans comply with this Ordinance. Any plans submitted without the signature of a licensed landscape architect shall not be accepted for review.
- B. Prior to issuance of a certificate of occupancy or final inspection for the project, a regular maintenance schedule and a Certificate of Completion shall be submitted to the Planning Director certifying that the landscaping has been completed in accordance with the approved planting, irrigation design, soil management, and grading design plans for the project. The Certificate of Completion shall be signed by a licensed landscape architect and shall indicate:
 1. Date;
 2. Project information:
 - a. Project name;
 - b. Project applicant name, telephone and mailing address;
 - c. Project address and location; and
 - d. Property owner name and mailing address;
 3. Prior to backfilling, evidence that the party responsible for irrigation installation conducted a preliminary field inspection of the irrigation system (evidence of field inspection shall be attached);
 4. The landscaping has been installed in conformance with the approved planting and irrigation design plans;
 5. Irrigation audit report performed by a certified irrigation auditor after project installation (audit report shall be attached);
 6. The smart irrigation controller has been set according to the irrigation schedule;
 7. The irrigation system has been adjusted to maximize irrigation efficiency and eliminate overspray and runoff; and

8. A copy of the approved landscape documentation (Section 5), the irrigation schedule (Section 6.A.) and the maintenance schedule (Section 6.B.) has been given to the property owner and local water purveyor.
 9. Verification that the maintenance schedule has been provided to the Planning Director.
- C. At a minimum, all landscape irrigation audits shall comply with the "Irrigation Association Certified Landscape Irrigation Auditor Training Manual" (2004 or most current) and shall be conducted by a certified landscape irrigation auditor.
 - D. The Planning Director or his/her designee shall have the right to enter upon the project site at any time before, during and after installation of the landscaping, to conduct inspections for the purpose of enforcing this Ordinance.

Section 2. The provisions of this Ordinance shall not take effect until thirty (30) days after its adoption.

Adopted:

859 Item 16.1 of 12/19/2006 (Eff: 01/18/2007)

Amended:

859.1 Item 15.1 of 03/25/2008 (Eff: 04/25/2008)

859.2 Item 3.62 of 10/20/2009 (Eff: 11/19/2009)