

**Chapter 19.570****WATER EFFICIENT LANDSCAPING AND IRRIGATION**

- 19.570.010 Purpose.**
- 19.570.020 Applicability.**
- 19.570.030 Provisions for the Review and Certification of Landscaping and Irrigation.**
- 19.570.040 Landscape Maintenance and Irrigation Schedules.**
- 19.570.050 Certificate of Compliance.**
- 19.570.060 Recycled Water.**
- 19.570.070 Existing Landscapes.**
- 19.570.080 Cemeteries.**
- 19.570.090 Definitions.**

**19.570.010 Purpose.**

The City finds that:

- A. That the waters of the City and State are of limited supply and are subject to ever increasing demands;
  - 1. That the continuation of the City's and State's economic prosperity is dependent on the availability of adequate supplies of water for future uses;
  - 2. That it is the policy of the City and State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource;
  - 3. That landscapes are essential to the quality of life in the City and State by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development;
  - 4. That landscape design, installation, maintenance, and management can and should be water efficient; and
  - 5. The City recognizes that Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use.
- B. Consistent with these legislative findings, the purpose of this Chapter of the Zoning Code is to:
  - 1. Promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;
  - 2. Establish a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction and rehabilitated projects;
  - 3. Reduce water demands from landscapes without a decline in landscape quality or quantity;

4. Retain flexibility and encourage creativity through appropriate design;
5. Establish provisions for water management practices and water waste prevention that eliminate water waste from overspray and/or runoff;
6. Use water efficiently without waste by setting a Maximum Applied Water Allowance (MAWA) as an upper limit for water use and reduce water use to the lowest practical amount;
7. 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<sub>o</sub>) or any lower percentage as may be required;
8. 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
9. Promote the use of recycled water for landscaping. (Ord. 7331 §93, 2016; Ord. 7310 §1, 2015; Ord. 7061 §2, 2009; Ord. 6966 §1, 2007)

**19.570.020 Applicability.**

A. This Chapter shall apply to all of the following landscape projects:

1. New construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building permit, plan check, or design review.
2. New construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects with a landscape area equal to or greater than 2,500 square feet requiring a building permit, plan check, or design review.
3. New construction landscapes which are homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building permit, plan check, or design review.
4. Existing landscapes are limited to Section 19.570.070 – Existing Landscapes.
5. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Section 19.570.080 – Cemeteries (A). Existing cemeteries are limited to Section 19.570.080 – Cemeteries (B).
6. Notwithstanding Section 19.040.110 – Public Projects, all public projects shall comply with the provisions of this Chapter.

B. This Chapter does not apply to:

1. Any project with a total landscape area less than 2,500 square feet;
2. Registered local, state or federal historical sites;

3. Ecological restoration projects that do not require a permanent irrigation system and have an establishment period of less than 3 years;
4. Mined-land reclamation projects that do not require a permanent irrigation system; and
5. Plant collections, as part of botanical gardens and arboretums open to the public. (Ord. 7331 §93, 2016; Ord. 7310 §1, 2015; Ord. 7061 §2, 2009; Ord. 6966 §1, 2007)

**19.570.030 Provisions for the Review and Certification of Landscaping and Irrigation.**

An applicant proposing any new or rehabilitated landscape subject to this Chapter shall prepare and submit an application to the Planning Division for review and approval by the Community & Economic Development Director or his/her designee. The planting plan, irrigation plan, and soils management plan shall be reviewed to ensure that all components of the plans adhere to the requirements of this Chapter. No certificate of occupancy or other final City approval shall be issued until the City reviews and approves the landscape and irrigation plans and the landscape and irrigation are installed in accordance with the approved plans. A copy of the approved landscape and irrigation plans and conditions of approval shall be provided to the property owner or site manager along with any other information normally forwarded to the property owner or site manager.

Applications submitted to the Planning Division shall include the following information:

A. Planting Plan Requirements

The following requirements shall be implemented in tandem with the landscape policies contained in the Citywide Design and Sign Guidelines.

1. The "Riverside County Guide to California Friendly Landscaping" (Landscaping Guide), Western Municipal Water District's Water-wise 140, or any other plant list that promotes the use of water efficient or California native plant materials is hereby incorporated by reference to assist with developing water efficient landscapes.
2. Plant types shall be grouped together in regard to their water, soil, sun, and shade requirements and in relationship to buildings. Plants with different water needs shall be irrigated separately. Plants with the following classifications shall be grouped accordingly, consistent with the Water Use Classification of Landscape Species (WUCOLS): high, moderate, low, and very low. Deviation from these groupings shall not be permitted.
3. 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 for the purpose of energy and water conservation.
4. Plants shall be placed in a manner considerate of solar orientation to maximize summer shade and winter solar gain.

5. Plant selection for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b). Fire-prone plant materials and highly flammable mulches shall be avoided.
6. Invasive species of plants shall be avoided especially near parks, buffers, greenbelts, water bodies, and open spaces because of their potential to cause harm to environmentally sensitive areas.
  - a. When a project is located in the Sycamore Canyon, Canyon Springs, Mission Grove, and Canyon Crest Neighborhoods Table 6-2 (Plants That Should be Avoided Adjacent to the MSHCP Conservation Area) of the Multiple Species Habitat Conservation Plan shall be consulted to avoid the use of invasive plant species.
7. 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").
8. Stabilizing mulching products shall be used on slopes.
9. Turf areas shall be used in response to functional needs and in compliance with the water budget.
10. Decorative water features shall use recirculating water systems.
11. Recycled water shall be used where available as the source for irrigation and decorative water features consistent with the provisions of Section 19.570.060 – Recycled Water.
12. Planting Plans shall identify and site the following:
  - a. New and existing trees, shrubs, ground covers, and turf areas within the proposed landscape area;
  - b. Planting legend indicating all plant species by botanical name and common name, spacing, Water Use Classification of Landscape Species (WUCOLS) plant factor, 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 any 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, pursuant to the provisions of this Section 19.570.030(C).
- m. Maximum Applied Water Allowance (MAWA):

- i. Planting Plans shall be prepared using the following Water Budget Formula:

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

*Where:*

*MAWA – Maximum Applied Water Allowance (gallons per year)*

*ET<sub>o</sub> – Reference Evapotranspiration (inches per year)*

*0.62 – Conversion Factor (to gallons)*

*0.7 – ET Adjustment Factor (ETAF)*

*LA – Landscape Area including SLA (square feet)*

*0.3 – Additional Water Allowance for SLA*

*SLA – Special Landscape Area (square feet)*

- ii. For the purposes of determining the Maximum Applied Water Allowance (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:

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

*Where:*

*EAWU – Estimated Annual Water Use*

*ET<sub>o</sub> – Reference Evapotranspiration (inches per year)*

*PF – Plan Factor from Water Use Classification of Landscape Species (WUCOLS)*

*HA – Hydrozone Area [high, medium, and low water use areas]*

*(square feet)*

*SLA – Special Landscape Area (square feet)*

*0.62 – Conversion Factor*

*IE – Irrigation Efficiency (minimum 0.71)*

- 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 the Water Use Classification of Landscape Species (WUCOLS). The plant factor for high water use plants range from 0.7 to 0.9, moderate water use plants range from 0.4 to 0.6, low water use plants range from 0.1 to 0.3, and very low water use plants are less than 0.1.
  - iv. The plant factor calculation is based on the proportions of the respective plant water uses and their plant factor, or the plant factor of the higher water using plant is used.
  - v. The surface area of water features 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.
13. Planting Plans and Irrigation Plans shall be drawn at the same size and scale.
  14. The Planting Plan shall be prepared, wet-stamped, and signed by a landscape architect as defined in Section 19.570.090 – Definitions (CC). Any plans submitted without the signature of a licensed landscape architect shall not be accepted for review.

**B. 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, over-spray, 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. 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 (i.e., soil moisture sensors) may be required, where necessary, at the discretion of the Zoning Administrator.

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, the Riverside County Health Department, and the water purveyor.
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.
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.
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% 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 submittal, and clearly demonstrates 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. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:

- a. the landscape area is adjacent to permeable surfacing and no runoff occurs; or
  - b. the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
  - c. the irrigation designer specifies an alternative design or technology, as part of the submittal and clearly demonstrates strict adherence to the irrigation design plan requirements. Prevention of overspray and runoff must be confirmed during the irrigation audit.
13. Overhead irrigation shall be limited to the hours between 7 p.m. and 9 a.m.
14. All irrigation systems shall be equipped with the following:
- a. A smart irrigation controller as noted in this Section 19.570.030(B)(3) of this Chapter;
  - 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 water meters shall be required for all projects with a landscape area equal to or greater than 5,000 square feet. Single-family residences and properties used for the commercial production of agricultural crops or livestock are exempt from this provision (California Water Code, Section 535).
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. 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;
    - (1) Total flow rate (gallons per minute), and design operation pressure (psi) for each overhead spray and bubbler circuit, and total flow rate (gallons per minute) and design operating pressure (psi) for each drip and low volume irrigation circuit; and
    - (2) Precipitation Rate (inches per hour) for each overhead spray circuit.
  - h. Irrigation system details for assembly and installation; and
  - i. 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.
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. Planting Plans (Section 19.570.030(A)) and Irrigation Design Plans (Section 19.570.050(B)) shall be drawn at the same size and scale.
19. The Irrigation Design Plan shall be prepared, wet-stamped, and signed by a certified irrigation designer, as defined in Section 19.570.090 – Definitions (D), or a licensed landscape architect, as defined in Section 19.570.090 – Definitions (CC).
- C. Soil Management Plan Requirements
1. After mass grading, the project applicant or his/her designee 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 or his/her designee shall submit soil sample(s) to a laboratory for analysis and recommendation. The soil analysis shall 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. Soil amendment recommendations.
3. The project applicant or his/her designee 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 Planning Division.
- D. Grading Design Plan Requirements (if applicable)
1. The project submittal shall include rough/precise grade elevations in accordance with Title 17 (Grading) of the Riverside Municipal Code and be prepared by a licensed civil engineer. (Ord. 7331 §93, 2016; Ord. 7310 §1, 2015; Ord. 7061 §2, 2009; Ord. 6966 §1, 2007)

**19.570.040 Landscape Maintenance and Irrigation Schedules.**

- A. Irrigation Schedules

1. Two irrigation schedules shall be prepared which incorporate the specific water needs of the plants and turf throughout the calendar year:
    - a. One irrigation schedule shall be prepared for the initial establishment period (first six months); and
    - b. One irrigation schedule for the established landscape (after six months).
  2. The irrigation schedules shall:
    - a. take into account the recommendations of the Soil Management Plan (Section 19.570.030 (C));
    - b. be continuously available on site to those responsible for the landscape maintenance;
    - c. contain specifics as to optimum run time and frequency of watering and irrigation hours per day.
  3. The irrigation schedule currently in effect shall be posted at the controller and be protected to withstand all weather conditions so as to remain legible over time.
- B. A regular maintenance schedule and Certificate of Compliance shall be submitted to the Planning Division, property owner, and water purveyor (if applicable). A regular maintenance schedule shall include, but not be limited to:
1. Routine inspection, adjustments, and repair of the irrigation system and its components;
  2. Aerating and dethatching of turf areas;
  3. Replenishing mulch;
  4. Fertilizing;
  5. Pruning, weeding in all landscape areas, and removing any obstruction to irrigation devices.
- 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. (Ord. 7331 §93, 2016; Ord. 7310 §1, 2015; Ord. 7061 §2, 2009; Ord. 6966 §1, 2007)

**19.570.050 Certificate of Compliance.**

- A. Prior to issuance of a certificate of occupancy or final inspection for a project subject to this Chapter, a regular maintenance schedule and a Certificate of Compliance shall be submitted to the Planning Division certifying that the landscaping has been completed in accordance with the approved planting, irrigation, soil management, and grading design

plans for the project. The Certificate of Compliance shall be signed by a licensed landscape architect and Certified Irrigation Auditor and shall indicate:

1. Date
  2. Project information
  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 landscape has been installed in conformance with the approved planting and irrigation 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;
  8. A copy of the approved landscape and irrigation design plans, the irrigation schedule, and the maintenance schedule has been given to the property owner and local water purveyor; and
  9. Verification that the maintenance schedule has been provided to the Planning Division.
- B. At a minimum, all landscape irrigation audits shall comply with the Irrigation Association's "Certified Landscape Irrigation Auditor Training Manual" and shall be conducted by a certified landscape irrigation auditor. This document can be found online at the Irrigation Association's website (<http://www.irrigation.org/default.aspx>).
- C. The Community & Economic Development 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 Chapter. (Ord. 7331 §93, 2016; Ord. 7310 §1, 2015; Ord. 7061 §2, 2009; Ord. 6966 §1, 2007)

**19.570.060 Recycled Water.**

- A. The installation of recycled water irrigation systems (dual distribution systems) may be required by the Community & Economic Development Director or his/her designee to allow for the current and future use of recycled water.
- B. Recycled water irrigation systems shall be designed and operated in accordance with local and State codes.
- C. Chapter 14.28 – The Mandatory Use of Recycled Water is hereby incorporated by reference. (Ord. 7331 §93, 2016; Ord. 7310 §1, 2015; Ord. 7061 §2, 2009; Ord. 6966 §1, 2007)

**19.570.070 Existing Landscapes.**

- A. This section shall apply to all existing landscapes that were installed before January 1, 2010 and are over one acre in size.
1. For all landscapes that have a dedicated water meter, the water purveyor shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys, irrigation audits, and irrigation equipment rebates to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the Maximum Applied Water Allowance (MAWA) for existing landscapes. The MAWA for existing landscapes shall be calculated as:  $MAWA = (0.8)(ET_o)(LA)(0.62)$ .
  2. For all landscapes that do not have a dedicated water meter, the water purveyor shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys, irrigation audits, and irrigation equipment rebates to evaluate water use and provide recommendations as necessary in order to prevent water waste.
- B. Water waste resulting from inefficient landscape irrigation shall be prevented by prohibiting runoff from leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures. (Ord. 7331 §93, 2016; Ord. 7310 §1, 2015; Ord. 7061 §2, 2009; Ord. 6966 §1, 2007)

**19.570.080 Cemeteries.**

- A. New cemeteries shall comply with the provisions of Section 19.570.030 – Provisions for the Review and Certification of Landscaping and Irrigation (A) and (B), 19.570.040 – Landscape Maintenance and Irrigation Schedules (A) and (B), and 19.570.050 – Certificate of Compliance.
- B. Existing cemeteries shall comply with the provisions of Section 19.570.070 – Existing Landscapes. (Ord. 7331 §93, 2016; Ord. 7310 §1, 2015; Ord. 7061 §2, 2009)

**19.570.090 Definitions.**

The terms used in this Chapter have the meaning set forth below:

- A. “applied water” means the portion of water supplied by the irrigation system to the landscape.
- 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. “Certificate of Compliance” means the document required under Section 19.570.050.
- D. “certified irrigation designer” means a person certified to design irrigation systems by an accredited academic institution, a professional trade organization, or other program such as the US Environmental Protection Agency’s WaterSense irrigation designer certification program and Irrigation Association’s Certified Landscape Irrigation Designer program.

- E. “certified landscape irrigation auditor” means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization, or other program such as the US Environmental Protection Agency’s WaterSense irrigation auditor certification program and Irrigation Association’s Certified Landscape Irrigation Auditor program.
- F. “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 sprinkler heads when the sprinkler is off.
- G. “controller” means an automatic timing device used to remotely control valves to operate an irrigation system. A smart irrigation controller is a *weather-based* irrigation controller or a *self-adjusting* irrigation controller. A *weather-based* controller is a controller that uses evapotranspiration or weather data to determine when to irrigate. A *self-adjusting* irrigation controller is a controller that uses sensor data (i.e., soil moisture sensor).
- H. “conversion factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year.
- I. “drip irrigation” means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
- J. “ecological restoration project” means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- K. “effective precipitation” or “usable rainfall” (Eppt) means the portion of total precipitation which becomes available for plant growth.
- L. “emitter” means a drip irrigation emission device that delivers water slowly from the system to the soil.
- M. “established landscape” means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.
- N. “establishment period of the plants” means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.
- O. “Estimated Annual Water Use” (EAWU) means the total water used for the landscape as described in Section 19.570.030 – Provisions for the Review and Certification of Landscaping and Irrigation (A)(12)(n).
- P. “ET adjustment factor” (ETAF) means a factor of 0.7, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape.

A combined plant mix with a site-wide average of 0.5 is the basis of the plant factor portion of this calculation. For purposes of the ETAF, the average irrigation efficiency is

0.71. Therefore, the ET adjustment factor is  $(0.7) = (0.5/0.71)$ . ETAF for a Special Landscape Area shall not exceed 1.0. ETAF for existing, non-rehabilitated landscapes is 0.8.

- Q. “evapotranspiration rate” means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.
- R. “flow rate” means the rate at which water flows through pipes, valves, and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.
- S. “hardscapes” means any durable material (pervious and non-pervious).
- T. “homeowner-provided landscaping” means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for the purposes of this Chapter, is a person who occupies the dwelling he or she owns. This excludes speculative homes, which are not owner-occupied dwellings.
- U. “hydrozone” (HA) means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.
- V. “infiltration rate” means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).
- W. “invasive plant species” means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by County agricultural agencies as noxious species. “Noxious” weeds means any weed designated by the Weed Control Act and identified on a Regional District noxious weed control list. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.
- X. “irrigation audit” means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule.
- Y. “irrigation efficiency” (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this Chapter is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.
- Z. “irrigation survey” means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test, and written recommendations to improve performance of the irrigation system.
- AA. “irrigation water use analysis” means an analysis of water use data based on meter readings and billing data.

- BB. “landscape architect” means a person who holds a license to practice landscape architecture in the State of California Business and Professions Code, Section 5615.
- CC. “landscape area” means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance 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 non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).
- DD. “landscape contractor” means a person licensed by the State of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
- EE. “landscape project” means the total area of landscape in a project as defined in “landscape area” for the purposes of this Chapter.
- FF. “lateral line” means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
- GG. “local agency” means a city or county, including charter city or charter county, that is responsible for adopting and implementing this Chapter. The local agency is also responsible for the enforcement of this ordinance, including but not limited to, approval of a permit and plan check or design review of a project.
- “local water purveyor” means any entity, including a public agency, city, county, or private water company that provides retail water service.
- “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, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
- JJ. “main line” means the pressurized pipeline that delivers water from the water sources to the valve or outlet.
- KK. “Maximum Applied Water Allowance” (MAWA) means the upper limit of annual applied water for the established landscaped area. It is based upon the area’s reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigation with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.
- LL. “microclimate” means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.
- MM. “mined-land reclamation projects” means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

- NN. "mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.
- OO. "new construction" means, for the purposes of this Chapter, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.
- PP. "operating pressure" means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.
- QQ. "overhead sprinkler irrigation systems" means systems that deliver water through the air (e.g., spray heads and rotors).
- RR. "overspray" means the irrigation water which is delivered beyond the target area.
- SS. "permit" means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.
- TT. "pervious" means any surface or material that allows the passage of water through the material and into the underlying soil.
- UU. "plant factor" or "plant water use factor" (PF) is a factor, when multiplied by  $ET_o$ , estimates the amount of water needed by plants. For purposes of this Chapter, the plant factor for high water use plants range from 0.7 to 0.9, moderate water use plants range from 0.4 to 0.6, low water use plants range from 0.1 to 0.3, and very low water use plants are less than 0.1. Plant factors cited in this Chapter are derived from the Department of Water Resources 2000 publication, "Water Use Classification of Landscape Species."
- VV. "precipitation rate" means the rate of application of water measures in inches per hour.
- WW. "project applicant" means the individual or entity submitting a landscape documentation package to request a permit, plan check, or design review from the local agency. A project applicant may be the property owner or his or her designee.
- XX. "rain sensor" or "rain sensing shutoff device" means a component which automatically suspends an irrigation event when it rains.
- YY. "recreational area" means areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.
- ZZ. "recycled water," "reclaimed water," or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.
- AAA. "reference evapotranspiration" or " $ET_o$ " means a standard measurement of environmental parameters which affect the water use of plants.  $ET_o$  is given expressed in inches per day, month, or year, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered. Reference

evapotranspiration is used as the basis of determining the Maximum Applied Water Allowances so that regional differences in climate can be accommodated. Refer to the CIMIS Reference Evapotranspiration Zones Map, Department of Water Resources, 1999.

- BBB. “rehabilitated landscape” means an re-landscaping project that requires a permit, plan check, or design review, and where the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.
- CCC. “runoff” means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.
- DDD. “soil moisture sensing device” or “soil moisture sensor” means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.
- EEE. “soil texture” means the classification of soil based on its percentage of sand, silt, and clay.
- FFF. “Special Landscaped Area” (SLA) means an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water, and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.
- GGG. “sprinkler head” means a device which delivers water through a nozzle.
- HHH. “static water pressure” means the pipeline or municipal water supply pressure when water is not flowing.
- III. “station” means an area served by one valve or by a set of valves that operate simultaneously.
- JJJ. “swing joint” means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.
- KKK. “turf” means a ground cover surface of mowed grass. Annual blue grass, Kentucky blue grass, Perennial rye grass, Red fescue, and Tall fescue are cool-season grasses. Bermuda grass, Kikuyu grass, Seashore Paspalum, St. Augustine grass, Zoysia grass, and Buffalo grass are warm-season grasses.
- LLL. “valve” means a device used to control the flow of water in the irrigation system.
- MMM. “water conserving plant species” means a plant species identified as having a low plant factor.
- NNN. “water feature” means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial

streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.

OOO. “watering window” means the time of day irrigation is allowed.

PPP. “WUCOLS” means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources, and the Bureau of Reclamation, 2000. (Ord. 7331 §93, 2016; Ord. 7310 §1, 2015; Ord. 7061 §2, 2009)