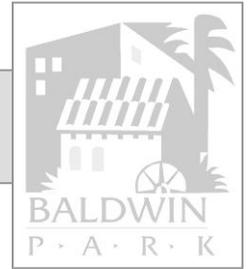


SUBCHAPTER 153.160 – WATER-EFFICIENT LANDSCAPING STANDARDS



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§ 153.160.010 – Intent and Purpose

- A. Landscaping minimum standards and guidelines.** The landscaping standards in this subchapter are established to set forth minimum standards and guidelines for the design, maintenance and installation of water-efficient landscaping and irrigation systems. Landscaping shall be utilized to enhance the visual quality of the environment, to reduce heat and glare, to identify building entries, to provide shade, to relieve the monotony of long expanses of building and walls, to control soil erosion and to buffer areas and land uses potentially incompatible with one another.

- B. Water conservation.** Water conservation measures shall be addressed through the water-efficient landscape and irrigation design. Sustainable landscapes are encouraged through actions that conserve and recycle the resources invested in landscapes.
- C. Legislative direction.** The California State Legislature has found:
1. That waters resources in California are of limited supply and are subject to ever-increasing demands.
 2. That the continuation of California’s economic prosperity is dependent on the availability of adequate supplies of water for future uses.
 3. That it is the policy of the State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource.
 4. That landscapes are essential to the quality of life in California 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.
 5. That landscape design, installation, maintenance and management can and should be water efficient.
 6. 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.

§ 153.160.020 – Applicability

- A. Landscape projects.** After December 1, 2015 and consistent with Executive Order No. B-29-15, the provisions of this subchapter shall apply to all of the following landscape projects:
1. New development projects with an aggregate landscape area equal to or greater than 500 square feet requiring a building or landscape permit, plan check, or design review.
 2. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review.

B. The reporting requirements of this ordinance shall become effective December 1, 2015 and the remainder of this ordinance shall be effective no later than February 1, 2016.

C. Any project with an aggregate landscape area of 2,500 square feet or less may comply with the performance requirements of this ordinance or conform to the prescriptive measures contained in §153.160.225.

D. For projects using treated or untreated graywater or rainwater captured on site, any lot or parcel within the project that has less than 2500 s.f. of landscape and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with treated or untreated graywater or through stored rainwater captured on site is subject only to Section 153.160.220.A.5 of the City's Municipal Code.

E. **Exceptions.** The provisions of this subchapter do not apply to:

1. Registered local, state or federal historical sites;
2. Ecological restoration projects that do not require a permanent irrigation system;
3. Mined-land reclamation projects that do not require a permanent irrigation system; and
4. Plant collections as part of botanical gardens and arboretums open to the public.

§ 153.160.030 – General Landscaping Standards

The landscaping standards provided in this section shall apply to all parcels within the city.

- A. **Landscape Design Manual and Design Guidelines Manual.** A Landscape Design Manual and a Design Guidelines Manual, adopted by resolution of the City Council, shall together establish criteria for the design and review of landscape and irrigation plans, and such criteria shall be adhered to in the design of landscape and irrigation plans.
- B. **Landscape height.** Shrubs, flowers, plants and hedges shall not exceed 3 feet in height.
- C. **Tree location.** Trees may be planted in any required yard area.
- D. **Landscaping and irrigation system.** Landscaping and a permanent irrigation system shall be maintained in the area between the front property line and the dwelling, building or structure.

- E. Landscaping maintenance.** Landscaping and vegetation shall be maintained as follows:
1. All landscaped areas shall be kept and maintained in a manner that does not detract from the appearance of the immediate neighborhood, and that protects the health, safety and welfare of the user, occupants and general public.
 2. All landscaped areas shall be kept and maintained in a neat and clean condition, free of weeds, debris, litter, dead, diseased or dying vegetation and broken or defective decorative elements.
 3. Vegetation in landscaped areas shall be mowed, groomed, trimmed, pruned and watered to maintain a healthy, growing condition.
 4. Irrigation systems shall be kept in good working condition and repair to prevent leaks or public health hazards.
 5. Vegetative overgrowth shall not be permitted in a manner that is likely to harbor rodents, vermin, insects or other nuisances; or impedes, obstructs or denies pedestrian or other lawful travel on sidewalks, walkways or other public rights-of-way.
 6. All property owners shall water, prune, weed and otherwise maintain landscaping in the parkway portions of adjoining streets, including street trees.
 7. Parkway landscaping shall be maintained by the abutting property owner.
- F. Water Conservation in Landscaping Act.** Landscape planting shall emphasize drought-tolerant and native species, complement the architectural design of structures on the site and be suitable for the soil and climatic conditions of the site. Consistent with the purposes of California Government Code §§65591 et seq. (Water Conservation in Landscaping Act), all new and rehabilitated landscape projects shall comply with the following water-conserving landscape requirements:
1. To the greatest extent possible, landscape material shall consist of drought-tolerant plants. Low-water-use plants shall be used in at least 50 percent of the total planted area. Planted areas shall consist of plant material well-suited to the given soil and climate of the region. Plant selection shall take into consideration water conservation through appropriate use and groupings of plants that are well adapted to particular sites and require similar watering needs and climatic, geological and topographical conditions.

2. The maximum area permitted for turf shall be 50 percent of the total landscaped area on the site. Higher percentages may be permitted when sod is an essential part of the development such as playing fields for schools or parks and residential model units. Turf usage shall only be permitted for highly visual and functional use areas. Turf shall not be permitted in areas difficult to irrigate, such as sidewalk strips, slopes over 15 percent or narrow pathways.
3. Where decorative water features such as pools, ponds or waterfalls are used in landscaped areas, such features shall incorporate recycling of water and where available, use of reclaimed water. Decorative water features shall be designed to minimize water loss.

§ 153.160.040 – Residential Landscaping Standards

The following standards shall apply to all parcels in the R-1-7,500, R-1, R-G and R-3 zones:

- A. **Minimum landscaping of lot.** A minimum of 20 percent of the entire lot shall be fully landscaped with plant materials.
- B. **Minimum landscaping of front yard area.** A minimum of 50 percent of the front yard area between the street and dwelling unit shall be fully landscaped. Non-landscaped areas shall only be used for the purpose of pedestrian and vehicular access.
- C. **Minimum landscaping of side yard area.** A minimum of 50 percent of the street side yard areas between the street and dwelling unit shall be fully landscaped.
- D. **Landscape maintenance.** The property owner shall be responsible for the maintenance of all landscaping, including parkway landscaping, with maintenance, including, but not limited to, watering, pruning, fertilizing and replacing deteriorated plant materials.
- E. **Landscaping adjacent to driveways and buildings.** A strip of landscaping shall be installed and maintained adjacent to all driveways and buildings located upon any R-G and R-3 zoned lots. The location, area and design of such landscaped areas are subject to review and approval by the Director of Community Development or designee.

§ 153.160.050 – Nonresidential Landscaping Standards

All new and rehabilitated landscaping plans undertaken in conjunction with any private development project on commercial, industrial, mixed-use and other nonresidential properties, or those projects requiring a grading, building or use permit, shall comply with the following standards:

- A. **Unpaved areas.** All unpaved areas, including those portions of required yard areas not utilized for vehicular and pedestrian access, shall be landscaped with plant material, including some combination of trees, shrubs, groundcover and turf. Dry landscape material may be incorporated into the landscape design.
- B. **Automatic irrigation system.** All landscaped areas shall be provided with an automatic irrigation system, unless the Director of Community Development finds that such an irrigation system, due to the size, location or configuration of the landscaped area, cannot reasonably be installed and maintained.
- C. **Plant sizes and plant spacing.** To achieve an immediate effect of a landscape installation and to allow sustained growth of planting materials, plant material sizes and plant spacing shall comply with the following standards:
1. The minimum plant size for trees shall be 15 gallons, unless otherwise specified by the provisions of this chapter. Trees planted within 10 feet of a street, sidewalk, paved trail or walkway shall be a deep-rooted species or shall be separated from paved surfaces by a root barrier to prevent physical damage to public improvements. A minimum distance of 15 feet is required between the center of trees to street light standards, water meters, back-flow prevention systems, sewer cleanouts and fire hydrants.
 2. The minimum plant size for shrubs shall be 5 gallons.
 3. Groundcover, including turf, shall be planted in a manner to provide 100 percent coverage within 1 year of initial planting.
- D. **Freeway frontage landscaping.** Lots with freeway frontage shall provide and maintain freeway frontage landscaping on private property fronting the freeway.
- E. **Parking lot landscaping.** Parking lot landscaping shall be provided pursuant to §153.150.110.

§ 153.160.060 – Landscape Approval Procedure

- A. **Preliminary Landscape Design Plan required.** In conjunction with any application subject to design review, a Preliminary Landscape Design Plan shall be provided. The plan shall contain the information described in §153.160.070, and shall be reviewed by the Design Review Committee for compliance with the landscape design criteria contained in §§153.160.030, 153.160.040 and 153.160.050. The design review process represents the basis for approval or denial of a design proposal. No grading, building or

use permit can be issued until a project has received approval from the Design Review Committee.

- B. Landscape Design Plan.** Following the granting of all required planning and subdivision approvals, full construction drawings shall be submitted to the Building Division for plan check approval. Drawings submitted for plan check shall include the entire Landscape Documentation Package described in §153.160.080, including the approved Preliminary Landscape Design Plan. The Landscape Design Plan shall be in substantial conformity with the approved Preliminary Landscape Design Plan prior to issuance of building permits.

§ 153.160.070 – Preliminary Landscape Design Plan

A Preliminary Landscape Design Plan shall specify the items detailed below. Special design attributes may require detail drawings and/or the submittal of manufacturer's literature.

- A. Planting material.** Locate and identify all landscape planting material, including trees, shrubs, groundcover and turf. Planting symbols shall be clearly drawn.
- B. Reference.** Reference planting symbols, specifying botanical name, common name, container size, spacing and quantities.
- C. Existing mature trees.** Locate all existing mature trees, noting biological name, common name and approximate trunk size, measured at 2 feet above existing grade. Note trees to be removed, relocated on-site or maintained in place.
- D. Hydrozones.** Express variation in water need. Designate hydrozones as low, moderate or high water usage.
- E. Hardscape.** Locate and identify all paving and hardscape material.
- F. Height.** Locate and identify the height of all walls, fences and gates.
- G. Outdoor amenities.** Locate and identify all outdoor amenity features, including, but not limited to pools, spas, various water features, trellises, gazebos, play equipment, picnic tables and benches.

§ 153.160.080 – Elements of the Landscape Documentation Package

The Landscape Documentation Package shall include the following elements:

- A.** The following project information shall be provided in the Landscape Documentation Package.

1. Date
 2. Project applicant
 3. Project address (if available, parcel and/or lot number(s))
 4. Total landscape area (square feet)
 5. Project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)
 6. Water supply type (e.g., potable, recycled, well) and identify the local water purveyor
 7. Checklist of all documents in Landscape Documentation Package
 8. Project contacts to include contact information for the project applicant and property owner
 9. Applicant signature and date with statement, "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package."
- B. Approved Preliminary Landscape Design Plan.
- C. Water Efficient Landscape Worksheet as described in § 153.160.110.
- D. Soil Management Report as described in § 153.160.120.
- E. Landscape Design Plan as described in § 153.160.090.
- F. Irrigation Design Plan as described in § 153.160.100.
- G. Grading Design Plan as described in § 153.160.130.

§ 153.160.090 – Landscape Design Plan

- A. **Landscape design criteria.** For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package:
1. **Plant Material**

- a.** Any plant may be selected for the landscape, providing the Estimated Total Water Use (as described in §153.160.110(D)) in the landscape area does not exceed the Maximum Applied Water Allowance (as described in §153.160.110(C)). To encourage the efficient use of water, the following is highly recommended:

 - i.** Protection and preservation of native species and natural vegetation.
 - ii.** Selection of water-conserving plant and turf species.
 - iii.** Selection of plants based on disease and pest resistance.
 - iv.** Selection of trees based on applicable local tree ordinances or tree shading guidelines.
 - v.** Selection of plants from local and regional landscape program plant lists.
- b.** Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use, as specified in §153.160.100(A)(2)(d).
- c.** Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:

 - i.** Use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude and varying degrees of continental and marine influence on local climate.
 - ii.** Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure (e.g., buildings, sidewalks, power lines).
 - iii.** Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

- d. Turf is not allowed on slopes greater than 25 percent where the toe of the slope is adjacent to an impermeable hardscape and where 25 percent means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).
- e. A landscape design plan for projects in fire-prone 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(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.
- f. The use of invasive and/or noxious plant species is strongly discouraged.
- g. The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

2. Water Features

- a. Recirculating water systems shall be used for water features.
- b. Where available, recycled water shall be used as a source for decorative water features.
- c. Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.

3. Mulch and Amendments

- a. A minimum 2-inch layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers or direct seeding applications where mulch is contraindicated.
- b. Stabilizing mulching products shall be used on slopes.
- c. The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.
- d. Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected.

- B. Landscape design plan attributes.** The landscape design plan, at a minimum, shall have the following items:
1. North arrow
 2. Scale (preferably an engineer's scale of 1"=10' or 1"=20')
 3. Delineated property lines and easements, including utility easements
 4. Adjacent streets, including location, dimension, and centerline
 5. Existing and proposed public improvements, including right-of-way and street dedications
 6. All existing and planned buildings and structures on site
 7. Delineate and label each hydrozone by number, letter or other method
 - a. Identify each hydrozone as low, moderate, high water or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation
 - b. Identify recreational areas
 - c. Identify areas permanently and solely dedicated to edible plants
 - d. Identify areas irrigated with recycled water
 - e. Identify type of mulch and application depth
 - f. Identify soil amendments, type and quantity
 8. Identify type and surface area of water features
 9. Identify hardscapes (pervious and non-pervious)
 10. Identify location and installation details, and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited, to:

- a. Infiltration beds, swales and basins that allow water to collect and soak into the ground
 - b. Constructed wetlands and retention ponds that retain water, handle excess flow and filter pollutants
 - c. Pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff
11. Identify any applicable rain harvesting or catchment technologies as discussed in Section 153.160.220 and their 24-hour retention or infiltration capacity;
12. Identify any applicable graywater discharge piping system components and area(s) of distribution;
13. Contain the following statement: “I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan.”
14. Bear the signature of a licensed landscape architect, licensed landscape contractor or any other person authorized to design a landscape. (See §§ 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701 and 7027.5 of the Business and Professions Code, § 832.27 of Title 16 of the California Code of Regulations and §6721 of the Food and Agriculture Code.)

§ 153.160.100 – Irrigation Design Plan

- A. **Irrigation system requirements.** This section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers’ recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management and maintenance. An irrigation design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package:

1. **System**

- a. Landscape water meters, defined as either a dedicated water service meter or private submeter, shall be installed for all non-residential

irrigated landscapes of 1,000 sq. ft. and residential irrigated landscaped of 5,000 sq. ft. or greater. A landscape water meter may be either

i) a customer service meter dedicated to landscape use provided by the local water purveyor; or

ii) a privately owned meter or submeter.

b. Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems.

c. If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

i. If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps or other devices shall be installed to meet the required dynamic pressure of the irrigation system.

ii. Static water pressure, dynamic or operating pressure and flow reading of the water supply shall be measured at the point of connection. 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 installation.

d. Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.

e. Manual shut-off valves (such as a gate valve, ball valve or butterfly 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 (such as a main line break) or routine repair.

- f. Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system.
- g. Flow sensors that detect high flow conditions created by system damage or malfunction are required for all non-residential landscapes and residential landscapes of 5,000 sq. ft. or larger.
- h. Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.
- i. The irrigation system shall be designed to prevent runoff, low head drainage, overspray or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways or structures.
- j. Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
- k. The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
- l. The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in § 153.160.110 regarding the Maximum Applied Water Allowance.
- m. All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers'/International Code Council's (ASABE/ICC) 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard", All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.
- n. It is highly recommended that the project applicant inquire with the local water purveyor about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.
- o. In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.

- p. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- q. Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
- r. Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to hardscapes or in high traffic areas of turf grass.
- s. Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.
- t. Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.
- u. 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:
 - i. The landscape area is adjacent to permeable surfacing and no runoff occurs.
 - ii. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.
 - iii. The irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates strict adherence to irrigation system design criteria in section 153.160.100(A)(1)(h). Prevention of overspray and runoff must be confirmed during the irrigation audit
- v. Slopes greater than 25 percent shall not be irrigated with an irrigation system with an application 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 Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

2. Hydrozone

- a. Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions and plant materials with similar water use.
- b. Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
- c. Where feasible, trees shall be placed on separate valves from shrubs, groundcovers and turf to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.
- d. Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:
 - i. Plant factor calculation is based on the proportions of the respective plant water uses and their plant factor.
 - ii. The plant factor of the higher water using plant is used for calculations.
- e. Individual hydrozones that mix high and low water use plants shall not be permitted.
- f. On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the hydrozone information table which is required in the Water Efficient Landscape Worksheet. This table can also assist with the irrigation audit and programming the controller.

B. Irrigation design plan requirements. The irrigation design plan, at a minimum, shall contain:

1. The point of connection to the public water supply, and location and size of separate water meters for landscape
2. Location, type, size and manufacturer of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators and backflow prevention devices.
3. Static water pressure at the point of connection to the public water supply.
4. Flow rate (gallons per minute), application rate (inches per hour) and design operating pressure (pressure per square inch) for each station.
5. Recycled water irrigation systems as specified in Section 153.160.190.
6. The following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan."
7. The signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor or any other person authorized to design an irrigation system. (See §§ 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701 and 7027.5 of the Business and Professions Code, § 832.27 of Title 16 of the California Code of Regulations and § 6721 of the Food and Agricultural Code.)

§ 153.160.110 – Water Efficient Landscape Worksheet

- A. Water Efficient Landscape Worksheet required.** A project applicant shall submit the Water Efficient Landscape Worksheet, as provided in the Landscape Design Manual, which contains information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydrozone. Calculations are then made to show that the evapotranspiration adjustment factor (ETAF) for the landscape project does not exceed a factor of 0.55 for residential areas and 0.45 for non-residential areas, exclusive of Special Landscape Areas. The ETAF for a landscape project is based on the plant factors and irrigation methods selected. The Maximum Applied Water Allowance is calculated based on the maximum ETAF allowed and expressed as annual gallons required. The Estimated Total Water Use (ETWU) is calculated based on the plants used and irrigation method selected for the landscape design. The ETWU must be below the MAWA. In calculating the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use the ETo values from the Reference Evapotranspiration Table contained in the water-efficient landscape packet available from the Community Development Director. Because the city is not covered by the Reference

Evapotranspiration Table as provided in the Landscape Design Manual, projects shall use data from other cities located nearby in the same reference evapotranspiration zone, such as the City of Monrovia, as found in the CIMIS Reference Evapotranspiration Zones Map, Department of Water Resources, 1999.

B. Water budget calculations. Water budget calculations shall adhere to the following requirements:

1. The plant factor used shall be from the Water Use Classification of Landscape Species (WUCOLS) or from horticultural researchers with academic institutions or professional associations as approved by the California Department of Water Resources (DWR). The plant factor ranges from 0 to 0.1 for low water use plants, from 0.4 to 0.6 for moderate water use plants and from 0.7 to 1.0 for high water use plants.
2. All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.
3. All Special Landscape Areas shall be identified and their water use calculated as described below.
4. ET Adjustment Factor for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

§ 153.160.120 – Soil Management Report

A. Soil management report required. To reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, or his/her designee, as follows:

1. Submit soil samples to a laboratory for analysis and recommendations.
 - a. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
 - b. The soil analysis shall include, as applicable:

- a. Height of graded slopes
 - b. Drainage patterns
 - c. Pad elevations
 - d. Finish grade
 - e. Stormwater retention improvements, if applicable
2. To prevent excessive erosion and runoff, it is highly recommended that project applicants do the following:
 - a. Grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes.
 - b. Avoid disruption of natural drainage patterns and undisturbed soil.
 - c. Avoid soil compaction in landscape areas.
 3. The grading design plan shall contain the following statement: “I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan” and shall bear the signature of a licensed professional as authorized by law.

§ 153.160.140 – Certificate of Completion

Upon receipt of the permit for the Landscape Documentation Package and completion of the landscaping and irrigation system, the developer shall submit a Certificate of Completion, as provided in the Landscape Design Manual, to the Director of Community Development for review. The following details apply to the Certificate of Completion:

- A. **Standard form.** The Certificate of Completion shall be on a standard form approved by the Director of Community Development.
- B. **Compliance statement.** The Certificate of Completion shall include a statement that the landscaping and irrigation system have been installed in substantial compliance with the approved Landscape Documentation Package. It shall acknowledge the evaluation of the landscape and irrigation system by a California licensed landscape architect, landscape contractor or other individual deemed qualified by the Director of Community Development.

1. Where there have been significant changes made in the field during construction, these 'as-built' or record drawings shall be included with the certification;
 2. SA diagram of the irrigation plan showing hydrozones shall be kept with the irrigation controller for subsequent management purposes.
- C. Irrigation scheduling parameters.** The Certificate of Completion shall include the irrigation scheduling parameters used to set the controller pursuant to §153.160.150.
- D. Landscape and irrigation maintenance schedule.** The Certificate of Completion shall include a landscape and irrigation maintenance schedule pursuant to §153.160.160.
- E. Irrigation audit report.** The Certificate of Completion shall include an irrigation audit report pursuant to §153.160.170.
- F. Soils analysis report.** The Certificate of Completion shall include a soils analysis report if not previously submitted with the Landscape Documentation Package pursuant to §153.160.120.
- G. Submit Certificate of Completion to Director.** The developer shall submit the Certificate of Completion to the Director of Community Development prior to the issuance of occupancy permits.
- H. Submit Certificate of Completion to purveyor and owner.** The developer shall submit approved copies of the Certificate of Completion to the local water purveyor and property owner or his or her designee.

§ 153.160.150 – Irrigation Scheduling

For the efficient use of water, all irrigation schedules shall be developed, managed and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:

- A. Automatic irrigation controllers.** Irrigation scheduling shall be regulated by automatic irrigation controllers.
- B. Allowable hours of irrigation.** Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. If allowable hours of irrigation differ from the local water purveyor or other agency, a stricter schedule shall apply. Operation of the irrigation system outside the normal watering window is only allowed for auditing and system maintenance.

- C. Irrigation schedule implementation.** For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance. Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.
- D. Automatic controller parameters.** Parameters used to set the automatic controller shall be developed and submitted for each of the following:
1. The plant establishment period
 2. The established landscape
 3. Temporarily irrigated areas.
- E. Stations.** Each irrigation schedule shall consider for each station all of the following that apply:
1. Irrigation interval (days between irrigation)
 2. Irrigation run times (hours or minutes per irrigation event to avoid runoff)
 3. Number of cycle starts required for each irrigation event to avoid runoff
 4. Amount of applied water scheduled to be applied on a monthly basis
 5. Application rate setting
 6. Root depth setting
 7. Plant type setting
 8. Soil type
 9. Slope factor setting
 10. Shade factor setting
 11. Irrigation uniformity or efficiency setting

§ 153.160.160 – Landscape and Irrigation Maintenance Schedule

- A. **Regular maintenance schedule required.** Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.
- B. **Regular maintenance schedule contents.** A regular maintenance schedule shall include, but not be limited to: routine inspection, auditing, adjustment and repair of the irrigation system and its components, aerating and dethatching turf areas, topdressing with compost, replenishing mulch, fertilizing; pruning, weeding in all landscape areas and removing obstructions to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
- C. **Irrigation equipment repairs.** Repair of all irrigation equipment shall be done with the originally installed components or their equivalents or with components with greater efficiency.
- D. **Sustainable practices.** A project applicant is encouraged to implement established landscape industry sustainable Best Practices for all landscape maintenance activities.

§ 153.160.170 – Irrigation Audit Report

- A. **Landscape irrigation audit.** All landscape irrigation audits shall be conducted by a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.
- B. **Irrigation water usage and report.** For new construction and rehabilitated landscape projects installed after December 1, 2015, as described in §153.160.020, the following shall apply:
 - 1. The project applicant shall submit an irrigation audit report with the Certificate of Completion that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow and preparation of an irrigation schedule, including configuring irrigation controllers with application rate, soil types, plant factors, slope, exposure and any other factors necessary for the accurate programming.
 - 2. The city may require an irrigation water use analysis, irrigation audits, or irrigation surveys to ensure compliance with the Maximum Applied Water Allowance.

§ 153.160.180 – Irrigation Efficiency

For the purpose of determining Estimated Total Water Use, average irrigation efficiency is assumed to be 0.75 for overhead spray devices and 0.81 for drip system devices.

§ 153.160.190 – Recycled Water

- A. **Recycled water irrigation systems.** The installation of recycled water irrigation systems shall allow for the current and future use of recycled water.
- B. **Laws.** All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.
- C. **Special landscape areas.** Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

§ 153.160.192 – Graywater Systems

Any proposed graywater systems shall conform to the California Plumbing Code (Title 24, Part 5, Chapter 16) and any applicable City standards.

§ 153.160.200 – Stormwater Management and Rainwater Retention

- A. **Stormwater best management practices.** Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site rainwater retention and infiltration are encouraged.
- B. **Regional Water Quality Control Board.** Project applicants shall refer to the Regional Water Quality Control Board for information on any applicable stormwater technical requirements.
- C. **Friable Soil.** All planted landscape areas are required to have friable soil to maximize water retention and infiltration.

§ 153.160.210 – Public Education

- A. **Statement of Intent.** Education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation, management and maintenance that save water is encouraged in the community.
- B. **Education Requirements.**

1. All model homes shall be landscaped and shall use signs and written information to demonstrate the principles of water-efficient landscapes described in this ordinance.
2. Developers shall provide information to owners of new, single-family residential homes regarding the design, installation, management and maintenance of water-efficient landscapes.
3. Signs shall be used to identify all models as an example of a water efficient landscape featuring elements such as hydrozones, irrigation equipment and others that contribute to the overall water-efficient theme.
4. Information shall be provided about designing, installing, managing and maintaining water-efficient landscapes.

§ 153.160.220 – Provisions for Existing Landscapes

A. Existing landscapes requirements. This section shall apply to all existing landscapes that were installed before December 1, 2015 and are over 1 acre in size.

1. For all landscapes that have a water meter, the city shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys and irrigation audits 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 for existing landscapes. The Maximum Applied Water Allowance for existing landscapes shall be calculated as: $MAWA = (0.8) (ET_o)(LA)(0.62)$, where
 - MAWA = Maximum Applied Water Allowance (gallons per year)
 - ET_o = 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)
2. For all landscapes that do not have a meter, the city shall administer programs that may include, but not be limited to, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.

B. Landscape irrigation audits. All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

§ 153.160.225 – Prescriptive Compliance

- A. Compliance with the following items is mandatory and must be documented on a landscape plan in order to achieve prescriptive compliance.
1. Submit a Landscape Documentation Package which includes the following elements:
 - a. Date
 - b. Project applicant
 - c. Project location including parcel number
 - d. Total landscape area in square feet, including a breakdown of turf and plant material
 - e. Project type (new, rehabilitated, public, private, home-owner installed)
 - f. Water supply type (potable, recycled, well) and identify the local retail water purveyor
 - g. Contact information for the project applicant and property owner
 - h. Applicant signature and date with statement, "I agree to comply with the requirements of the prescriptive compliance option.
 2. Incorporate compost at a rate of at least four (4) cubic yards per 1,000 square feet to a depth of six inches into landscape area unless contra-indicated by a soils test)
 3. Plant material shall comply with all of the following:
 - a. For residential areas, install climate adapted plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for 75% of the plant area excluding edibles and areas using recycled water;
 - b. For non-residential areas, install climate adapted plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for 100% of the plant area excluding edibles and areas using recycled water.
 - c. A minimum three inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.
 4. Turf shall comply with the following:
 - a. Turf shall not exceed 20% of the landscape area in residential areas, and there shall be no turf in non-residential areas.
 - b. Turf shall not be planted on sloped areas which exceed a slope of 1 foot vertical elevation change for every 4 feet of horizontal length;

