

Landscape Standards Excerpted from San Bernardino County Development Code

The following pages were extracted from the recently updated [2007 San Bernardino County Development Code](#) and contain only the section of that document that deals with Landscape Standards.

The county has not yet formalized the final version of the document, so the red words in the document reflect the changes made during the update.

CHAPTER 83.10 LANDSCAPING STANDARDS

Sections:

- 83.10.010 Purpose
- 83.10.020 Applicability
- 83.10.030 Exemptions from the Landscaping Requirements
- 83.10.040 Modification to the Landscaping Requirements
- 83.10.050 Landscape Documentation Package
- 83.10.060 Landscape Area Requirements
- 83.10.070 Landscape Standards
- 83.10.080 Regional Landscaping Standards
- 83.10.090 Irrigation Scheduling and Maintenance Required
- 83.10.100 Landscape Certificate of Completion
- 83.10.110 Non-potable/Recycled Water
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83.10.010 Purpose

The purpose of this Chapter is to:

- (a) Enhance the aesthetic appearance of the County by providing standards related to the quality and functional aspects of landscaping and to recognize that landscapes are essential to the quality of life within County by providing areas for active and passive recreation. Additionally, landscapes are an enhancement to the environment by benefiting air and water quality, helping to prevent and manage erosion, offering fire protection, and helping to replace valuable ecosystems that may be lost during development.
- (b) Increase the compatibility between abutting land uses and public rights-of-way by providing landscape screening and buffers.
- (c) Protect public health, safety, and welfare by preserving property values and enhancing pedestrian and vehicular traffic and safety.
- (d) Provide for the conservation and protection of water resources through the efficient use of water; appropriate use of plant materials suitable for climate and location; regular maintenance of landscaped areas; and provide standards that are as effective in conserving water as the State Model Water Efficient Landscape Ordinance, and recognize the following:
 - (1) The waters within the of the State of California are of limited supply and are subject to ever increasing demands from new land uses, existing land uses, residents of the State, and more;

- (2) The continuation of the economic prosperity of the state and the County is dependent upon the availability of adequate water supplies for the future and future development.
- (e) Retain the land's hydrological role within the County's three main watersheds; Santa Ana, Lahontan, and Colorado and promote the infiltration of surface water into the groundwater tables.
- (f) Preserve existing natural vegetation, while incorporating the use of native plants, plant communities, and ecosystems into landscaping design, where possible.
- (g) Establish effective coordination with neighboring and local agencies, which promote benefits of consistent landscape ordinances and standards in accomplishing the common goal of managing the County's water supply and quality.
- (h) Promote the conservation of potable water by utilizing the use of recycled water and other water conserving technology, where possible.
- (i) Promote public education about water conservation and efficient water management.

Adopted Ordinance 4011 (2007); Amended Ordinance 4136 (2011)

83.10.020 Applicability

- (a) A landscape document package shall be submitted for review and approval for the following projects:
 - (1) All new and rehabilitated landscapes associated with homeowner installed residential uses (including single residential units/projects) with a total landscape area that is 5,000 square feet or greater.
 - (2) All new and rehabilitated landscapes associated with any developer-installed residential uses (including single and multiple residential projects) with a total landscape area that is 2,500 square feet or greater.
 - (3) All new and rehabilitated landscapes associated with any owner and/or developer installed commercial, institutional, and/or industrial uses with a total landscape area that is 2,500 square feet or greater.
 - (4) **All new and rehabilitated landscapes within cemeteries.** These projects need only prepare a water budget that specifies the facilities Maximum Applied Water Allowance (MAWA) and Estimated Annual Water Use (EAWU), and they must meet the provisions set forth in Sections 83.10.100 and 83.10.120 of this Chapter.
 - (5) **Existing uses and structures.** If existing physical constraints on the site (e.g., structures, parking, circulation, etc.) limit the amount of landscaping that can be provided, whatever additional landscaping the site can accommodate towards meeting the landscape area requirements of this Chapter shall be provided.

- (b) **Local Agencies.** If a local agency, such as a water purveyor, has adopted and implemented specific water-efficient landscaping requirements, as outlined by State Title 23, Division 2, Chapter 2.7 Model Water Efficient Landscape Ordinance, then those requirements may be used for properties located within its service area in lieu of this Chapter. If the local agency has not adopted and implemented specific water-efficient landscape requirements, then the water-efficient requirements outlined in this Chapter shall be used when developing landscape plans for properties within its service area.

Adopted Ordinance 4011 (2007), Amended Ordinance 4136 (2011)

83.10.030 Exemptions from the Landscaping Requirements

The following projects shall be exempt from landscaping requirements:

- (a) Those properties that have been registered as local, state, and/or federally historical sites.
- (b) Undisturbed portions of residential subdivisions, such as areas which are to remain natural for native plant protection and/or management, for the protection of a wildlife corridor, or for other natural resource management approach all of which, will not require supplemental water or the approval as a viable landscape by the Director.
- (c) Undisturbed portions of nonresidential project sites.
- (d) Those properties that are currently in agricultural production are exempt from the requirements of this Chapter. Commercial agriculture production requiring more intense water usage shall be subject to separate water efficiency standards as regulated by the State of California and local water resource agencies.
- (e) Those properties that are part of an ecological restoration project(s) and do not require the use of a permanent irrigation system.
- (f) Those properties that are part of a mined-land reclamation project(s) and do not require the use a permanent irrigation system.
- (g) Those plant collections, as part of botanical gardens and arboretums that are open to the public.

Adopted Ordinance 4011 (2007), Amended Ordinance 4136 (2011)

83.10.040 Modification to the Landscaping Requirements

- (a) **Director approval.** The Director may approve modifications to the requirements of this Chapter. The modifications shall be limited to the following:
- (1) Minor modifications to the approved landscape documentation package that comply with the spirit and intent of the requirements, including, but not limited to, revising or substituting plant varieties, container sizes, plant locations,

irrigation specifications, hardscape components, berm heights and/or locations, slope features, and other similar changes.

- (2) Any minor modifications of planting, installation, and/or soil preparation details as listed within the approved landscape documentation package.
 - (3) The occupancy of structures prior to the installation of landscaping due to exceptional and unforeseen circumstances when a bond or other surety is provided in compliance with Subsection 83.10.060(c) (Statement of surety).
- (b) **Conditions imposed in connection with modifications.** In granting modifications to any approved landscape documentation package, the Director may impose conditions as deemed necessary to comply with the spirit and intent of these regulations.
- (c) **Fire Safety (FS) Overlay.** The standards in this Chapter may be modified by Chapter 82.13 (Fire Safety (FS) Overlay).

Adopted Ordinance 4011 (2007), Amended Ordinance 4136 (2011)

83.10.050 Landscape Documentation Package

- (a) **Landscape Documentation Package Requirements.** A landscape documentation package shall be submitted for review and approval for those projects specified in Subsection 83.10.020 (Applicability), consisting of the following:
- (1) **Title Sheet.** Pertinent project information (i.e. applicant contact information, representative contact information if applicable, assessor's parcel number, etc.) shall be included on a title sheet. The following statement is to be placed on the title sheet of the landscape documentation package:

“I agree that this landscape documentation package complies with the landscaping requirements as outlined by Chapter 83.10 of the County of San Bernardino Development Code; as well as any other requirements as outlined in supporting documentation regarding water efficient-landscaping requirements provided by the County of San Bernardino.”

The Title sheet shall bear the signature of a licensed professional authorized to design landscape plans.

- (2) **Demolition Plan.** The landscape demolition plan, if applicable, shall show all landscape elements, and/or hardscape elements, that will affect the proposed landscaped areas, and identify each element to be removed or protected in place. Any existing native or protected tree species with a six-inch or greater stem diameter and/or 19 inches in circumference measured at four and half feet above the average ground level from the base of the tree base shall not be removed without a tree removal permit. The issuance of the tree removal permit and the removal of any native or protected tree on-site shall comply with Chapter 88.01 (Plant Protection and Management). Within the Valley Region, native trees are defined as three or more palm trees in linear plantings that are 50 feet or greater

in height in established windrows, or parkway plantings, which are considered heritage trees.

- (3) **Construction Plan.** The landscape construction plan shall detail the hardscape elements, i.e. sidewalks, mowcurbs, aesthetic elements, etc., that are proposed as part of the landscape design.

- (4) **Water Budget.** A project's water budget shall be based on the following calculations and shall be included on the irrigation plan:

- (A) **Maximum Applied Water Allowance (MAWA):** The MAWA for the project shall be calculated using the following formula:

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

Where:

- (I) ETo: The project area specific reference evapotranspiration rate (inches), as outlined in the California Irrigation Management Information System (CIMIS), other equivalent data, or soil moisture sensor data.

- (II) 0.62: The conversion factor, which converts acre-inches per acre per year to gallons per square foot per year.

- (III) 0.70: The ET adjustment factor, that, when applied to the ETo, adjusts for plant factors and irrigation efficiency, which are two major influences upon the amount of water that needs to be applied to the project's landscaped areas. Those areas using non-potable/recycled water for irrigation purposes may use the ET adjustment factor, which shall not exceed of 1.0. The ET adjustment factor is figured by dividing the average site-wide plant factor, found in the Water Use Classifications of Landscape Species, third edition (WUCOLS III), with the average irrigation efficiency of 0.71, as defined by State law;

- (IV) LA: The project's total landscaped area (including SLA) in square feet; and

- (V) SLA: The project's total special landscaped area (i.e. areas dedicated to edible plants, areas irrigated with non-potable/recycled water, and publicly accessible areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing field or where turf is needed for high traffic activities) in square feet.

- (B) **Estimated Annual Water Use (EAWU).** The EAWU for project specific hydrozones shall be calculated using the following formula:

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

Where:

- (I) ETo: The project area specific reference evapotranspiration rate (inches), as outlined in the California Irrigation Management

Information System (CIMIS), other equivalent data, or soil moisture sensor data.

- (II) 0.62: The conversion factor, which converts acre-inches per acre, per year to gallons per square foot, per year.
- (III) PF: The plant factor found in the Water Use Classifications of Landscape Species, third edition (WUCOLS III) publication, available from the Department of Water Resources. The plant factors range from: low (0 to 0.3), medium (0.4 to 0.6), and high (0.7 to 1.0).
- (IV) HA: The hydrozone area in a square foot number based on water usage areas within the particular landscaping area (i.e. high, medium, and low, see above). If plants with low water requirements are used within a medium water use hydrozone (those plants that can also survive/flourish in a medium water use application), they shall be counted as a medium water use in the water budget calculations. The same requirement applies for those plants that can also be utilized in a high water use application.
- (V) IE: The irrigation efficiency of the projects irrigation systems. For the purposes of determining the EAWU, the average irrigation efficiency is assumed to be 0.71, based on State law. All project irrigation systems shall be designed, maintained, and managed to meet or exceed an average irrigation efficiency of 0.71, as defined by State law.
- (VI) SLA: The project's total special landscaped area (i.e. areas dedicated to edible plants, areas irrigated with non-potable/recycled water, and publicly accessible areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing field or where turf is needed for high traffic activities) in square feet.
- (VII) The landscaping plans shall provide the EAWU (in the same units as the MAWA is provided) for each valve stationed on the project specific irrigation controller. The sum of the projected EAWU shall not exceed the projected MAWA for the project.

(5) Landscape Planting Plan

- (A) **Plant Groupings.** Plants selected for the landscape planting plan shall have similar water needs and be grouped together in distinct hydrozones for water maximum efficiency.
- (B) **Plant Hardiness.** Plants selected for the landscape planting plan shall be selected based upon their adaptability to the climate in which the project is located, as well as the geologic and topographical conditions. Where possible, the preservation and protection of existing native plant species and natural areas shall be encouraged.

- (6) **Landscape Irrigation Plan.** The plan shall include all components of the irrigation system (i.e., valves, heads, sensors, etc.). The water budget information shall be used in the preparation of the irrigation plan and shall be included on the plan.
 - (7) **Hydrozone Plan.** A separate hydrozone plan shall be prepared in conjunction with the irrigation plan calling out the distinct hydrozone plant groupings.
 - (8) **Landscape Grading Plan.** If the proposed grading exceeds 50 cubic yards, the developer shall submit the most recent rough/precise grading plans and elevations for the project site. These plans shall bear the signature of a licensed professional authorized by law.
 - (9) **Soil Management Report.** To help further reduce runoff and help encourage healthy plant growth, a project-specific soil management report with soil amendment recommendations shall be submitted as part of the landscape documentation package.
- (b) **Review and approval.** Prior to the issuance of permits, the developer shall submit a complete Landscape Documentation Package for review and approval.
 - (c) **Statement of surety.** When required by the Director, a statement of surety in the form of cash, performance bond, letter of credit, or certificate of deposit in an amount equal to 120 percent of the total value of all plant materials, irrigation equipment, installation, and maintenance shall be posted with the County for a two-year period. The Director may require statements of surety for phased development projects, a legitimate delay in landscape installation due to seasonal requirements (including adverse weather conditions) and similar circumstances where it may not be advisable or desirable to install all of a project's landscaping before occupancy of a site.
 - (d) **Local Water Purveyor.** If special provisions have been arranged for a local water purveyor to review and approve a specific project's landscape documentation package, a stamped set of plans approved by the local water purveyor shall be provided.

Adopted Ordinance 4011 (2007), Amended Ordinance 4136 (2011)

83.10.060 Landscape Area Requirements

- (a) **General requirements.**
 - (1) **Setbacks.** Setback and open space areas required by this Development Code shall be landscaped based on the requirements of this Chapter, except the portion where a sidewalk or driveway occur in the required setback. Required setbacks that are screened from public view in commercial and industrial zones, and are not adjacent to residentially-zoned property, are exempt from the provisions of this Chapter.
 - (2) **Unused areas.** Areas of a project site not intended for a specific use shall be landscaped based on the requirements of this Chapter, unless exempt in

compliance with Subsection 83.10.030 (Exemptions from the Landscaping Requirements).

- (3) **Parking areas.** Parking areas shall be landscaped in compliance with Chapter 83.11 (Landscape Requirements for Parking Areas) and the water-efficient landscaping requirements of this Chapter. Areas dedicated to parking lots shall not be counted as part of the total lot area needed when computing the minimum landscaped area in compliance with Table 83-12, nor shall the parking lot landscaping be counted as part of the minimum landscaping required.
- (4) **Minimum area.** Projects specified in Subsection 83.10.020 (Applicability) shall provide and maintain landscaped areas in compliance with Table 83-12 (Minimum Landscaped Area). No landscaped area having a width of less than five feet shall be considered in the minimum landscaping requirement.

Table 83-12		
Minimum Landscaped Area		
Land Use	Minimum Landscape Area	
	The factor resulting in the larger landscaped area shall be used.	
	As a % of Lot Area	Area in Sq. Ft.
Residential		
Single-Family	Front and street side setbacks	900
Multi-Family (4 or more units)	40%	N/A
Nonresidential		
Industrial/Warehouse	15%	1,000
Institutional	20%	500
Office	20%	1,000
Retail	20%	1,000

- (b) **Area increase in lieu of parking spaces.** In addition to required landscaping areas, landscaping may be provided in lieu of 10 percent of the total number of parking spaces required, provided the landscaping is arranged so that parking may be installed at a later date if a demand arises, and further provided, that the owner agrees to provide parking at the request of the reviewing agency.
- (c) **Variation of area coverage in planned developments.** Variation of landscape coverage may be allowed for individual parcels within planned developments established in compliance with Chapter 85.10 (Planned Development Permits) when the development as a whole meets the required coverage and the landscape documentation package is consistent with the purpose and water-efficient requirements of this Chapter.

Adopted Ordinance 4011 (2007); Amended Ordinance 4043 (2008), Amended Ordinance 4136 (2011)

83.10.070 Landscape Standards

- (a) **Design Standards.** The elements within the landscape documentation package (i.e. planting, irrigation, construction, etc.) shall incorporate the following:

- (1) **Cohesive landscape design.** Landscaped areas shall be made an integral part of the overall project design and shall not be simply located in excess space after parking areas and structures have been planned on-site. Additionally, landscaped areas should have a coordinating design that blends with the architectural influence of the site. Larger developments may utilize a variety of themes throughout landscaped areas to distinguish key areas and elements within the development, yet these design concepts shall be consistent with the unifying concept established for the development.
- (2) **Scale and character.** Landscape materials (i.e. planting and hardscape) shall be selected so that the scale and character are appropriate to the site architecture and/or use of the site.
- (3) **Functional landscapes.** Landscaped areas shall be utilized to enhance and define entrances, sidewalks, and pedestrian areas. Additionally, landscaped areas shall be utilized to control microclimates as well as enhance views. Plant materials that provided seasonal color via flowers or foliage shall be provided as an accent to entrances and sidewalks, and shall be considered throughout the landscape.
- (4) **Landscape design features.** Aesthetic landscape design features such as sculptures, decorative paving, benches, trellises, arbors, etc. shall be strongly encouraged within landscaped areas. Aesthetic landscape design features do not include driveways, parking areas, and/or storage areas.
- (5) **Sidewalks.** All sidewalks shall be shown on the landscape plans (i.e. planting, irrigation, construction, etc.). This will ensure proper planting and irrigation design around proposed sidewalks.
- (6) **Alternative hardscape materials.** Decomposed granite, pea gravel, mulch, bark, recycled tire mulch, play area surfacing, and other similar materials may be used in functional activity areas (i.e., patios, rear entry walks, trails, etc.).
- (7) **Water features.** If a water feature such as a pond or fountain is used within a project's landscape then the project's water budget calculations (MAWA) will need to include the surface area of the water feature with the evaporation rate equivalent to that of a high water use plant. Where available, if not utilized by the public as a recreation source, a non-potable/recycled water source shall be used for any decorative water features. Decorative water features shall be on a recirculating system and shall be maintained on a regular basis.
- (8) **Screening.** Planting material and/or hardscape material, such as block walls, wood fencing, vinyl fencing, etc., shall be required to screen storage areas, trash enclosures, parking areas, air conditioning units, and other such elements (except residential driveways). Additionally, any above ground public utilities, such as, but not limited to electrical substations, water storage facilities, and treatment plants shall also be provided with perimeter landscape screening to the extent possible.

- (9) **Bio-swales.** Where possible, bio-swales shall be incorporated into landscaped areas to help maintain, manage, and prevent run-off. All bio-swales shall be a mixture of hardscape materials, i.e. rocks, boulders, rip rap, and plant materials suitable for bio-swales; impermeable surfacing shall be avoided in all bio-swales.
- (10) **High maintenance landscaping.** High maintenance landscaped areas shall be kept to a minimum. If high maintenance landscaped areas are proposed as part of a project's landscaping, these areas shall be located near primary uses and high activity areas.
- (11) **Maximum height for clear sight triangles.** Any planting material and/or hardscape elements over 30 inches in height shall not be allowed within a clear sight triangle formed by the intersection of public rights-of-way, parking lot entrances and exits, pedestrian rights-of-way, driveways, or alleys as described in Subsection 83.02.030 (Clear Sight Triangles).
- (12) **Phased development.** Disturbed nonresidential project sites, including those that have been approved with phasing, where future development is intended within six months of approval, or intended to begin within six months after the completion of a previous phase shall be hydro-seeded with a non-irrigated mix of annuals and natives. Supplemental water shall be provided to the hydro-seeded areas to establish plant health. The hydro-seeded areas shall be maintained in a weed-free condition until development occurs on-site. The proposed hydro-seed mix shall be submitted for review and approval.

(b) **Planting Plan Requirements:** Planting plans shall include the following:

- (1) **Plant material varieties.** Plant materials shall include water-conserving trees (deciduous and evergreen), shrubs, and groundcover that are attractive and useful for erosion control. The use of one predominant species shall be avoided to prevent spread of disease and pests.
- (2) **Plant material selection.** Plant material shall be selected based on mature width and spreads, level of maintenance, durability, aesthetic appeal, thematic qualities, horticulture attributes, resistance to pests and diseases, soil type, slope coverage, topography, and geologic conditions. Plant materials shall also be selected based on their appropriate plant hardiness climate zones as defined by Sunset Western Garden Book and their classifications per the WUCOLS III publication.
- (3) **Coordination of plant materials.** Plant types shall be grouped together based on their water, soil, sun, and shade requirements, as well as their relation to natural watercourses on-site, existing vegetation that is to remain, and their relationship to building orientation. Plant types with different water needs shall be placed on separate irrigation valves within specific hydrozones. Plant types with similar classifications such as high and moderate, moderate and low, low and very low, per the WUCOLS III publication, shall be grouped together in planting areas.
- (4) **Existing plant materials.** To the extent feasible, mature plant materials that are existing on-site and are deemed to be healthy shall be protected and preserved.

Protected plant material shall be retained on-site or be protected in place, unless otherwise approved in writing by the Director or the proper removal permit is granted in compliance with Chapter 88.01 (Plant Protection and Management).

- (5) **Native and drought-tolerant plant materials.** Native and drought-tolerant plant materials capable of surviving with a minimal amount of supplemental water shall be utilized.
- (6) **Mature Trees.** Mature trees should be incorporated into landscape plans, because specimen trees or groupings of existing trees can provide a new development with immediate character, and should be considered as design elements.
- (7) **Shade trees.** Shade trees, a mixture of deciduous and evergreen, shall be provided for residential, commercial, institutional, and industrial buildings, parking lots, open space areas, etc. The trees shall be incorporated to provide natural cooling opportunities and water conservation.
- (8) **Invasive plants.** The use of invasive plant materials shall be avoided in areas near parks, buffers, greenbelts, water bodies, conservation areas/reserves, and other open space areas because of the potential to cause harm to environmentally sensitive areas.
- (9) **Vines.** To aid in the prevention of graffiti, self-clinging vines shall be planted to help ensure full coverage of the public-facing side of all walls.
- (10) **Edible plants.** If edible plant material is proposed as part of the landscape design, it shall be clearly defined and kept separate from all other plant material. Non-potable/recycled water shall *not* be used to irrigate edible plant material areas.
- (11) **Fire-prone plants.** Plant materials that are fire-prone and highly flammable shall be avoided.
- (12) **Plant material spacing.** Trees proposed within the road right-of-way shall be planted 30 linear feet on-center from one another, unless another on-center spacing is specified within the project's conditions of approval. In open space areas, trees shall be planted in odd number groupings to allow for a more natural look and feel. The on-center spacing for shrub and groundcover materials shall be based on the size of the specific plant species at maturity. Careful consideration shall be given to proposed plant materials height and spreads so that at maturity they do not interfere with service lines, a driver's or pedestrian's view of public rights-of-way (e.g., the view of approaching, merging, or intersecting traffic, etc.), or otherwise impair public safety, or interfere with the safe operation of a motor vehicle on public streets.
- (13) **Plant material container sizes.** Plant materials shall be provided in an array of several of container sizes. Container sizes for plant material shall include:

- (A) **Trees:** 15 gallon, 24-inch box, 36-inch box, 48-inch box, and 52-inch box, 72-inch box, 96-inch box, and field dug.
 - (B) **Palms:** six- to 15-foot brown trunk height (BTH).
 - (C) **Shrubs:** one-gallon, two-gallon, five-gallon, and 15-gallon.
 - (D) **Groundcovers:** flats and one-gallon.
- (14) **Plant solar orientation.** Plant materials shall be planted in a manner considerate of solar orientation to help maximize summer shade and water conservation.
- (15) **Turf.** Turf areas shall be used in response to functional needs of the project, not solely for aesthetic purposes, and shall be in compliance with the project's water budget calculations (MAWA). Where turf is installed, the use of warm season turf shall be strongly encouraged. To help minimize irrigation runoff and overspray landscape designs shall avoid proposing small, irregularly shaped turf areas. Furthermore, unless subsurface or other low-flow or non-spray irrigation is proposed, all turf areas shall be a minimum 24 inches away from non-permeable surfaces as to minimize irrigation runoff and overspray.
- (A) **Turf on slopes.** Turf shall not be allowed on slopes that are greater than 25 percent and/or where the toe of the slope is adjacent to an impermeable hardscape surface.
 - (B) **Turf in rights-of way.** The placement of turf within County road rights-of-way shall be minimized. If turf is to be used in County road rights-of-way, there shall be no runoff or overspray from irrigation systems located in the turf areas. If irrigation runoff and overspray cannot be obtained, than turf shall not be used in that application.
- (16) **Mulch.** All non-turf planting areas (except those areas that have been hydro-seeded) shall be mulched to help in the retention of moisture, suppress weeds, to help moderate damage to trees and shrubs, and help moderate soil temperature. All non-turf planting areas shall be mulched with a two-inch minimum layer of mulch. In those areas where groundcover has been planted from flats, the mulch layer shall be one and one half inches.
- (A) **Mulch on revegetation projects.** The requirement for mulch may be omitted for native revegetation projects upon the recommendation of the project biologist.
 - (B) **Hydro-seeding mulch requirement.** The mulching portion of the seed/mulch slurry mix for hydro-seeding applications shall meet the mulching requirements.
 - (C) **Mulch on slopes.** The application of a stabilizing mulch product shall be used on all slopes to help with water retention and erosion control.

(17) **Slope design.** Slopes with a 5:1 ratio or greater; cut slopes with a five-foot vertical height or greater; and fill slopes with a three-foot vertical height or greater shall be protected against damage from erosion. In addition to the stabilizing mulch, drought-tolerant plant material and hardscape features shall be utilized on slopes to promote water retention and erosion control. Decorative boulders and other suitable hardscape materials may be utilized on slopes, but the dominant visual character of the slope shall be made up of drought-tolerant plant materials. Shrubs shall be used in combination with lateral spreading groundcovers; trees shall be used where slope exceeds 15' vertical height. Trees and shrubs shall be planted in visually attractive groupings that provide a more natural appearance.

(18) **Root barriers.** Any tree planted within five feet of hardscape material shall incorporate the use of a root barrier to help minimize hazards to the public. Where possible, trees shall be planted in areas of public view adjacent to structures, either individually or in groupings.

(c) **Irrigation Plan Requirements:** Irrigation plans shall include the following:

(1) **Efficiency.** Irrigation systems shall be designed, installed, maintained, and managed to achieve the highest efficiency rate as possible, and shall meet and maintain an average efficiency rate of 0.71, as defined by State law. High efficiency methods of irrigation (i.e., drip irrigation, efficient rotators, rotary nozzles, micro sprays, etc.) are recommended within the irrigation design.

(2) **Water pressure.** Static water pressure, dynamic, or operating pressure and flow reading of the water supply shall be measured at the point of connection (POC). These pressure and flow measurements shall be conducted at the design stage to help aid in the design of the irrigation systems. If these measurements are not available at the design stage, the measurements shall be obtained at time of construction and the irrigation design adjusted accordingly. The design of the irrigation systems will ensure that each emission device is within the manufacturer's recommended dynamic pressure range for optimal performance.

(3) **Variables in static pressure.** If the measured static pressure is above or below the required dynamic pressure for optimal performance of the irrigation system then pressure-regulating devices (i.e. inline pressure regulators, booster pumps, etc.) shall be specified and installed in order to meet the dynamic pressure required for optimal performance of the irrigation systems.

(4) **Matched precipitation rates.** Irrigation heads (i.e. spray heads, rotors, etc.) and other emission devices shall have matched precipitation rates unless otherwise directed by the manufacturer's specifications.

(5) **Capacity.** The capacity of the irrigation system shall not exceed the capacity required based on the water budget calculations for peak water demand, meter capacity, and/or the backflow preventer type and device capacity. If the project is served by a local water purveyor then it is recommended that the project developer contact the water purveyor and inquire about peak water demands (on

the main water supply system) and any known water restrictions that could possibly impact the effectiveness of the irrigation systems.

- (6) **Runoff and overspray.** Soil types and infiltration rates shall be taken into account when irrigation systems are designed and installed. Irrigation systems shall be designed and installed to prevent runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, sidewalks, roadways, or structures. The use of check valves shall be required on all irrigation systems to prevent low head drainage. Proper irrigation design, equipment, and schedules, including repeating cycles, shall be used in order to match application rates and help minimize runoff.
- (7) **Head to head coverage.** Irrigation systems shall be designed to utilize head-to-head coverage with matched precipitation rate nozzles. Rotors and spray heads shall be zoned separately. When using rotors, half arc rotors and full rotors shall be zoned separately, unless matched precipitation rate nozzles are utilized.
- (8) **Water Waste.** Water waste is the result of inefficient irrigation due to runoff, overspray, low head drainage, and other similar conditions that causes flows to run onto adjacent non-irrigated areas, walks, roadways, parking lots, etc. It shall be the responsibility of the property owner to prevent water waste on their property by properly maintaining, managing, and replacing irrigation equipment per the regular maintenance schedule. Restrictions in regards to overspray may be considered and modified if the following occur:
 - (A) The landscaped area is directly adjacent to a permeable surface and no runoff occurs; or
 - (B) If the directly adjacent non-permeable surfaces have been designed and installed to drain entirely into a landscaped area on-site.
- (9) **Meters.** For irrigated landscape areas in excess of 2,500 square feet, separate water meters shall be installed for landscaping, which will help facilitate water management. This requirement shall not apply to single-family residential projects or those projects that utilize a well source for water on-site. Lettered lots or easements for landscaping or recreational purposes shall have a separate meter.
- (10) **Valves.** Separate valves shall be provided for those planting areas with similar water uses, so plantings with similar water needs are on the same irrigation valve. All turf areas shall be placed on a separate valve from non-turf areas. Where feasible, trees shall be placed on a separate deep root watering system with its own valve.
- (11) **Equipment.** All irrigation systems shall be equipped with the following:
 - (A) **“Smart” irrigation controller.** All irrigation systems shall be equipped with a smart irrigation control, which automatically adjusts the frequency and/or duration of irrigation events in response to changing environmental conditions. Landscaped areas shall be zoned together in relation to

- (B) moisture control zones, which shall be based on similarity of water needs (i.e. turf separate from shrubs and groundcovers, sun exposure areas separate from shade areas, top of slope separate from toe of slope, etc.).
 - (C) **Weather sensing devices.** All irrigation systems shall be equipped with weather sensing devices (i.e. rain, wind, freeze, etc.), either integral or auxiliary, that suspend or alter system operations during unfavorable weather conditions.
 - (D) **Flow Sensor.** A flow-sensing device is recommended for all irrigation systems so that irregular flows within the system can be detected and repaired.
 - (E) **Manual shut-off valves.** All irrigation systems shall be equipped with manual shut-off valves (i.e. gate valve, ball valve, butterfly valve, etc.) that are located as close as possible to the irrigation systems point of connection (POC) and also where jointed transitions occur on the mainline to minimize water loss in case of an emergency and/or scheduled routine repair.
 - (F) **Pressure regulator.** All irrigations systems shall be equipped with a pressure regulator that regulates when the static pressure is above or below the recommended operating pressure for the designed irrigation system.
 - (G) **Backflow preventers.** All irrigation systems shall be equipped with a backflow prevention device. Upon approval from the Land Use Services Department in residential settings, an anti-siphon valve maybe used in lieu of a backflow prevention device.
 - (H) **Swing joints/riser protection.** In order to prevent damage that maybe caused to irrigation heads adjacent to hardscape and high traffic areas, all irrigation systems shall utilize swing joints and other riser protection.
- (12) **Soils.** Relevant information provided in the soil management report, such as soil types and infiltration rates shall be utilized when irrigation systems are designed.
 - (13) **Non-permeable surfaces.** Conventional spray irrigation shall not be permitted within 24 inches of any non-permeable surface. Irrigation systems that are allowed within the 24-inch setback from a non-permeable surface range from drip, drip line, other low-flow or non-spray technology. If the landscape area is adjacent to permeable surfacing and no overspray or run off occurs then there shall be no restrictions on the irrigation system type.
 - (14) **Irregular shaped areas.** Those areas that are long, narrow, and/or irregular shaped, including turf areas, less than eight feet in any direction shall be irrigated with low-volume irrigation or subsurface irrigation technology.
 - (15) **Irrigation on slopes.** Non-turf areas located on slopes greater than 25 percent shall be irrigated with a drip irrigation system or other low volume irrigation technology. This requirement may be modified and an alternative design and/or

technology proposed if that design/technology demonstrates that no run-off or erosion will occur.

- (16) **Mulched planting areas.** In planting areas that utilize a form of mulch, the use of a low volume irrigation system shall be required in order to maximize water infiltration into the plants root zone.
 - (17) **Non-potable/Recycled water.** Where available, the use of non-potable/recycled water to irrigate planting areas shall be utilized. If facilities are made available, water systems for common open spaces (i.e. parks, preserves, etc.) shall use non-potable/recycled water. If non-potable/recycled water is used for irrigation systems then all systems shall be designed to meet all applicable local agency and State codes regarding the use of non-potable/recycled water.
 - (18) **Hydrozones.** Irrigation systems shall be zoned in accordance to plant water use, slope aspects, and sun/shade microclimates.
- (d) **Hydrozone plan.** Each irrigation design plan shall include a separate hydrozone plan outlining the hydrozones that are valved separately within all landscaped areas.
 - (e) **Grading Plan Requirements:** For the efficient use of water, grading of the project site shall be designed so that soil erosion, runoff, and water waste are minimized. As part of the landscape document package, if a project's grading exceeds 50 cubic yards, then the project developer shall submit the most recent rough and/or precise grading plan(s) that have been prepared and signed by a licensed professional as authorized by law.
 - (f) **Soil Management Report:** A soil management report is required as part of the landscape documentation package when mass grading is not proposed. When mass grading is proposed, the soil management report shall be submitted with the certificate of completion.
- (1) **Development of the soil management report.** The steps listed below are intended to help guide the developer in the preparation of the soil management report:
 - (A) Perform a preliminary site inspection;
 - (B) To obtain the necessary sample, determine the appropriate level of soil sampling and sampling method;
 - (C) To determine the soil in the landscape area has sufficient depth to support proposed plants perform a soil probe test; and
 - (D) Obtain appropriate soil sample.
 - (2) **Soil Sample(s).** Once a soil sample(s) has been obtained from the project site it shall be submitted to the appropriate laboratory for analysis and recommendations. Minimum requirements for the soil analysis should include

soil texture, infiltration rate determined by lab tests or soil texture infiltration rate table, pH, total soluble salts, sodium, and any recommendations.

Adopted Ordinance 4011 (2007); Amended Ordinance 4043 (2008); Amended Ordinance 4057 (2008), Amended Ordinance 4136 (2011)

83.10.080 Regional Landscaping Standards

(a) **Valley Region.** In the Valley Region, the following additional landscaping standards shall apply:

- (1) **Existing Trees.** Where possible, trees that are existing on a site shall remain and be protected in place. If existing trees are removed to accommodate development, those trees shall be replaced at the rate of 2:1. Fruit or nut bearing trees planted in groves shall be exempt from this provision. Replacement trees shall be a mixture of 15 gallon and 24-inch box container sizes. Wherever possible, preservation of existing trees and shrubs shall be used to meet site landscaping requirements.
- (2) **Plant materials.** Plant materials shall be a cohesive mix of deciduous and evergreen trees, shrubs, groundcovers, native plant material, and, where applicable, turf. A list of acceptable plant materials for the Valley Region is available from the Land Use Services Department to assist developers and their landscape professionals in preparing the landscape documentation package. If existing plant material is used as part of the site landscaping requirements, it shall be included into the sites water budget calculations. If any local, state, and/or federally protected plant material is found on-site, removal and/or protection shall be in compliance with Chapter 88.01 (Plant Protection and Management).
- (3) **Tree removal permit.**
- (4) **Landscaped setbacks.** The front yard and street side yard setback areas of a parcel shall be landscaped, except for sites where no disturbance of the natural terrain within a setback is proposed or the natural terrain precludes setback landscaping (i.e., mountainsides or hillsides). Landscaping of interior side yard setbacks may be required in compliance with Subsection 83.02.060 (Screening and Buffering).

(b) **Mountain Region.** In the Mountain Region, the following additional landscaping standards shall apply:

- (1) **Forest conservation plan and insect infestation prevention program.** Any landscaping proposed shall be in conjunction with a forest conservation plan and insect infestation prevention program. These plans shall be prepared by a Registered Professional Forester (RPF), and submitted with the landscape documentation package by the developer. The plan shall include guidelines for tree preservation, both during and after construction.

- (2) **Existing trees.** Any existing trees that are removed to accommodate development shall be replaced according to the recommendations of the forest conservation plan submitted with the landscape documentation package by the developer. Wherever possible, preservation of existing trees and shrubs shall be used to meet site landscaping requirements.
 - (3) **Plant materials.** Plant materials shall be a cohesive mix of evergreen and deciduous trees, shrubs, groundcovers, native plant materials that are drought and infestation tolerant, and fire-resistant; turf shall be minimized and be installed in compliance with this Chapter. A list of acceptable plant materials for the Mountain Region is available from the Land Use Services Department to help assist developers and their landscape professionals in the preparation of the landscape document package. If existing plant material is used as part of the site landscaping requirements, it shall be included into the site's water budget calculations. If any local, state, and/or federally protected plant material is found on-site, removal and/or protection shall be in compliance with Chapter 88.01 (Plant Protection and Management). Seedlings may be considered a viable container size as part of the planting plan.
 - (4) **Landscaped setbacks.** The front yard and street side yard setback areas shall be landscaped except for sites where no disturbance of the natural terrain is proposed. Landscaping of interior side yard setbacks may be required in compliance with Subsection 83.02.060 (Screening and Buffering).
- (c) **Desert Region.** In the Desert Region, the following additional landscaping standards shall apply:
- (1) **Existing plant material.** Any existing native desert plant material, or any part thereof, except the fruit, shall not be removed without the issuance of a tree removal permit in compliance with Chapter 88.01 (Plant Protection and Management). Additionally, if native desert plant materials are to be replaced, then the replacement of those materials are to be in compliance with Chapter 88.01 (Plant Protection and Management), except as provided for in this Subsection. If Joshua trees (*Yucca brevifolia*) exist on-site and are proposed to be relocated, they shall be relocated on-site in the landscaped areas; unless, in writing, the Director of the Land Use Services Department specifically allows another option.
 - (2) **Plant materials.** Plant materials shall be a cohesive mix of evergreen and deciduous trees, shrubs, groundcovers, succulents, and native plant material that are drought and infestation tolerant; turf shall be minimized and be placed in compliance with this Chapter. A list of acceptable plant materials for the Desert Region is available from the Land Use Services Department to help assist developers and their landscape professionals in preparing their landscape documentation package. If any local, state, and/or federally protected plant material is found on-site, removal and/or protection shall comply with Chapter 88.01 (Plant Protection and Management).

- (3) **Landscaped setbacks.** The front yard and street side yard setback areas of a parcel shall be landscaped using xeriscape landscaping techniques, which combines drought tolerant plant and hardscape materials in a variety of aesthetically pleasing designs. For sites where no disturbance of land within setbacks is proposed, landscaping shall not be required. Landscaping of side-yard setbacks may be required in compliance with Subsection 83.02.060 (Screening and Buffering).
- (4) **Unpaved parking lots.** Those parking lots not requiring paving shall not be required to be landscaped, nor will they count as part of the overall landscape total needed for the project. Only those parking lots required to be paved shall be landscaped in compliance with this Chapter and with Subsection 83.11.080 (Landscape Requirements for Parking Areas). Parking lot landscaping shall not be counted as part of the minimum landscaping requirement for a project.
- (5) **Dust Control.** If grading takes place, then a dust control plan shall be submitted for review. All grading and dust control measures shall be conducted in compliance with the provisions of Chapter 88.02 (Dust Control Desert Region).

Adopted Ordinance 4011 (2007); Amended Ordinance 4043 (2008), Amended Ordinance 4136 (2011)

83.10.090 Irrigation Scheduling and Maintenance Required

- (a) **Landscape Maintenance.** All landscaped areas shall be properly maintained to ensure water use efficiency and overall plant health. A regular maintenance schedule shall be submitted to the Land Use Services Department and the local water purveyor, if applicable, with the Landscape Certificate of Completion for all projects subject to the provisions of this Chapter.
 - (1) **Responsibilities of property owners.** Property owners shall be responsible for the installation and the regular maintenance and management of landscaped areas on their property and within the contiguous landscaped rights-of-way/parkways. Those rights-of way/parkways that are maintained by the County shall not be the responsibility of the property owner.
 - (2) **Maintenance practices.** The following maintenance practices shall be part of the regular maintenance schedule and shall be performed on a regular basis to ensure water use efficiency and overall plant health:
 - (A) For the overall health of plant material pruning, cultivating, weeding, fertilizing, watering, and replenishing mulch on a regular basis shall be part of a regular maintenance schedule. All pruning shall be in compliance with the adopted pruning standards of the Western Chapter of the International Society of Arboriculture.
 - (B) The removal of dead, decayed, diseased, or hazardous trees and/or shrubs, weeds, and debris constituting unsightly appearance, dangerous to public safety and welfare or detrimental to neighboring properties or property

- (C) values shall be accomplished on a regular basis. Any dead or dying plant material shall be removed and replaced as quickly as possible. Any accumulation of leaves, twigs, bark, and other similar materials shall be removed on a regular basis. All landscaped areas shall be kept in a weed-free fashion at all times.
 - (D) Litter removal from all landscaped areas shall be performed on a regular basis.
 - (E) All turf areas shall be mowed, aerated, and dethatched on a regular basis to ensure the overall health of the turf.
 - (F) Plantings shall be irrigated as often as necessary to maintain healthy growing conditions. Damage to the landscaping and irrigation systems shall be corrected as quickly as possible.
 - (G) All irrigation systems, and components, shall be routinely inspected, adjusted, and repaired. Any obstructions to emission devices shall be removed. If repair to the irrigation equipment is necessary, the replacement parts shall conform to all standards that govern the original irrigation installation and/or approved landscaping plans.
 - (H) Mulch shall be routinely replenished as part of the regular maintenance schedule. The depth, type, and replenishment frequency of all mulch within landscaped areas shall be listed as part of the regular maintenance schedule.
 - (I) The operation of the irrigation systems outside of the normal watering window shall only be allowed for system auditing and maintenance.
 - (J) The property owner is encouraged to implement sustainable and/or environmentally friendly practices for overall landscape maintenance. If sustainable and/or environmentally friendly landscape maintenance practices are utilized then those practices shall be outlined within the regular maintenance schedule.
- (3) **Trimming to prevent encroachment or obstruction.** Plant material (i.e. trees and shrubs), when established, shall be trimmed so that they do not encroach upon sidewalks, property lines, or streets. Plant materials shall not encroach, impede and/or interfere with vehicle or pedestrian traffic, or obstruct the illumination from any streetlight to the street or sidewalk or sidewalk. Refer to Subsection 83.02.030 concerning clear sight triangles and Subsection 83.02.080 concerning projections into yards.
- (4) **Trees.**
- (A) In residential subdivisions, the developer shall guarantee street trees for a minimum of one year after acceptance of the tract or until 80 percent of the units are occupied, whichever is later. Maintenance of all trees shall become the responsibility of the homeowner upon occupancy.

- (B) As necessary, all tree guys, stakes, etc. shall be adjusted on a regular basis and replaced in order to maintain a neat appearance and to prevent damage to trees. All tree guys, stakes, etc. shall be removed after the first growing season to ensure the continuing health of the plant.
- (b) **Irrigation schedule.** An irrigation schedule shall be developed for all landscaped areas in order to ensure the efficient use of water. The site-specific irrigation schedule shall be developed, managed, and evaluated to utilize the least amount of water required to ensure plant health. The site-specific irrigation schedule shall meet the following criteria:
- (1) **Two separate irrigation schedules.** Two site-specific irrigation schedules shall be prepared. The first schedule shall be for the initial establishment period of six months and the second schedule shall be for the established landscape, and shall incorporate the specific water needs of on-site plant material throughout the calendar year.
 - (2) **Watering window for conventional (overhead) spray systems.** All conventional (overhead) spray systems shall be scheduled to run between the hours of 8:00 p.m. to 9:00 a.m. The project developer shall check with the local water purveyor, if applicable, to determine their suggested watering window, and the stricter of the two shall apply. The operation of the irrigation systems outside of the normal watering window shall only be allowed for system auditing and maintenance.
 - (3) **Maximum Applied Water Allowance (MAWA).** The total water applied to the site landscaping shall be less than or equal to the site-specific Maximum Applied Water Allowance (MAWA).
 - (4) **Copies of irrigation schedule.** A copy of the project-specific irrigation schedule shall be located within the irrigation controller enclosure for maintenance purposes. Additionally, a copy of the schedule shall be given to the property owner prior to occupancy.

Adopted Ordinance 4011 (2007), Amended Ordinance 4136 (2011)

83.10.100 Landscape Certificate of Completion

Landscape Certificate of Compliance submittal. Prior to the issuance of the certificate of occupancy or final inspection for a project that is subject to the requirements within this Chapter, a Landscape Certificate of Completion shall be submitted to the Land Use Services Department, Planning Division certifying that the landscape has been installed in accordance with the approved project specific landscape documentation package. The Landscape Certificate of Completion shall be signed and dated by the licensed professional who prepared the plans and shall include the following information:

- (a) Date.

- (b) Project information to include project name, project applicant name, telephone and mailing address, project address, location, and Assessor's Parcel Number, and property owner name and mailing address.
- (c) A statement certifying that the landscaping has been installed in accordance with the approved project specific landscape documentation package.
- (d) Evidence that the party who is responsible for the installation of the irrigation systems has conducted a preliminary field inspection prior to backfilling, and that the irrigation systems are in working order (evidence of field inspection shall be attached).
- (e) An irrigation audit report indicating that a certified irrigation auditor has performed and completed an irrigation audit on the installed irrigation systems, and has ensured water efficiency, and that the irrigation systems are not in excess of the site-specific Maximum Applied Water Allowance (MAWA) per the water budget.
- (f) Documentation that the specified "smart" irrigation controller has been set according to the correct irrigation schedule.
- (g) Documentation that all on-site irrigation systems have been adjusted to maximize irrigation efficiency and eliminate irrigation runoff and overspray.
- (h) Documentation that a copy of both of the project specific irrigation schedules have been given to the property owner for future maintenance and management obligations.
- (i) If mass grading occurred on the site, a soil management report shall be included.

Adopted Ordinance 4136 (2011)

83.10.110 Non-Potable/Recycled Water

Where available, the installation of non-potable/recycled water irrigation systems (i.e., dual distribution systems, purple pipe, and interchangeable components) shall be required to allow for the current and future use of non-potable/recycled water. See Subsection 83.10.070 (c)(17) for additional requirements.

Adopted Ordinance 4136 (2011)

83.10.120 Stormwater Management

Stormwater management combines practices to help minimize runoff and water waste while increasing infiltration, which helps to recharge groundwater tables and improve water quality. The implementation of stormwater best management practices into the landscape documentation package (i.e., planting, irrigation, grading plans, etc.) will help minimize runoff and increase retention and infiltration on-site. Refer to Chapter 85.11 (Pre-Construction Flood Hazard and Soil Erosion Pollution Prevention Inspection) for more information regarding Stormwater Management, and to Title 3, Division 5, Chapter 1, Pollutant Discharge Elimination Systems Regulations.

Adopted Ordinance 4136 (2011)