PLANNING COMMISSION AGENDA REPORT

MEETING DATE: JANUARY 25, 2016 **ITEM NUMBER:** PH-1

SUBJECT: **AN ORDINANCE TO ADOPT CODE AMENDMENT CO-15-05 AND UPDATED GUIDELINES RELATED TO WATER EFFICIENT LANDSCAPE REQUIREMENTS**

DATE: **JANUARY 6, 2016**

FROM: **PLANNING DIVISION/DEVELOPMENT SERVICES DEPARTMENT**

PRESENTATION BY: **MINOO ASHABI, PRINCIPAL PLANNER**

FOR FURTHER INFORMATION CONTACT: **MINOO ASHABI, AIA, PRINCIPAL PLANNER**
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PROJECT DESCRIPTION

The Costa Mesa Planning Commission will hold a public hearing to consider Code Amendment CO-15-05 amending Costa Mesa Municipal Code Title 13, Chapter VII, Landscape Standards, by adoption of an ordinance and amendment to update the Water Efficient Landscape Guidelines by resolution.

RECOMMENDATION

Recommend that City Council:

1. Approve and give first reading to the ordinance.
2. Adopt resolution approving 2016 Water Efficient Landscape Guidelines, as updated.

BACKGROUND

Assembly Bill 1881 and Current Requirements

In 2006, Assembly Bill 1881 amended the Water Conservation in the Landscape Act. The bill required that: 1) DWR update the original Model Water Efficient Landscape Ordinance; and 2) cities and counties update local Landscape Ordinances by January 1, 2010 so that they are "at least as effective as" DWR's updated Model Ordinance.

On February 2, 2010, the City Council adopted Ordinance No. 10-02 that provided the Water Efficient Landscape requirements currently in effect and applicable to the following public and private projects in all zones:

1. New landscape installations or landscape rehabilitation projects in nonresidential zones (except for cemeteries) with a landscaped area equal to or greater than 2,500 square feet.

2. New landscape installations or landscape rehabilitation projects by developers or property managers in multi-family residential zones with a landscaped area equal to or greater than 2,500 square feet.

3. New golf courses and parks.

4. Modified landscaped areas greater than 2,500 square feet affecting at least 50 percent of the total landscaped area; and planned to occur within one year.

The City' requirement includes self-certification for the following two steps:

- First, the landscape designer submits a signed Certification of Design (including their license number and/or professional stamp), stating that the landscape design is in conformance with the city ordinance and guidelines. The building permit will not be issued unless the Landscape Documentation Package is complete, including this certification.

- Second, once construction of the landscape is complete, the installation contractor or designer will submit the Landscape Installation Certificate of Completion stating that the installation is complete and is in substantial conformance with the original plan.

Governor's Executive Order

On April 1, 2015, the Governor directed the State Water Resources Control Board to implement mandatory water reductions in cities and towns across California to reduce water usage by 25 percent from 2013 levels.

Order actions to save water include:

- Replace 50 million square feet of lawns throughout the state with drought tolerant landscaping in partnership with local governments;

- Direct the creation of a temporary, statewide consumer rebate program to replace old appliances with more water and energy efficient models;

- Require campuses, golf courses, cemeteries and other large landscapes to make significant cuts in water use;

- Prohibit new homes and developments from irrigating with potable water unless water-efficient drip irrigation systems are used; and,

- Ban watering of ornamental grass on public street medians.

In response to the executive order, the State Department of Water Resources, developed a new model ordinance with more restrictive water usage for public and private landscape areas. Similar to the process in 2010, the state model ordinance was used by the Municipal Water District of Orange County to draft an updated county ordinance and guideline. The proposed ordinance, which is an amendment to the existing is following the same ordinance and guidelines to meet the state requirements.

Requirements of the state ordinance has become effective December 1, 2015; and the cities were required to adopt the state model or ordinance with the same or more restrictive requirements. The Cities were also required to start reporting on projects under the requirements on December 31st of each year. The first report on compliance with the state requirements was submitted on December 23, 2015.

ANALYSIS

Draft Ordinance and 2016 Water Efficient Landscape Guidelines

The proposed ordinance and guidelines are amendments to 2010 Water Efficient Landscape requirements. The current Guidelines can be referred to at the following link:

http://www.costamesaca.gov/modules/showdocument.aspx?documentid=255

The following include the major changes to the state ordinance that has been included in the attached ordinance and guidelines:

1) Landscape Threshold Subject to Ordinance
   - New construction reduced to 500 square feet
     a) Previous size thresholds :2500 square feet for public and private development and 5000 square feet for owner built custom homes
   - Rehabilitated landscape projects
     a) 2,500 square feet requiring a building or landscape permit, plan check, or design review
2) Efficient Irrigation Systems - Additional requirements
   - Dedicated landscape water meters or sub meters (in alignment with CalGreen)
   - Residential landscape areas over 5000 square feet
   - Non-residential areas over 1000 square feet

- Minimum width of turf irrigated with overhead irrigation from 8 to 10 feet
- Areas of turf below this threshold must be irrigated with subsurface drip or other technology
- Pressure regulators and master valves
- Sprinkles must meet specific standards (i.e. PR ≤ 1.0 in/hr or DULQ ≥ 0.75)

3) Flow sensors that detect and report high flow conditions due to broken pipes, etc.
   Graywater Usage (§492.15) new section
   - Encourages the installation of graywater systems to provide on-site landscape irrigation water
   - All graywater systems shall conform to any applicable local ordinance standards and the California Plumbing Code (Title 24, Part 5, Chapter 16)
4) Soil Preparation
   - This addition of organic matter and tillage increases the ability of soil to capture and hold stormwater.
   - Stormwater Management to maximize water retention and infiltration
   - Planted landscape areas required to have friable soil
5) Compost application
   - 6 inch deep at a rate of 4 yd3/1000 ft2 (unless contraindicated by soil test)
6) Limiting the Portion of Landscapes that can be Covered in Turf

   a) The landscape water budget (Maximum Applied Water Allowance) was reduced from 70% of the reference evaporation (ETo) to 50% for residential areas

      - This reduces the area that can be planted by turf in the residential landscapes from 33% to 25%
      - 40% of ETo for non-residential areas (this does not provide enough water for planting of turf)

   b) Turf installation is permitted when it is used for specific functions and purposes

      - The landscape ordinance water budget provides extra water allowances for functional turf (sports, recreational, picnic areas and areas irrigated with recycled water)
      - No turf will be allowed in street medians or in parkways Unless the parkways is next to a parking strip and a flat surface is required to enter and exit vehicles.

PUBLIC NOTICE

Code requires publication of a display AD in the local newspaper (Daily Pilot) for Title 13 Code Amendments. At the time of publication of this report, no public comments have been received. Any correspondence will be forwarded to the City Council under separate cover. In addition to the newspaper ad, homeowners associations and other neighboring cities and government agencies were notified by mail.

ENVIRONMENTAL DETERMINATION

The project has been reviewed for compliance with the California Environmental Quality Act (CEQA), the CEQA guidelines, and the City's environmental procedures, and has been found to be exempt pursuant to Section 15061 (b) (3) (general rule) of the CEQA Guidelines, in that it can be seen with certainty that there is no possibility that the proposed amendment to the Zoning Code will have a significant effect on the environment.

ALTERNATIVES

Direct staff to make modifications to the draft. In order to meet the deadlines established by the State, Planning Commission will need to make a recommendation that this ordinance be considered by City Council. Continuing the meeting may compromise the required processing time.

LEGAL REVIEW

The draft ordinance has been reviewed by the City Attorney's Office.

CONCLUSION

The proposed ordinance and guidelines are prepared in compliance with the latest state requirements and as directed by Governor's Executive Order issued on April 1, 2015.

MINOO ASHABI, AIA
Principal Planner

CLAIRE FLYNN, AICP
Asst. Development Services Director

Attachments:
1. Draft City Council Resolution
2. Draft Ordinance
3. List of Revisions – provided by Municipal Water District of Orange County

cc: Director of Economic & Development / Deputy CEO
Sr. Deputy City Attorney
Public Services Director
City Engineer
Transportation Services Manager
Fire Protection Analyst
File (2)

RESOLUTION NO. ____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COSTA MESA, CALIFORNIA, ADOPTING REVISED CITYWIDE WATER EFFICIENT LANDSCAPE GUIDELINES PER STATE REQUIREMENTS

THE CITY COUNCIL OF THE CITY OF COSTA MESA HEREBY RESOLVES AS FOLLOWS:

WHEREAS, on January 19, 2010, the City of Costa Mesa adopted Water Efficient Landscape Guidelines as required by Department of Water Resources Ordinance adopted consistent with AB 1881 requirements.

WHEREAS, the City Council of the City of Costa Mesa is hereby adopting a revised Water Efficient Landscape Guidelines (Guidelines) following the Governor executive order on April 1, 2015 that directed the State Water Resources Control Board to implement mandatory water reductions in cities and towns across California to reduce water usage by 25 percent from 2013 levels.

WHEREAS, landscape design, installation, maintenance and management should be water efficient;

WHEREAS, landscape plan submittal and review is required for all new and rehabilitated commercial, industrial and multiple family residential projects in City of Costa Mesa;

WHEREAS, City of Costa Mesa is served by two water purveyors, Irvine Ranch Water District (IRWD) and Mesa Consolidated Water District (Mesa). IRWD is implementing an alternative method to discourage water wasters; Customers that exceed their monthly budget will pay significantly more for their water use. Mesa Water adopted an Emergency Conservation Ordinances on November 12, 2015 (Resolutions No. 1466 and 1468) implementing level two water restrictions to reduce water consumption by 20 percent and restricting Watering or irrigating of lawn, landscape, or other vegetated area is limited to a maximum of one (1) day per week.

WHEREAS, the purpose of the revised City's Water Efficient Landscape Guidelines is to further reduce landscaped areas with high water usage and compliance with the State Department of Water Resources standards.

WHEREAS, the revised Guidelines will be applicable to the following projects:

1. New landscape 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;

3. New or rehabilitated landscape projects with an aggregate landscape area of 2,500 square feet or less may comply with the performance requirements of this ordinance or conform to prescriptive measures contained in Appendix A;

4. New or rehabilitated projects using treated or untreated graywater or rainwater captures on site.

WHEREAS, the project has been reviewed for compliance with the California Environmental Quality Act (CEQA), the CEQA guidelines, and the City's environmental procedures, and has been found to be exempt pursuant to Section 15061 (b) (3) (general rule) of the CEQA Guidelines, in that the City Council hereby finds that it can be seen with certainty that there is no possibility that the passage of this ordinance amending the Municipal Code will have a significant effect on the environment.

BE IT RESOLVED that the Revised Water Efficient Landscape Guidelines are hereby adopted as set forth in Exhibit A, attached hereto.

PASSED AND ADOPTED this _____ day of _____ 2016.

_____
STEPHEN MENSINGER
Mayor of the City of Costa Mesa

ATTEST:

APPROVED AS TO FORM:

_____

City Clerk of the City of Costa Mesa

_____

City Attorney

STATE OF CALIFORNIA)
)ss
COUNTY OF ORANGE)

I, ----------, City Clerk and ex-officio Clerk of the City Council of the City of Costa Mesa, hereby certify that the above foregoing Resolution as introduced and considered section by section at a regular meeting of said City Council held on the ____ day of _____, 2016, and thereafter passed and adopted as a whole at the regular meeting of said City Council held on the ____ day of _____, 2016, by the following roll call vote:

AYES:

NOES:

ABSENT:

IN WITNESS WHEREOF, I have hereby set my hand and affixed the Seal of the City of Costa Mesa this ___ day of _____, 2016.

_____

City Clerk
City Council of the City of Costa Mesa

ORDINANCE NO. 16-

AN ORDINANCE OF THE CITY COUNCIL OF COSTA MESA, CALIFORNIA ADOPTING ZONING CODE AMENDMENT CO-15-05, AMENDING TITLE 13, CHAPTER VII, LANDSCAPE STANDARDS OF THE COSTA MESA MUNICIPAL CODE REGARDING WATER EFFICIENT LANDSCAPE STANDARDS

THE CITY COUNCIL OF THE CITY OF COSTA MESA DOES HEREBY ORDAIN AS FOLLOWS:

WHEREAS, consistent with the findings of the State Legislature, the City Council finds that the waters of the State are of limited supply and are subject to ever increasing demands;

WHEREAS, landscape design, installation, maintenance, and management can and should be water efficient;

WHEREAS, Article X, Section 2 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 of water;

WHEREAS, allocation-based and tiered water rate structures allow public agencies to document water use in landscapes;

WHEREAS, all water services within the City are metered and billed based on volume of use;

WHEREAS, Costa Mesa is served by two water purveyors, Irvine Ranch Water District (IRWD) and Mesa Consolidated Water District (Mesa). IRWD is implementing budget- based tiered-rate billing and/or enforcement of water waste prohibitions for all existing metered landscaped areas throughout its service area, which includes a portion of City containing business and industrial parks south of the 405 Freeway. Mesa is implementing enforcement of water waste prohibitions for all existing metered landscaped areas within its jurisdiction by Water Conservation Ordinance No. 46 adopted on November 12, 2015, which limits the watering and irrigation of landscaping to one day a week;

WHEREAS, On January 19, 2010, the City Council adopted Water Efficient Landscape Ordinance and corresponding Guidelines consistent with the requirements of AB 1881;

WHEREAS, the purpose of the amendment to City's Water Efficient Landscape Ordinance and Guidelines is to establish an alternative model acceptable under Governor Brown's April 1, 2015 Drought Executive Order (B-19-25) as being at least as effective as the State Model Water Efficient Landscape Ordinance in the context of conditions in the City in order to:

1. Promote the benefits of consistent landscape ordinances with neighboring local and regional agencies;
2. Promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;
3. Establish a structure for planning, designing, installing, and maintaining and managing water efficient landscapes in *new construction* and rehabilitated projects;
4. Establish provisions for water management practices and water waste prevention for existing landscapes;

5. Use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount; and
6. Encourage the use of economic incentives that promote the efficient use of water, such as implementing a budget-based tiered-rate structure, providing rebate incentives and offering educational programs.

WHEREAS, on (Month) (Day), 2016, City Council of the City of Costa Mesa held a duly-noticed public hearing and considered the staff report, recommendations by staff and the City Attorney, and public testimony regarding amendments to Title 13, Chapter VII of the Costa Mesa Municipal Code and the Guidelines attached as Exhibit A.~~.~~

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF COSTA MESA DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1: Title 13, Chapter VII, Section 13-101 of Costa Mesa Municipal Code is hereby amended as follows:

(a) The provisions of this chapter apply to all zoning districts in the City, except R-1.
"[....]

(e) The Water Efficient Landscape Guidelines shall apply to projects that meet the following criteria unless exempted pursuant to the Water Efficiency Landscape Guidelines:

1. New landscape projects with an aggregate landscape area equal to or greater than 500 square feet, requiring a building permit or landscape permit, plan check or design review; ~~installations or landscape rehabilitation projects in nonresidential zones (except for cemeteries) with a landscaped area equal to or greater than 2,500 square feet.~~

2. Rehabilitated landscape projects with an aggregate landscape area ~~New landscape installations or landscape rehabilitation projects in multi-family residential zones with a landscaped area~~ equal to or greater than 2,500 square feet, requiring a building or landscape permit, plan check or design review. ~~.~~

3. ~~new~~New or rehabilitated landscape ~~installations or landscape rehabilitation~~ projects ~~by developers or property managers of single-family and multi-family residential projects or complexes~~ with ~~a landscaped~~ an aggregate landscape area~~, including pools or other *water features* but excluding *hardscape*, equal to or greater~~ of 2,500 square feet or less may comply with the performance requirements of this ordinance or conform to the prescriptive measures contained in Appendix A of the *Guidelines*;

4. New or rehabilitated projects using treated or untreated graywater or rainwater capture on site, any lot or parcels within the project that has less than 2,500 square feet~~, and which are otherwise subject to a discretionary approval of a~~ of landscape ~~plan, or which otherwise require a ministerial *permit* for a~~area and meets the lot or parcel's landscape ~~or *water feature*~~;water requirement (Estimated Total Water Use) entirely with the

treated or untreated graywater or though stored rainwater capture on site is subject only to Appendix A of the *Guidelines.*

(d) This water Efficient Landscape Ordinance does not apply to:

1. Registered local or state historical sites;
2. Ecological restoration projects that do not require a permanent irrigation system;

SECTION 2: Title 13, Chapter VII, Section 13-106 of the Costa Mesa Municipal Code is hereby amended as follows:

(a) All required landscaped areas, including landscape areas within parking lots, shall consist of drought tolerant plan material and shall meet the following minimum requirements:

'[....]

(4) Groundcover: At least 70 per cent of all landscaped areas containing trees and shrubs shall be underplanted with groundcover, with the remaining areas to incorporate a ~~minimum two-inch~~ layer of uncontaminated compost or mulch as required per Water Efficient Landscape Guidelines. Decorative (commercial) bark is not acceptable. Groundcover shall be planted in a triangular-spaced pattern to ensure 100 percent coverage within one year of planting. A minimum 2-foot diameter clearance, measured from each tree trunk, shall be maintained free of groundcover or turf. Uncontaminated shredded mulch or compost shall be applied and maintained in these areas.

(5) Turf: Turf incorporated into the landscape design shall not exceed ~~50~~ thresholds established by the Guidelines, except for active play areas such as parks, sports fields and golf courses. All turf shall be of a drought tolerant variety. Redwood headerboard, or other material acceptable by the planning division, shall be installed to separate turf from planter and groundcover areas.

SECTION 3: Title 13, Chapter VII, Section 13-107, as follows:

"Sec. 13-107. IRRIGATION REQUIREMENTS

(a) Irrigation and drip systems shall be provided in accordance with Section 2.5 of the Water Efficient Landscape Guidelines. All landscaped areas as specified in the Guidelines shall be provided with an approved irrigation system Landscaped areas ~~shall be provided~~ with an automatically time-controlled sprinkler system when the site is zoned commercial or industrial, or when the site is zoned residential and permits more than 2 dwelling units.

(b) Irrigation system: The Irrigation and/or drip system shall consist of underground piped water lines with low water flow sprinklers and/or a drip or trickle irrigation system as specified in the Guidelines. The system chosen shall be designed to provide adequate coverage to all plant material, existing and proposed. Water meter and line sizes shall be calculated from total water demand, which should be, at least, the sum of the maximum irrigation demand and all building demand. Due to varying irrigation requirements, separate control valves and/or sprinkler/emitter heads shall be used when shrubs and turf all appear on the same landscape plan. The irrigation system shall be designed so that overspray, runoff, and low-head drainage onto streets, sidewalks, windows, walls, and fences are minimized. Automatic systems for watering cycles shall be scheduled to maximize ground infiltration rates and

further minimize runoff.

SECTION 4: ENVIRONMENTAL DETERMINATION. The project has been reviewed for compliance with the California Environmental Quality Act (CEQA), the CEQA guidelines, and the City's environmental procedures, and has been found to be exempt pursuant to Section 15061 (b) (3) (general rule) of the CEQA Guidelines, in that the City Council hereby finds that it can be seen with certainty that there is no possibility that the passage of this ordinance amending the Municipal Code will have a significant effect on the environment.

SECTION 5: INCONSISTENCIES. Any provision of the Costa Mesa Municipal Code or appendices thereto inconsistent with the provisions of this ordinance, to the extent of such inconsistencies and or further, is hereby repealed or modified to the extent necessary to affect the provisions of this ordinance.

SECTION 6: APPLICABILITY. The provisions of this ordinance shall be applicable to all properties within City limits as applicable noted hereto.

SECTION 7: SEVERABILITY. If any provision or clause of this ordinance or the application thereof to any person or circumstances is held to be unconstitutional or otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect other provisions or clauses or applications of this ordinance which can be implemented without the invalid provision, clause or application; and to this end, the provisions of this ordinance are declared to be severable.

SECTION 8: PUBLICATION. This Ordinance shall take effect and be in full force thirty (30) days from and after the passage thereof, and prior to the expiration of fifteen (15) days from its passage shall be published once in the ORANGE COAST DAILY PILOT, a newspaper of general circulation, printed and published in the City of Costa Mesa or, in the alternative, the City Clerk may cause to be published a summary of this Ordinance and a certified copy of the text of this Ordinance shall be posted in the office of the City Clerk five (5) days prior to the date of adoption of this Ordinance, and within fifteen (15) days after adoption, the City Clerk shall cause to be published the aforementioned summary and shall post in the office of the City Clerk a certified copy of this Ordinance together with the names and member of the City Council voting for and against the same.

PASSED AND ADOPTED this _____ day of _____ 2016.

_____
Stephen Mensinger, Mayor

ATTEST:

_____
Brenda Green
City Clerk of the City of Costa Mesa

STATE OF CALIFORNIA)
COUNTY OF COSTA MESA)
CITY OF COSTA MESA)

I, BRENDA GREEN, City Clerk of the City of Costa Mesa, California, do hereby certify that the foregoing Ordinance was introduced at the regular meeting of the City Council held on the ____ day of _____, 2016, and thereafter at the regular meeting of said City Council duly held on the _____ day of _____, 2016, was duly passed and adopted by the following vote, to wit:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Brenda Green
City Clerk of the City of Costa Mesa

EXHIBIT A

Water Efficient Landscape Guidelines

Adopted January 2010

Revised January 2016

City of Costa Mesa Planning Division
2nd floor, Fair Drive
Costa Mesa, CA 9262/
(714) 754-5245

Costa Mesa

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SECTION 1

1.1 Purpose: Water Conservation for Landscaping and Irrigation

A. The primary purpose of these Guidelines is to provide procedural and design guidance for project applicants proposing landscape installation or rehabilitation projects that are subject to the requirements of the of Title 13, Chapter VII, Landscape Standards, of the Costa Mesa Municipal Code. This chapter represents the landscaping requirements of the City of Costa Mesa, and for purposes of this document, is referred to as the "Water Efficient Landscape Guidelines."

   This document is also intended for use and reference by City staff in reviewing and approving designs and verifying compliance with the Water Efficient Landscape Guidelines. The general purpose of the Water Efficient Landscape Guidelines is to promote the design, installation, and maintenance of landscaping in a manner that conserves regional water resources by ensuring that landscaping projects are not unduly water-needy and that irrigation systems are appropriately designed and installed to minimize water waste.

B. Other regulations affecting landscape design and maintenance practices are potentially applicable and should be consulted for additional requirements. These regulations include but may not be limited to:

   - State of California Assembly Bill 1881;
   - National Pollutant Discharge Elimination Permit for the Municipal Separate Storm Sewer System;
   - Orange County Fire Authority Regulations for Fuel Modification in the Landscape;
   - Water Conservation and Drought Response Regulations of the Local Water Districts;
   - Regulations of the Local Water Districts governing use of Recycled Water;
   - Costa Mesa Zoning Code;
   - Latest adopted California Building Code;
   - Specific Plans, Master Plans, General Plan, or similar land use and planning documents; and
   - Conditions of approval for a specific project

1.2 Applicability:

A. The provisions of the Water Efficient Landscape Guidelines shall apply to the following public agency and private development landscape projects:

1. New landscape 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;

3. New or rehabilitated landscape projects with an aggregate landscape area of 2,500 square feet or less may comply with the performance requirements of this ordinance or conform to prescriptive measures contained in Appendix A;

4. New or rehabilitated projects using treated or untreated graywater or rainwater captures on site, any lot or parcel within the project that has less than 2,500 square feet of landscape area and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with the treated or untreated graywater or through stored rainwater captured on site is subject only to Appendix A Section 5.

B. The requirements may be modified, wholly or partially waived by the Development Services Director or his/her designee for landscape rehabilitation projects that are limited to replacement plantings with equal or lower water needs and where the irrigation system is found to be designed, operable and programmed consistent with minimizing water waste in accordance with local water purveyor regulations.

C. Unless otherwise determined by the City, the Water Efficient Landscape Ordinance and these Guidelines do not apply to:

- Registered local, state, or federal historical sites;
- Ecological restoration projects that do not require a permanent irrigation system;
- Mined-land reclamation projects that do not require a permanent irrigation system;
- Plant collections, as part of botanical gardens, arboretums open to the public.
- Existing landscape areas connected to the Orange County Water District Green Acres Project reclaimed water system upon the effective date of this program.

SECTION 2

REVIEW AND APPROVAL PROCEDURE:

Submittal Requirements for New Landscape Installations or Landscape Rehabilitation Projects

2.1 Elements of the Landscape Documentation Package:

A Landscape Documentation Package is required to be submitted by the project applicant for review and approval prior to the issuance of ministerial permits for landscape or water features by the City, and prior to start of construction. Unless otherwise directed by the City, the Landscape Documentation Package shall include the following elements either on plan sheets or supplemental pages as directed by the City:

A. **Project Information**, including, but not limited to, the following:

1. Date;
2. Project name;
3. Project address, parcel, and/or lot number(s);
4. Total landscaped area (square feet) and rehabilitated landscaped area (if applicable);
5. Project type (e.g., new, rehabilitated, public, private, homeowner-installed);
6. Water supply type (e.g., potable, recycled) and identification of the local water district;
7. Checklist or index of all documents in the Landscape Documentation Package;
8. Project contacts, including contact information for the project applicant and property owner;
9. A Certification of Design in accordance with **Exhibit A** of these Guidelines that includes a landscape professional's professional stamp as applicable, signature, contact information (including email and telephone number), license number, and date, certifying the statement that "The design of this project complies with the requirements of the City's Water Efficient Landscape Ordinance" and shall bear the signature of the landscape professional as required by law; and any other information the City deems relevant for determining whether the landscape project complies with the Water Efficient Landscape Ordinance and these Guidelines.
10. Maximum Applied Water Allowance (MAWA) and Estimated Applied Water Use (EAWU) expressed as annual totals including, but not limited to, the following:
    - A Water Efficient Landscape Worksheet for the landscape project;
    - Hydrozone information table for the landscape project; and
    - Water budget calculations for the landscape project.
11. A soil management report or specifications, or specification provision requiring soil testing and amendment recommendations and implementation to be accomplished during construction of the landscape project.
12. A landscape design plan for the landscape project.
13. An irrigation design plan for the landscape project.
14. A grading design plan, unless grading information is included in the landscape design plan for the landscape project or unless the landscape project is limited to replacement planting and/or irrigation to rehabilitate an existing landscaped area.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

2.2 Water Efficient Landscape Calculations and Alternatives

A. The project applicant shall provide the calculated Maximum Applied Water Allowance (MAWA) and Estimated Applied Water Use (EAWU) for the landscaped area as part of the Landscape Documentation Package submittal to the City. The MAWA and EAWU shall be calculated based on completing the Water Efficient Landscape Worksheets (in accordance with the sample worksheets in **Appendix C**) which contain 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 (0.55 for residential areas and 0.45 for non-residential areas) and expressed as annual gallons required. The EAWU is calculated based on the plants used and irrigation method selected for the landscape design.

B. The EAWU allowable for the landscaped area shall not exceed the MAWA. The MAWA shall be calculated using an evapotranspiration adjustment factor (ETAF) of 0.55 for residential areas and 0.45 for non-residential areas, except for the portion of the MAWA applicable to any special landscaped areas within the landscape project, which shall be calculated using an ETAF of 1.0. Where the design of the landscape area can otherwise be shown to be equivalently water-efficient, the project applicant may submit alternative or abbreviated information supporting the demonstration that the annual EAWU is less than the MAWA, at the discretion of and for the review and approval of the local agency.

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

1. The MAWA shall be calculated using the Water Efficient Landscape Worksheets and equation presented in **Appendix B** on page B-1. The example calculation on page B-1 is a hypothetical example to demonstrate proper use of the equation.
2. The *EAWU* shall be calculated using the *Water Efficient Landscape Worksheet* and equations presented in **Appendix C**.

3. For calculation of the MAWA and EAWU, a *project applicant* shall use the *ETo* values from the closest location listed the *Reference Evapotranspiration* Table in **Appendix D**. For geographic areas not covered in **Appendix D**, data from other cities, or zip codes, located nearby in the same *reference evapotranspiration* zone may be used.

4. For calculating the EAWU, the plant water use factor shall be determined as appropriate to the project location from the Water Use Efficiency of Landscape Species (WUCOLS) Species Evaluation List 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 1.0 for very low water use plants, 0.1 to 0.3 for low water use plants, 0.4 to 0.6 for moderate water use plants and 0.7 to 1.0 for high water use plants.

5. For calculating the *EAWU*, the *plant water use factor* shall be determined for each *valve hydrozone* based on the highest-water-use plant species within the

zone. The *plant factor* for each *hydrozone* may be required to be further refined as a "*landscape coefficient*," according to protocols defined in detail in the *WUCOLS* document, to reflect planting density and *microclimate* effects on water need at the option of the *project applicant* or the *City*.

6. For calculation of the *EAWU*, the area of a *water feature* shall be defined as a high water use *hydrozone* with a *plant factor* of 1.0.

7. For calculation of the EAWU, a temporarily irrigated hydrozone area, such as an area of highly drought-tolerant native plants that are not intended to be irrigated after they are fully established, shall be defined as a very low water use hydrozone with a plant factor of 0.1.

8. For calculation of the MAWA, the ETAF for Special Landscaped Areas (SLA) shall be set at 1.0. For calculation of the EAWU, the ETAF for SLA shall be calculated as SLA plant factor divided by the SLA irrigation efficiency factor.

9. *Irrigation efficiency (IE)* of the irrigation heads used within each *hydrozone* shall be assumed to be as follows, unless otherwise indicated by the irrigation equipment manufacturer's specifications or demonstrated by the *project applicant*:

Irrigation Method	**DU_{LQ}**	**DU_{LH}***	**EU**	**IE****
Spray nozzles	65%	79%		71%
High efficiency spray nozzles	70%	82%		73%
Multi stream/Multi trajectory rotary (MSMT) nozzles	75%	85%		76%
Stream rotor nozzle	70%	82%		73%
Microspray	75%	85%		76%
Bubblers			85%	77%
Drip emitter			90%	81%
Subsurface drip			90%	81%

*DU_{LH} = .386 + (.614)(DU_{LQ})
** IE (spray) = (DU_{LH})(IME)
** IE (drip) = Emission uniformity (EU)(IME)

D. The Maximum Applied Water Allowance shall adhere to the following requirements:

- The Maximum Applied Water Allowance shall be calculated using the equation presented in **Appendix C**. The reference evapotranspiration (ETo) values used in this calculation are from the Reference Evapotranspiration Table in **Appendix D** and are for planning purposes only. For actual irrigation scheduling, automatic irrigation controllers are required and shall use current ETo data, such as from the California Irrigation Management Information System (CIMIS), other equivalent data, or soil moisture sensor data.

2.3 Soil and Stormwater Management

A. All planted landscape areas are required to have friable soil to maximize retention and infiltration. On engineered slopes, only amended planting holes need meet this requirement.

B. In order 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 certified agronomic soils laboratory for analysis and recommendations.

   - Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
   - The soil analysis may include, but is not limited to:
   - Soil texture;
   - Infiltration rate determined by laboratory test or soil texture infiltration rate table;
   - PH;
   - Total soluble salts;
   - Sodium;
   - Percent organic matter; and
   - Recommendations.

C. In projects with multiple landscape installations (i.e. production home developments or *common interest developments* that are installing landscaping) a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement; evenly disbursed throughout the development. Large landscape projects shall sample at a rate equivalent to 1 in 7 lots or approximately 15% landscape area.

   The project applicant, or his/her designee, shall comply with one of the following:

   - If significant mass grading is not planned, the soil analysis report shall be submitted to the City as part of the Landscape Documentation Package; or
   - If significant mass grading is planned, the soil analysis report shall be submitted to the City as part of the Certification of Completion.

   - The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans in order to make any necessary adjustments to the design plans.

   - The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the City with the Certification of Completion.

   [Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

D. It is strongly recommended that landscape areas be designed for capture and infiltration capacity that is sufficient to prevent *runoff* from impervious surfaces (i.e. roof and paved areas) from additional capacity as required by any applicable local, regional, state, or

federal regulation and/or one of the following: the one inch, 24-hour rain event or the 85th percentile, 24-hour rain event.

E. It is recommended that storm water projects incorporate any of the following elements to improve on-site stormwater and dry weather *runoff* capture and use:

- Grade impervious surfaces, such as driveways, during construction to drain into vegetated areas.
- Minimize the area of impervious surfaces such as paved areas, roof, and concrete driveways.
- Incorporate *pervious* or porous surfaces (e.g. gravel, permeable pavers or blocks, *pervious* or porous concrete) that minimize *runoff*.
- Direct *runoff* from paved surfaces and roof areas into planting beds or landscape areas to maximize site water capture and reuse.
- Incorporate rain gardens, cisterns, and other rain harvesting or catchment systems.
- Incorporate infiltration beds, swales, basins, and drywells to capture stormwater and dry weather *runoff* and increase percolation into the soil.
- Consider constructed wetlands and ponds that retain water, equalize excess flow, and filter pollutants.

  [Note: Authority cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

2.4 Landscape Design Plan

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

1. Plant Material

   - Any plant may be selected for the landscape area consistent with the landscape requirements of Title 13 and provided that the EAWU in the landscaped area does not exceed the MAWA. . Methods to achieve water efficiency shall include one or more of the following:

2. Protection and preservation of non-invasive water-conserving plant species and water-conserving turf species;

3. Selection of water-conserving plant species and water-conserving turf species;

4. Selection of plants based on local climate suitability, disease and pest resistance;

5. Selection of trees based on applicable City and local tree ordinances or tree shading guidelines; and size at maturity as appropriate for the planting area;

6. 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 Section 2.5(a)(2)(D) of these Guidelines.

C. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. Methods to achieve water efficiency shall include one or more of the following:

1. Use the Sunset Western Climate Zone System, or equivalent generally accepted models, which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;

2. 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, and power lines); and allow for adequate soil volume for healthy root growth; and,

3. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

D. Turf is discouraged on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).

E. High water use plants, characterized by a *plant factor* of 0.7 to 1.0, are prohibited in street medians.

F. A landscape design plan for projects in fire-prone areas and fuel modification zones shall comply with requirements of the Costa Mesa Fire Department, where applicable. When conflicts between water conservation and fire safety design elements exist, the fire safety requirements as required by Costa Mesa Fire Chief shall have priority.

G. The use of invasive plant species and/or noxious plant species such as those listed by the California Invasive Plant Council, is strongly discouraged.

H. The architectural guidelines of a common interest development, which include community apartment projects, condominiums, and planned developments shall not prohibit or include conditions that have the effect of prohibiting the use of water efficient plant species as a group.

1. Water Features:

- Recirculating water systems shall be used for water features.

- Where available and consistent with public health guidelines, recycled water shall be used as a source for decorative water features.

- The surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.

- Pool and spa covers are highly recommended.

2. Soil Preparation, Mulch and Amendments:

   - Prior to planting of any materials, compacted soils shall be transformed to a friable condition. On engineered slopes, only amended planting holes need to meet this requirement.

   - Soil amendments shall be incorporated according to the recommendations of the soil report and what is appropriate for plants selected.

   - For landscape installations, compost at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top 6 inches of soil are exempt from adding compost and tilling.

   - 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. To provide habitat for beneficial insects and other wildlife, up to 5% of the landscape area may be left without *mulch*. Designated insect habitat must be included in the landscape design plan as such.

   - Stabilizing mulching products shall be used on slopes that meet current engineering standards such as those detailed in the USDA/USAID Low-Volume Roads Engineering Best Management Practices Field Guide.

   - The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.

   - Organic *mulch* materials made from recycled or post-consumer shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available. Organic mulches are not required where prohibited by local fuel Modification Plan Guidelines or other applicable local ordinances.

3. The landscape design plan, at a minimum, shall:

   - Delineate and label each hydrozone by number, letter, or other method;

   - Identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscaped area shall be included in the low water use hydrozone for the water budget calculation;

   - Identify recreational areas;

   - Identify areas permanently and solely dedicated to edible plants;

   - Identify areas irrigated with recycled water;

   - Identify type of mulch and application depth;

- Identify soil amendments, type, and quantity;
- Identify type and surface area of water features;
- Identify hardscapes (pervious and non-pervious);
- Identify location and installation details, and 24-hour retention or infiltration capacity of any applicable storm water best management practices that encourage on-site retention and infiltration of storm water. Project applicants shall refer to the local agency or Regional Water Quality Control Board for information on any applicable stormwater technical requirements. Storm water best management practices are encouraged in the landscape design plan and examples are provided in Section 2.3 C and D.
- Identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.);
- Contain the following statement: "I have complied with the criteria of the Water Efficient Landscape Ordinance and applied them for the efficient use of water in the landscape design plan;" and
- Include the signature of a California-licensed landscape professional.

[Note: Authority Cited: Section 65595, Reference: Section 65596, Government Code and Section 1351, Civil Code.]

2.5 Irrigation Design Plan

A. This section applies to landscape 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 manufacturer's 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 partof the *Landscape Documentation Package*.

1. System

a. Landscape water meters, defined as either a dedicated water service meter or private sub meter, shall be installed for all non-residential irrigated landscapes of 1,000 sq. ft. (the level at which Water Code 535 applies) and residential irrigated landscapes of 5,000 sq. ft. or greater. A landscape water meter may be either:

- A customer service meter dedicated to landscape use provided by the local water purveyor; or
- A privately owned meter or sub meter.

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

irrigation systems, recommending U.S. EPA WaterSense labeled devices as applicable.

c. *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.

d. 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.

    1. 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.

    2. *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.

e. *Backflow prevention devices* shall be required to protect the water supply from contamination by the irrigation system. A *project applicant* shall refer to the applicable City code (i.e., public health) for additional backflow prevention requirements.

f. A *master shutoff valve* shall be as close as possible to the point of connection and is required on all projects; with the exception for 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.

g. Flow sensors that detect high flow conditions created by system damage or malfunction are required for all non-residential landscapes of 5,000 sq. ft. or larger. The flow sensor must be in combination with a *master shut off-valve*.

h. *Manual isolation valves* (such as a gate *valve*, ball *valve* or butterfly *valve*) shall be required downstream of 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.

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. 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 ASBE/ICC 802-2014.

m. Average *irrigation efficiency* for the project shall be determined in accordance with the EAWU calculation sheet in Appendix B. Unless otherwise indicated by the irrigation equipment manufacturer's specifications or demonstrated by the *project applicant*, the *irrigation efficiency* of the irrigation heads used within each *hydrozone* shall as listed in Section 2.3 (C)(9).

n. It is highly recommended that the *project applicant* or local agency 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 (drip or low volume overhead irrigation)* is required to maximize water infiltration into the root zone; with the exception of areas with fuel modification requirements and/or those that require plant establishment to comply with local grading ordinances.

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 *joint* components are required on all sprinklers subject to damage that are adjacent to *hardscapes* or in high traffic areas of *turf*.

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:

1. The landscape *area* is adjacent to permeable surfacing and no *runoff* occurs; or

2. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or

3. The irrigation designer for the landscape project specifies an alternative design or technology, as part of the *Landscape Documentation Package*, and clearly demonstrates strict adherence to the irrigation system design criteria in Section 2.5 (a)(1)(H) hereof. Prevention of *overspray* and *runoff* must be confirmed during an *irrigation audit*.

4. Slopes greater than 25% shall not be irrigated with an irrigation system with a *application rate* exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer of the landscape project 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:

- The *plant factor* calculation is based on the proportions of the respective plant water uses and their respective *plant factors*; or

- The *plant factor* of the higher water using plant is used for the 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*.

g. The irrigation design plan, at a minimum, shall contain:

- The location and size of separate water meters for landscape;

- The location, type, and size 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*;

- *Static water pressure* at the point of connection to the public water supply;
- *Flow rate* (gallons per minute), application rate (inches per hour), and design *operating pressure* (pressure per square inch) for each *station*;
- Irrigation schedule parameters necessary to program smart timers specified in the landscape design;
- The following statement: "I have complied with the criteria of the *Water Efficient Landscape Ordinance* and applied them accordingly for the efficient use of water in the irrigation design plan;" and,
- The signature of a California-licensed *landscape professional*.

[Note: Authority Cited: Section 65595, Government Code Reference: Section 65596, Government Code.]

2.7 Grading Design Plan

A. For the efficient use of water, grading of a landscape project site shall be designed to minimize soil erosion, *runoff*, and water waste. Finished grading configuration of the *landscape area*, including pads, slopes, drainage, post-construction erosion control, and storm water control Best Management Practices, as applicable, shall be shown on the Landscape Plan unless this information is fully included in separate Grading Plans for the project, or unless the project is limited to replacement planting and/or irrigation to rehabilitate an existing *landscape area*.

B. The *project applicant* shall submit a landscape grading plan that indicates finished configurations and elevations of the *landscape area* including:

1. Height of graded slopes;
2. Drainage patterns;
3. Pad elevations;
4. Finish grade; and
5. Storm water retention improvements, if applicable.

C. To prevent excessive erosion and *runoff*, it is highly recommended that the *project applicant*:

1. Grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable *hardscapes*;
2. Avoid disruption of natural drainage patterns and undisturbed soil; and

3. Avoid soil compaction in *landscape areas*.

D. 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 the landscape professional, as required by law.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

2.8 Certification of Completion

A. Landscape project installation shall not proceed until the *Landscape Documentation Package* has been approved by the *City* and any ministerial permits required are issued.

B. The *project applicant* shall notify the *City* at the beginning of the installation work and at intervals, as necessary, for the duration of the landscape project work to schedule all required inspections.

C. *Certification of Completion* of the landscape project shall be obtained through a Certificate of Use and Occupancy or a *Permit* Final. The requirements for the Final Inspection and *Permit* Closure include submittal of:

1. *A Landscape Installation Certificate of Completion* in the form included as **Appendix D** of these *Guidelines*, which shall include: (i) certification by a *landscape professional* that the *landscape project* has been installed per the approved *Landscape Documentation Package*; and (ii) the following statement: "The landscaping has been installed in substantial conformance to the design plans, and complies with the provisions of the *Water Efficient Landscape Ordinance* for the efficient use of water in the landscape."

2. Where there have been significant changes (as deemed by the local permitting agency) made in the field during construction, these "as-built" or record drawings shall be included with the certificate

3. A diagram of the irrigation plan showing *hydrozones* shall be kept with the irrigation controller for subsequent management purposes.

4. Documentation of the irrigation scheduling parameters used to set the *controller*(s);

5. An irrigation audit report from a local agency landscape irrigation auditor or third party *certified landscape irrigation auditor*, documentation of enrollment in regional or local water ~~purveyor's~~ water conservation programs, and/or documentation that the MAWA and EAWU information for the *landscape project* has been submitted to the local water purveyor, may be required at the option of the *City*. Example Inspection Affidavit is included as Appendix H.

   - Landscape audits shall not be conducted by the *person* who designed or installed the landscape

   - In large projects or projects with multiple landscape installation (i.e. production home developments or *common interest developments*) an

auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

2.9 Post-Installation Irrigation Scheduling

A. 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:

1. Irrigation scheduling shall be regulated by automatic irrigation controllers.

2. *Overhead* irrigation shall be scheduled in accordance with the Local water purveyor's Water Conservation Ordinance. Operation of the irrigation system outside the normal *watering window* is allowed for auditing and system maintenance.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

2.10 Post-Installation Landscape and Irrigation Maintenance

A. Landscapes shall be maintained to ensure water use efficiency in accordance with existing landscape requirements of Title 13 and Title 20 of Costa Mesa Municipal Code.

SECTION 3

Provisions for Existing Landscapes

A. Irrigation of all *landscape areas* shall be conducted in a manner conforming to the rules and requirements and shall be subject to penalties and incentives for water conservation and water waste prevention, as determined and implemented by the *local water purveyor* and as may be mutually agreed by the *City*.

B. The *City* and/or the regional or *local water purveyor* may administer programs such as irrigation water use analyses, irrigation surveys and/or *irrigation audits*, tiered water rate structures, water budgeting by parcel, or other approaches to achieve landscape water use efficiency community-wide to a level equivalent to or less than would be achieved by applying a MAWA calculated with an ETAF of 0.8 to all *landscape areas* in the *City* over one acre in size.

C. The architectural guidelines of a *common interest development*, including apartments, 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.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

SECTION 4

Public Education

A. Publications. 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. Model Homes. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes as described.

   1. Signs shall be used to identify the model 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. Signage shall include information about the site water use as designed per the local ordinance; specify who designed and installed the site water efficient landscape; and demonstrate low water use approaches to landscaping such as using appropriate plants, alternative water sources, or rainwater catchment systems.

   2. Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

PRESCRIPTIVE COMPLIANCE OPTION

(A) This appendix contains prescriptive requirements which may be used as a compliance option to the Ordinance.

(B) Compliance with the following items is mandatory and must be documented in a landscape plan in order to use the prescriptive compliance option:

(1) Submit a *Landscape Documentation Package* which includes the following elements:

a) Date

b) Project applicant

c) Project address (if available, parcel and/or lot number (s))

d) Total landscape area (square feet), including a breakdown of turf and plant material

e) Project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)

f) Water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well

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 to the MWELO"

(2) Incorporate compost at a rate of at least four cubic yards per 1,000 square feet to a depth of six inches into landscape area (unless contra-indicated by a soil 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* plan factor 0.3) for 75% of the plant area excluding edibles and areas using *recycled water*. For non-residential areas, install climate adapted plants that require occasional, little or no summer water (average *WUCOLS* plan factor 0.3) for 100% of the plant area excluding edibles and areas using *recycled water*;

b) 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 all of the following:

a) *Turf* shall not exceed 25% of the landscape area in residential areas, and *turf* shall not be planted 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;

c) *Turf* is prohibited in parkways less than 10 feet wide, unless the parkway is adjacent to a parking strip and used to enter and exit vehicles. Any *turf* in parkways must be irrigated by sub-surface irrigation, or by other technology that creates no *overspray* or *runoff*.

(5) Irrigation systems shall comply with the following:

a) Automatic irrigation controllers are required and must use evapotranspiration or soil moisture sensor data

b) Irrigation controllers shall be of a type which does not lose programming data in the event the primary power source is interrupted.

c) Pressure regulators shall be installed on the irrigation system to ensure the dynamic pressure of the system is within the manufacturers recommended pressure range.

d) Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be installed as close as possible to the point of connection of the water supply.

e) All irrigation emission devices must meet the requirements set in the ANSI standard, ASABE/ICC802-2014. "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.

(C) At the time of final inspection, the permit applicant must provide the owner of the property with a certificate of completion, certificate of installation, irrigation schedule and a schedule of landscape and irrigation maintenance.

Appendix B: Certification of Landscape Design

CERTIFICATION OF LANDSCAPE DESIGN

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide professional landscape design services.

(2) The landscape design and water use calculations for the property located at ____ _____ _____ (provide street address or parcel number(s)) were prepared by me or under my supervision.

(3) The landscape design and water use calculations for the identified property comply with the requirements of the City of Costa Mesa Water Efficient Landscape Ordinance (Municipal Code Sections 13-101 through 13-108) and the City of Costa Mesa Guidelines for Implementation of the City of Costa Mesa Water Efficient Landscape Ordinance.

(4) The information I have provided in this Certificate of Landscape Design is true and correct and is hereby submitted in compliance with the City of Costa Mesa Water Efficient Guidelines for Implementation of the City of Costa Mesa Water Efficient Landscape Guidelines.

_____ _____
Print Name Date

_____ _____
Signature License Number

_____
Address

_____ _____
Telephone E-mail Address

Landscape Design Professional's Stamp
(If applicable)

A-1

Appendix C: Water Efficient Landscape Worksheet

WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required item of the Landscape Documentation Package.

Reference Evapotranspiration (ETo)[a]: _____

Landscape Area Sector Type (select one): [ ] Residential [ ] Non-Residential

	Hydrozone #/Planting Description	Location	Plant Factor[b] (PF)	Irrigation Method[c]	Irrigation Efficiency[c] (IE)	ETAF (PF/IE)	Landscape Area (sq-ft)	ETAF x Area	Estimated Total Water Use[d] (ETWU)
Regular Landscape Area									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Average	*Total*	*Total*

Average ETAF for Regular Landscape Areas[e] (circle one): **In Compliance** **Not In Compliance**

Special Landscape Area							
SLA-1							
SLA-2							
SLA-3							
SLA-4							
SLA-5							

Totals | | |

Total Landscape Area |

Site wide ETAF |

ETWU Total |

Maximum Allowed Water Allowance (MAWA)[f] |

WORKSHEET INFORMATION & EQUATIONS

Local monthly evapotranspiration rates are listed in Appendix D.

The following table can be used for common plant factors:

Plant Factor	PF
Very low water use plant	0.1
Low water use plant	0.2
Medium water use plant	0.5
High water use plant	0.8
Lawn	0.8
Pool, spa, or other water feature	1.0

Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average *irrigation efficiency* for purposes of these *Guidelines* is 0.71. The following *irrigation efficiency* may be obtained for the listed irrigation heads with an *Irrigation Management Efficiency* of 90%:

Irrigation Method	IE
Spray nozzles	71%
High efficiency spray nozzles	73%
Multi stream/Multi trajectory rotary (MSMT) nozzles	76%
Stream rotor nozzle	73%
Microspray	76%
Bubblers	77%
Drip emitter	81%
Subsurface drip	81%

Estimated Total Water Use (ETWU) is the annual gallons required

$$ETWU = (ETo) \times (0.62) \times (ETAF \times Area)$$

where, ETo = annual evapotranspiration rate in inches per year
0.62 = factor used to convert inches per year to gallons per square foot
ETAF = plant factor ÷ irrigation efficiency

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for nonresidential areas.

Maximum Allowed Water Allowance (MAWA) is the annual gallons allowed

$$MAWA = (ETo) \times (0.62) \times [(ETAF \times LA) + ((1-ETAF) \times SLA)]$$

where, ETo = annual evapotranspiration rate in inches per year
0.62 = factor used to convert inches per year to gallons per square foot
ETAF = plant factor ÷ irrigation efficiency
LA = total (site wide) landscape area in square feet
SLA = total special landscape area

Appendix D

Reference Evapotranspiration (ETo) Table

Appendix C - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
Orange													
Irvine (south)	2.6	2.5	3.6	4.4	5.3	5.2	5.8	5.7	4.8	3.4	2.6	2.0	47.9
Newport Beach	2.6	2.5	3.5	4.2	5.0	4.7	5.3	5.3	4.5	3.3	2.5	2.0	45.4
Laguna Beach	2.6	2.5	3.5	4.3	5.1	4.9	5.5	5.4	4.6	3.4	2.5	2.0	48.4
Santa Ana	2.6	2.6	3.4	4.5	5.2	5.3	5.7	5.7	4.9	3.4	2.6	2.0	47.8
* The values in this table were derived from: 1) California Irrigation Management Information System (CIMIS) 2) Reference													
Evapotranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept of Water Resources 1999,													
3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources													

LANDSCAPE INSTALLATION CERTIFICATE OF COMPLETION

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide professional landscape design services for: (project name, mailing address and telephone)

(2) The landscape project for the property located at _____

_____

(provide street address or parcel number(s) was installed by me or under my supervision.

(3) The landscaping for the identified property has been installed in substantial conformance with the approved Landscape Documentation Package and complies with the requirements of the City of Costa Mesa Water Efficient Landscape Guidelines (Municipal Code Sections 13-101 through 13-108) and the City of Costa Mesa Water Efficient Landscape Guidelines for the efficient use of water in the landscape.

(4) The following elements are attached hereto:

a. Irrigation scheduling parameters used to set the controller;

b. Landscape and irrigation maintenance schedule;

c. Irrigation audit report; and

d. Soil analysis report, if not submitted with Landscape Documentation Package, and documentation verifying implementation of the soil report recommendations.

(5) The site installation complies with the following:

a. The required irrigation system has been installed according to approved plans and specifications and if applicable, any prior approved irrigation system alternatives.

_____ Yes ____ No

b. Sprinklers comply with ASABE/ICC 802-2014 Landscape Irrigation Sprinkler & Emitter Standard.

_____ Yes ____ No

(4) The information I have provided in this Landscape Installation Certificate of Completion is true and correct and is hereby submitted in compliance with the City of Costa Mesa Guidelines for Implementation of the City of Costa Mesa Water Efficient Landscape Guidelines.

_____ _____

Print Name Date

Signature

License Number

Address

Telephone

E-mail Address

Landscape Design Professional's Stamp
(If Appropriate)

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Appendix F

Definitions

The terms used in these *Guidelines* have the meaning set forth below:

"Aggregate landscape areas" pertains to the areas undergoing development as one project or for production home neighborhoods or other situations where multiple parcels are undergoing development as one project, but will eventually be individually owned.

"*Applied water*" means the portion of water supplied by the irrigation system to the landscape.

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

"*Budget-based tiered-rate structure*" means tiered or block rates for irrigation accounts charged by the retail water agency in which the block definition for each customer is derived from lot size or irrigated area and the evapotranspiration requirements of landscaping.

"Community Aesthetics Evaluation" – While not subject to a permit, plan check or design review, the Community Aesthetics Evaluation may be performed to ensure the aesthetic standards of the community and irrigation efficiency intent is maintained.

"*Conversion factor*" means the number that converts acre-inches per acre per year to gallons per square foot per year.

"*Check valve*" or "*anti-drain valve*" means a valve located under a *sprinkler head*, or other location in the irrigation system, to hold water in the system to prevent drainage from *sprinkler heads* when the sprinkler is off.

"*Certified Landscape Irrigation Auditor*" means an irrigation professional trained and certified to perform and develop an audit report on the condition of the irrigation system.

"*Certification of Design*" means the certification included as Exhibit E of these Guidelines that must be included in the *Landscape Documentation Package* pursuant to Section 2.1 of these Guidelines.

"*City*" means the City of Costa Mesa or its authorized designee.

"*Common interest developments*" means community apartment projects, condominium projects, and planned developments per Civil Code Section 1351

"*Distribution Uniformity*" or "*DU*" is a measure of how uniformly an irrigation head applies water to a specific target area and theoretically ranges form zero to 100 percent.

"*Drip irrigation*" means any non-spray *low volume irrigation* system utilizing emission devices with a *flow rate* measured in gallons per hour. *Low volume irrigation* systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

"*Ecological restoration project*" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

"*Emitter*" means a *drip irrigation* emission device that delivers water slowly from the system to the soil.

"*Estimated Applied Water Use*" or "*EAWU*" means the annual total amount of water estimated to keep plants in a healthy state. It is based on factors such as reference *evapotranspiration rate*, the size of the *landscaped area*, *plant water use factors*, and the *irrigation efficiency* within each hydrozone.

"*Evapotranspiration adjustment factor*" or "*ETAF*" is equal to the *plant factor* divided by the *irrigation efficiency factor* for a *landscape project*, as described in the *Guidelines*. The *ETAF* is calculated in the context of local *reference evapotranspiration*, using site-specific *plant factors* and *irrigation efficiency factors* that influence the amount of water that needs to be applied to the specific *landscaped area*.

A combined plant mix with a site-wide average *plant factor* of 0.5 (indicating a moderate water need) and average *irrigation efficiency* of 0.71 produces an *ET adjustment factor* of (0.7) = (0.5/0.71), which is the standard of water use efficiency generally required by this Water Efficient Landscape Ordinance and the *Guidelines,* except that the *ETAF* for a *special landscape area* shall not exceed 1.0.

"*Evapotranspiration rate*" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

"*Flow rate*" means the rate at which water flows through pipes, *valves* and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.

"*Guidelines"* refers to the Guidelines for Implementation of the Water Efficient Landscape Ordinance, as adopted by the City, which describes procedures, calculations, and requirements for *landscape projects* subject to this Water Efficient Landscape Ordinance.

"*Hardscapes*" means any durable material or feature (*pervious* and *non-pervious*) installed in or around a *landscaped area*, such as pavements or walls. Pools and other water features are considered part of the *landscaped area* and not considered *hardscapes* for purposes of these Guidelines.

"*Hydrozone*" means a portion of the *landscaped area* having plants with similar water needs and typically irrigated by one *valve*/controller station. A *hydrozone* may be irrigated or non-irrigated.

"*Infiltration rate*" means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).

"*Invasive plants species*" or "*noxious*" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. *Invasive plant species* may be regulated by county agricultural agencies as *noxious species*.

"*Irrigation audit*" means an in-depth evaluation of the performance of an irrigation system conducted by a *Certified Landscape Irrigation Auditor*. An *irrigation audit* includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule.

"*Irrigation Management Efficiency*" or "*IME*" means the measurement used to calculate the *irrigation efficiency* of the irrigation system for a landscaped project. A 90% IME can be achieved by using evaportranspiration controllers, soil moisture sensors, and other methods that will adjust irrigation run times to meet plant water needs.

"*Irrigation efficiency*" or "*IE*" means the measurement of the amount of water beneficially used divided by the amount of water applied to a *landscaped area*. *Irrigation efficiency* is derived from measurements and estimates of irrigation system characteristics and management practices. The *irrigation efficiency* for purposes of these *Guidelines* are 0.75 for overhead spray devices and 0.81 for drip systems. The following irrigation efficiency may be obtained for the listed irrigation heads with an IME of 90%:

a. Pop-up stream rotator heads = 75%

b. Stream rotor heads = 75%

c. Microspray = 75%

d. Bubbler = 80%

e. Drip emitter = 85%

f. Subsurface irrigation = 90%

"Landscaped area" means all the planting areas, *turf* areas, and *water features* in a landscape design plan subject to the *Maximum Applied Water Allowance* and *Estimated Applied Water Use* calculations. The *landscaped area* does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other *pervious* or *non-pervious hardscapes*, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).

"*Landscape contractor*" means a person licensed by the State of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

"*Landscape coefficient*" (K_L) is the product of a *plant factor* multiplied by a density factor and a *microclimate* factor. The *landscape coefficient* is derived to estimate water loss from irrigated *landscaped areas* and *special landscaped areas*.

"*Landscape Documentation Package*" means the package of documents that a *project applicant* is required to submit to the *City* pursuant to Section 2.1 of these Guidelines.

"Landscape Installation Certificate of Completion" means the certificate included as Exhibit F of these *Guidelines* that must be submitted to the *City* pursuant to Section 2.7(a)(1) of hereof.

"*Landscape professional*" means a licensed *landscape architect*, licensed landscape contractor, or any other *person* authorized to design a landscape pursuant to Sections

5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the California Business and Professions Code, Section 832.27 of Title16 of the California Code of Regulations, and Section 6721 of the California Food and Agriculture Code.

"*Lateral line*" means the water delivery pipeline that supplies water to the *emitters* or sprinklers from the *valve*.

""*Local water purveyor*" means any entity, including a public agency, city, county, or private water company that provides retail water service.

"*Low volume irrigation*" means the application of irrigation water at low pressure through a system of tubing or *lateral lines* and low-volume *emitters* such as drip, drip lines, and bubblers. *Low volume irrigation* systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

"*Main line*" means the pressurized pipeline that delivers water from the water source to the *valve* or outlet.

"*Maximum Applied Water Allowance*" or "*MAWA*" means the upper limit of annual applied water for the established *landscaped area,* as specified in Section 2.2 of these *Guidelines*. It is based upon the area's *reference evapotranspiration*, the *ETAF*, and the size of the *landscaped area*. The *Estimated Applied Water Use* shall not exceed the *Maximum Applied Water Allowance*. MAWA = (ETo) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]

"*Microclimate*" means the climate of a small, specific area that may contrast with the climate of the overall landscaped area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.

"*Mined-land reclamation projects*" means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

"*Mulch*" means any organic material such as leaves, bark, straw or compost, or inorganic mineral materials such as rocks, gravel, or decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

"*Non-pervious*" means any surface or natural material that does not allow for the passage of water through the material and into the underlying soil.

"*Operating pressure*" means the pressure at which the parts of an irrigation system of sprinklers are designed to operate at by the manufacturer

"*Overspray*" means the irrigation water which is delivered beyond the target area.

"Person" means any natural person, firm, joint venture, joint stock company, partnership, public or private association, club, company, corporation, business trust, organization, public or private agency, government agency or institution, school district, college, university, any other user of water provided by the City or the local water districts, or the manager, lessee, agent, servant, officer, or employee of any of them or any other entity which is recognized by law as the subject of rights or duties.

"*Pervious*" means any surface or material that allows the passage of water through the material and into the underlying soil.

"*Permit*" means an authorizing document issued by local agencies for *new construction* or *rehabilitated landscape*.

"*Plant factor*" or "*plant water use factor*" is a factor, when multiplied by *ETo*, that estimates the amount of water needed by plants. For purposes of this *Water Efficient Landscape Ordinance*, the *plant* factor range for very low water use plants is 0 to 0.1; the *plant factor* range for low water use plants is 0.1 to 0.3; the *plant factor* range for moderate water use plants is 0.4 to 0.6; and the *plant factor* range for high water use plants is 0.7 to 1.0. *Plant factors* cited in these *Guidelines* are derived from the publication "Water Use Classification of Landscape Species." Plant factors may also be obtained from horticultural researchers from academic institutions or professional associations as approved by the California Department of Water Resources (DWR).

"*Precipitation rate*" means the rate of application of water measured in inches per hour.

"*Project applicant*" means the person submitting a *Landscape Documentation Package* required under Section 2.1 to request a permit, plan check, or design review from the City A *project applicant* may be the property owner or his or her designee.

"*Property owner*" or "*owner*" means the record owner of real property as shown on the most recently issued equalized assessment roll.

"*Recycled water*" or "*reclaimed water*" means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and *water features*. This water is not intended for human consumption.

"*Reference evapotranspiration*" or "*ETo*" means a standard measurement of environmental parameters which affect the water use of plants. *ETo* is given expressed in inches per day, month, or year as represented in Appendix C of these Guidelines, and is an estimate of the evapotranspiration of a large field of four to seven-inch tall, cool-season grass that is well watered. *Reference evapotranspiration* is used as the basis of determining the *Maximum Applied Water Allowances*.

"*Rehabilitated landscape*" means any re-landscaping project that meets the applicability criteria of Section 1.1(a), where the modified landscape area is greater than 2,500 square feet.

"*Runoff*" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscaped area. For example, *runoff* may result from water that is applied at too great a rate (application rate exceeds *infiltration rate*) or when there is a slope.

"*Smart irrigation controller*" means an automatic controllers utilizing either evapotranspiration or soil moisture sensor data with non-volatile memory shall be required for irrigation scheduling in all irrigation systems, recommending U.S. EPA WaterSense labeled devices as applicable.

"*Special Landscaped Areas*" or "*SLA*" means an area of the landscape dedicated solely to edible plants such as orchards and vegetable gardens, areas irrigated with *recycled*

water, *water features* using *recycled water*, and recreational areas dedicated to active play such as parks, sports fields, golf courses, and where *turf* provides a playing surface.

"*Sprinkler head*" means a device which delivers water through a nozzle.

"*Static water pressure*" means the pipeline or municipal water supply pressure when water is not flowing.

"*Station*" means an area served by one *valve* or by a set of *valves* that operate simultaneously.

"*Swing joint*" means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.

"*Turf*" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses.

"*Valve*" means a device used to control the flow of water in an irrigation system

"*Water Efficient Landscape Guideliness*" means Ordinance No. _____, adopted by the City Council on _____, 2010, and codified in the Municipal Code in [chapter/title/division/sections 13-101 through 13-108].

"*Water Efficient Landscape Worksheets*" means the worksheets required to be completed pursuant to Section 2.2 of these *Guidelines* and which are included in Appendix B hereof.

"*Water feature*" means a design element where open water performs an aesthetic or recreational function. *Water features* include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of *water features* is included in the high water use *hydrozone* of the *landscaped area*. Constructed wetlands used for on-site wastewater treatment, habitat protection, or storm water best management practices that are not irrigated and used solely for water treatment or storm water retention are not *water features* and, therefore, are not subject to the water budget calculation.

"*Watering window*" means the time of day irrigation is allowed.

"*WUCOLS*" means the Water Use Classification of Landscape published by the University of California Cooperative Extension, the Department of Water Resources, and the Bureau of Reclamation, 2000. *www.owue.water.ca.gov/docs/wucols00*

Appendix G: Irrigation Plan Checklist

This is a voluntary compliance tool template developed by the Irrigation Association.

IRRIGATION PLAN CHECKLIST

Please complete the following checklist by checking all appropriate categories under APPLICANT column, indicating compliance with these content requirements. All submitted plans shall contain the following information:

LANDSCAPE PLAN NUMBER: -

_____

NAME OF PROJECT: .

_____

Applicant			Planner
[ ]	1.	Prevailing winds	[ ]
[ ]	2.	Slope aspect and degree of slope	[ ]
[ ]	3.	Soil type and infiltration rate	[ ]
[ ]	4.	Vegetation type	[ ]
[ ]	5.	Microclimates	[ ]
[ ]	6.	Expansive or hazardous soil conditions	[ ]
[ ]	7.	Water harvesting potential	[ ]
[ ]	8.	Available water supply, including non-potable and recycled water	[ ]
All pertinent system information is indicated, including:			
[ ]	9.	Irrigation zones substantially corresponding to hydrozones on the landscape plan and labeled by precipitation rates and method of application	[ ]
[ ]	10.	Water meters	[ ]
[ ]	11.	Tap-in location	[ ]
[ ]	12.	Static water pressure at the point of connection	[ ]
[ ]	13.	System controller	[ ]
[ ]	14.	Rain sensor/shut-off device	[ ]
[ ]	15.	Backflow preventers	[ ]
[ ]	16.	Shut-off valves and zone control valves	[ ]
[ ]	17.	Main line and lateral piping	[ ]
[ ]	18.	Sprinkler heads	[ ]
[ ]	19.	Bubblers and drip irrigation tubing runs	[ ]
[ ]	20.	Type and size of main irrigation system components	[ ]
[ ]	21.	Total required operating pressure for each control valve/zone	[ ]
[ ]	22.	Graphic depiction of the locations of irrigation system components	[ ]
[ ]	23.	Total required operating pressure for each control valve/zone	[ ]
[ ]	24.	Any supplemental stormwater and/or runoff harvesting	[ ]
System design is in conformance with the following standards:			
[ ]	25.	Certification of Professional Qualifications, attached	[ ]
[ ]	26.	Pedestrian surfaces located on plan	[ ]
[ ]	27.	Equipment installed flush with grade for safety	[ ]
[ ]	28.	Compliance with local codes	[ ]
[ ]	29.	Overspray onto impervious areas minimized	[ ]

ATTACHMENT 3

Provided by Municipal Water District of Orange County

Differences between Landscape Ordinances:

The purpose of this document is to summarize the differences between the 2009 State Model Ordinance and 2015 State Model Ordinance and the 2015 State Model Ordinance and OC Model Ordinance.

2009 State Model Ordinance and 2015 State Model Ordinance –

7) Requires reporting of implementation and enforcement to DWR by Dec. 31, 2015 and annually thereafter
   - DWR shall provide information on local compliance to the State Board who may consider further regulations and enforcement to promote compliance
   - DWR to provide technical assistance and grant funding priority for agencies in compliance
8) Landscape Threshold Subject to Ordinance
   - New construction reduced to 500 ft^2
   - Previous size thresholds
     a) 2500 ft^2 for public and private development
     b) 5000 ft^2 for owner built custom homes
   - Rehabilitated landscape projects
     a) 2,500 ft^2 requiring a building or landscape permit, plan check, or design review
9) Efficient Irrigation Systems - Additional requirements
   - Dedicated landscape water meters or sub meters (in alignment with CalGreen)
   - Residential landscape areas over 5000 ft^2
   - Non-residential areas over 1000 ft^2
   - Minimum width of turf irrigated with overhead irrigation from 8 to 10 feet
   - Areas of turf below this threshold must be irrigated with subsurface drip or other technology
   - Pressure regulators and master valves
   - Sprinkles must meet specific standards (i.e. PR ≤ 1.0 in/hr or DULQ ≥ 0.75)
10) Flow sensors that detect and report high flow conditions due to broken pipes, etc.
    Graywater Usage (§492.15) new section
    - Encourages the installation of graywater systems to provide on-site landscape irrigation water
    - All graywater systems shall conform to any applicable local ordinance standards and the California Plumbing Code (Title 24, Part 5, Chapter 16)
11) Soil Preparation
    - This addition of organic matter and tillage increases the ability of soil to capture and hold stormwater.
12) Stormwater Management (§492.16) revised section
    - To maximize water retention and infiltration
    - Planted landscape areas required to have friable soil
13) Compost application
    - 6 in deep at a rate of 4 yd3/1000 ft2 (unless contraindicated by soil test)
14) Limiting the Portion of Landscapes that can be Covered in Turf
    - The landscape water budget (Maximum Applied Water Allowance) was reduced from 70% of the reference evaporation (ETo) to:
      a) 50% for residential areas
         - This reduces the area that can be planted to turf in the residential landscapes from 33% to 25%

        - 40% of ETo for non-residential areas
            - This does not provide enough water to permit the planting of turf.
    - Turf installation is permitted when it is used for specific functions and purposes
        a) The landscape ordinance water budget provides extra water allowances for functional turf (sports, recreational, picnic areas and areas irrigated with recycled water)
        b) No turf will be allowed in street medians or in parkways Unless the parkways is next to a parking strip and a flat surface is required to enter and exit vehicles.

2015 State Model Ordinance and OC Model Ordinance –

- The OC Model ordinance breaks out the State Model Ordinance into an Ordinance document and a Guidelines document.
    - This allows for easier refinements to the guidelines over time without the need to readopt the Ordinance Document each time.
    - These documents are templates which include a variety of callout boxes to help the city identify areas of local concern or variability.
- More refined definitions to provide better clarity of technical terms.
- The OC model provides many more types of spray irrigation applications with normally accepted distribution uniformities in both Lower Quartile and Lower Half calculations.
    - We provide a table with LQ, LH and ultimately, the Irrigation Efficiency. The purpose for all three is to allow a designer to know the irrigation efficiency regardless of how a manufacturer provides the value.
    - The OC model is more realistic with standard overhead spray Irrigation Efficiency than the State but also provides more options that are higher than the minimum State value of .75.
- Expanded Evapotranspiration zones from three cities representing all of OC to a comprehensive listing of cities. This listing can be found within the Appendix Section of the Guidelines Document. Additionally MWDOC and AACOC have partnered with Signature Control System, Inc. to assist city staff by providing access to evapotranspiration data at the zip code level.
- The OC Model is accompanied by an Excel worksheet to help designers and planners evaluate compliance utilizing a unified approach. This worksheet can be found at: http://www.ocwatersmart.com/commercial/resources
- The OC model includes the following example documents as part of the Appendices within the Guidelines Document: Certification of Landscape Design, Certificate of Completion, and Inspection Affidavit.
- The inclusion of the Community Aesthetics Evaluation concept. While not subject to a permit, plan check or design review, the Community Aesthetics Evaluation may be performed to ensure the aesthetic standards of the community and irrigation efficiency intent is maintained.

Refer to the MWELO 2015 Revision Fact Sheet for more information at:
http://www.water.ca.gov/wateruseefficiency/landscapeordinance/docs/MWELO%202015%20Revision%20Fact%20Sheet.pdf