ORDINANCE #JPA 05-07

AN ORDINANCE OF THE MARCH JOINT POWERS AUTHORITY ADDING SECTION 9.08.250 TO THE MARCH JPA DEVELOPMENT CODE ESTABLISHING A LANDSCAPE WATER CONSERVATION ORDINANCE

WHEREAS, on June 18, 1997, the March Joint Powers Authority ("March JPA") adopted Ordinance #JPA 97-01, adopting the March Joint Powers Development Code ("Development Code"); and

WHEREAS, the Development Code establishes the development requirements for projects within the March JPA, inclusive of landscape requirements for new and substantially altered projects within the JPA; and

WHEREAS, the March Joint Powers Authority General Plan establishes policies for water conservation, including Resource Management Element policies 1.4 and 1.5, which promote use of efficient irrigation systems, use of reclaimed irrigation water, and use of low and moderate water use plants; and

WHEREAS, the policies of the General Plan have not yet been implemented through the adoption of an Ordinance to promote these desirable objectives for development within the March JPA; and

WHEREAS, the March Joint Powers Commission believes that it is in the best interest of the March JPA to adopt a Landscape Water Conservation Ordinance for development within the March JPA, to assure efficient use of landscape irrigation while assuring that the landscaping within March JPA will be of a high-end nature with large trees, attractive shrubs, accent plants and appropriate ground covers used to establish a desirable and attractive character within the development; and

WHEREAS, all of the procedures of the California Environmental Quality Act have been met with respect to the adoption of the Landscape Water Conservation Ordinance, as the Ordinance qualifies as Class 4 and Class 7 Categorical exemption; and

WHEREAS, on July 20, 2005, the March JPA introduced this Ordinance through a first reading of this Ordinance.

NOW THEREFORE, THE BOARD OF DIRECTORS OF THE MARCH JOINT POWERS AUTHORITY, DOES ORDAIN AS FOLLOWS:

SECTION 1. Based on the entire record before the March JPA and all written and oral evidence presented to it, the March JPA finds that this Ordinance promotes the public health, safety and welfare of the community because the effective and efficient use of irrigation water benefits all residents within the area surrounding the March JPA.

SECTION 2. The March JPA hereby incorporates by reference the Recitals set forth herein and adopts those recitals as its own in this Ordinance. Further, the March JPA finds

and determines that the proposed amendment to the March JPA Development Code is consistent with the goals and policies of the General Plan and March Business Center Specific Plan because the Ordinance implements specific water conservation objectives identified within the March JPA General Plan and the March Business Center Specific Plan.

SECTION 3. Section 9.08.250 of the March JPA Development Code is amended to read as follows (**New Text**):

Section 9.08.250 Water-Efficient Landscape Requirements

A. **Purpose and Intent**

It is the intent of the Joint Powers Commission in adopting this article:

1. **To promote water-efficient landscaping, water use management and water conservation through the use of water-efficient landscaping, wise use of turf areas and appropriate use of irrigation technology and management;**

2. **To reduce landscape water requirements without a decline in landscape quality or quantity;**

3. **To retain flexibility and encourage creativity through appropriate design;**

4. **To assure the attainment of water-efficient landscape goals by requiring that landscape not exceed appropriate evapotranspiration (ETo) rates; and**

5. **To achieve water conservation by raising the public awareness of the need to conserve water through education and motivation to embrace an effective water management program.**

B. Applicability

1. **Water-efficient landscape requirements contained in this article shall be applicable to all plot plans, conditional use permits, use permits, common areas included within subdivisions, requests for substantial conformance, and any other permit when the Planning Managers deems it necessary. These requirements shall not be applicable to landscaping for individual single-family dwellings or areas remaining in natural vegetation where no irrigation is proposed.**

C. Plant And Irrigation Requirements

1. **Plant Requirements**

   a. **The "Riverside County Guide to Trees, Shrubs and Groundcover" is hereby incorporated by reference as a guide. The plant list contained in the "Riverside County Guide to Trees, Shrubs and Groundcover" provides a classification of crop coefficiency categories of 1, 2, 3, 4 and 5 for each plant. Plants with crop**

coefficiency categories of 1 and 2 are plants having low water use requirements; plants with crop coefficiency categories of 3 and 4 have medium water use requirements; and plants with a crop coefficiency category of 5 have high water use requirements. Plants with crop coefficiency categories of 2 and 4 are transitions. The plant list is provided to assist the project applicant in choosing and grouping plant species with similar water demands to facilitate efficient irrigation. In order to incorporate plant species other than those listed, the project applicant shall provide the Planning Manager with information indicating the water requirements of the species. This information shall include a description of the plant, including but not limited to, its water requirements, field data, and a comparison of the plant to a similar species included in the plant list. The selection of low water use or drought tolerant plant species is encouraged.

b. Plant types shall be grouped together in regards to their water, soil, sun and shade requirement and in relationship to the buildings. Plants with different water needs should be irrigated separately. Plants with the following crop coefficiency categories shall be grouped accordingly: Crop coefficiency categories 1 and 2, 2 and 3, 3 and 4, and 4 and 5. Deviation from these groupings shall not be permitted.

c. Trees for shade shall be provided for residential, commercial, and industrial buildings, parking lots and open space areas. These trees can be deciduous or evergreen and are to be incorporated to provide natural cooling opportunities for the purpose of energy and water conservation. Trees not listed in the "Riverside County Guide to Trees, Shrubs and Groundcover" or the March Business Center Design Guidelines may be utilized subject to the approval of the Planning Manager and provided the information required pursuant to Section 9.08.250 C.1.a is submitted.

d. Soil tests on all projects are recommended for appropriate specification of soil amendments, and to facilitate selection of water-efficient plant species suitable for the site. Soil amendments such as compost shall be provided to improve waterholding capacity of soil, where soil conditions warrant. Where appropriate, a minimum of two inches of mulch shall be added to the soil surface after planting.

2. Irrigation Requirements

a. Landscaped areas shall be provided with automatically controlled irrigation timers, unless the use of the property would otherwise prohibit use of a timer. Such timers shall utilize rain shut off devices. The planting areas shall be grouped in relation to moisture control zones based on similarity of water requirements (i.e., turf separate from shrub and groundcover; full sun exposure areas separate from shade areas; top of slope separate from toe of the slope). Additional water conservation technology may be required, where necessary, at the discretion of the Planning Manager.

b. Water systems for common open space areas shall be capable of utilizing non-potable water, if approved facilities are made available by the water purveyor. Provisions for the conversion to a non-potable water system shall be provided within the landscape plan. Water systems designed to utilize non-potable water shall be designed to meet all applicable standards of the California Regional Water Quality Control Board and the Riverside County Health Department. If an irrigation system utilizes potable water, landscaping within the project may incorporate up to 80 percent of its reference evapotranspiration. Landscape irrigation systems utilizing non-potable water may incorporate up to 100 percent of its reference evapotranspiration.

c. Separate valves shall be provided for separate water use planting areas, so that plants with similar water needs are irrigated by the same irrigation valve. Drip irrigation techniques are encouraged where appropriate (i.e., shrubs, massing in mulched areas) in instances where spray irrigation is not necessary.

D. IMPLEMENTATION

1. In addition to the provisions contained in this article, the project applicant shall comply with all the provisions of Section 9.08 and 9.11 of this ordinance, including, but not limited to, landscaping, screening and parking requirements. All landscaping and irrigation plans submitted shall comply with the following requirements:

   a. Landscaping plans shall be prepared using the Water Budget Formula contained in Addendum 1 of the "Riverside County Guide to Trees, Shrubs and Groundcovers." In addition, landscaping plans shall provide a water budget which includes estimated annual water use (in gallons/acre feet) and the area (in square feet/acres) to be irrigated; precipitation rates for each valve circuit; and a monthly irrigation schedule for the first year after all plants and turf are planted and the following year. Separate valves shall be provided for separate water-use planting areas, so that plant materials with similar water needs are irrigated by the same irrigation valve.

   b. A watering schedule which incorporates the specific water needs of the plants and turf throughout the calendar year, including water needs both before and after the plants and turf have been established, shall be included with the irrigation plans. The watering schedule shall take into account the particular characteristics of the soil; shall be appropriately cycled to prevent irrigation from running off the landscaped area; shall be continuously available on site to those responsible for the landscape maintenance; and shall contain specifics as to optimum run time and frequency of watering, and irrigation hours per day.

   c. Landscape areas may incorporate limited use of turf grass as follows: 1) cool season turf grass (crop coefficiency categories of 4 or more) shall not exceed 25 percent of the total landscape design; or 2) warm season turf grass (crop coefficiency categories of 3) which shall not exceed 30 percent of the total landscape design.

2. **Compliance:**

   a. **The applicant's landscape architect or the party responsible for preparing the landscaping and irrigation plans shall provide a compliance letter to the Planning Department stating that the landscape and the irrigation system have been installed in compliance with the approved landscaping and irrigation plans. The compliance letter shall be submitted in accordance with the project conditions of approval prior to final inspection of the structure and issuance of the certificate of occupancy.**

SECTION 4. The Chairperson shall sign this Ordinance and the Secretary shall attest thereto and shall within fifteen (15) days of its adoption cause it, or a summary of it, to be published in a newspaper published and circulated in the March JPA's territory, and thereupon and thereafter this Ordinance shall take effect and be in force according to law.

SECTION 5. This Ordinance shall take effect and be in force thirty (30) days after its passage.

INTRODUCED this 20th day of July 2005.

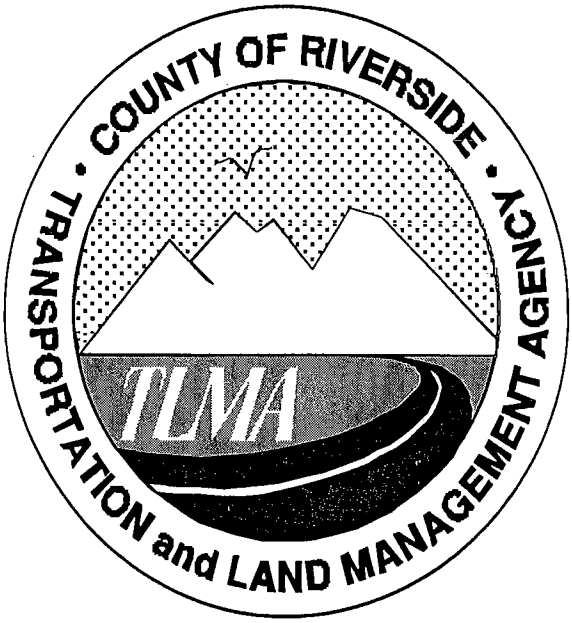
Daryl R. Busch, Chairman
March Joint Powers Commission

ATTEST:

Carey L. Allen, Secretary
March Joint Powers Commission

RIVERSIDE COUNTY

WATER BUDGET FORMULA



LAST REVISED JANUARY 2001

Addendum No.1
Riverside County
Guide to Trees, Shrubs, and Ground Covers

DEFINITIONS

Evapotranspiration - a combined measurement of surface evaporation and plant transpiration used as a bench mark of water use. It is standardized by the amount of water used by a high water use type of turfgrass. It is symbolized by "ET_0".

Plant Coefficient - a comparison of the evapotranspiration of a particular plant species to standard ET_0, as expressed as a percentage of standard ET_0.
unit: unitless - theoretical range 0.00 to 1.2.

Irrigation System Distribution Efficiency - a measurement of the amount of water that is available for plant use expressed as a percentage of the amount of water that goes through the irrigation water meter and/or backflow device.
unit: unitless - theoretical range 0.00 to 1.00

Irrigation System Operation Efficiency - a measurement to the minimum amount of water required by the irrigation system to maintain acceptable plant health expressed as a percentage of the amount of water that goes through the irrigation water meter and/or backflow device.
unit: unitless - theoretical range 0.00 to 1.00

Irrigation Efficiency - combined measurement of the (Irrigation System Efficiency) times the (Operation Efficiency).
unit: unitless - theoretical range 0.00 to 1.00

Plant Water Demand - a minimum amount of water established per application of the water use formula for one hydrozone, for one year.

Hydrozone - a planting area with plants of similar water consumption.

cu.ft. - cubic feet, unit volume of water.

in/year - inches per year, unit volume of the rate of evapotranspiration.

Addendum No.1
Riverside County
Guide to Trees, Shrubs, and Ground Covers

PROJECTED LANDSCAPE IRRIGATION WATER USE PROCESS

Process Step Number	Formula
Step # 1	Obtain the evapotranspiration value for the project location from Table No.1 (inches/year)
Step #2	Identify the boundaries of planting areas with similar water requirements (hydrozones) and measure their area (sq.ft.)
Step #3	Obtain the plant coefficient for each hydrozone from Table No.2 -Riverside County Plant List.
Step #4	Obtain the irrigation system distribution efficiency percentage from Table No. 3
Step #5	Obtain irrigation system operation efficiency percentage from Table No.4
Step #6	Calculate the yearly plant water demand, in inches (Step #1 x Step #3), result in./year.
Step #7	Calculate yearly plant water demand by volume (0.083 x Step 2 x Step #6), result in cu.ft./year.
Step #8	Calculate irrigation efficiency (Step #4/Step #5), unitless.
Step #9	Calculate hydrozone water demand (Step #7 / Step #8), result in cu.ft./year
Step #10	Calculate the allowable project water demand (* 0.083 x ** 0.8 x Step #1 x Total sq.ft.) results in cu.ft./year
Step #11	Compare the allowable project water demand from Step #10, to the total of all hydrozone water demands. If the total projected water demand is higher than 80% of total allowable project water demand, than either select plants with less water demand or utilize more efficient irrigation equipment, or both.

* 0.083 is a conversion factor to convert inches to feet (1 /12 = 0.083).
** 0.8 is a multiplier to obtain 80% of the evapotranspiration value.

Addendum No.1
Riverside County
Guide to Trees, Shrubs, and Ground Covers

PROJECTED LANDSCAPE IRRIGATION WATER USE

Hydrozone Number	Process Step Number	1	2	3	4
Evapotranspiration Rate (in./yr.) (Table No.1)	(1)				
Area of Hydrozone (sq.ft.)	(2)				
Plant Coefficient (Table No.2)	(3)				
Irrigation system Distribution Efficiency (Table No. 3)	(4)				
Proposed Irrigation Operation Efficiency (Table No. 4)	(5)				
Yearly Plant Water Demand (Step #1 x Step # 3) result in (in./year)	(6)				
Total Area Water Demand (0.083 x item #6 x item #2) result in (cu.ft.)	(7)				
Irrigation Efficiency (Step #4 x Step #5)	(8)				
Hydrozone Water Demand (cu.ft.) (Item #7 / item #8) result in (cu.ft.)	(9)				
_____ cu.ft. Per Year	Allowable Project Demand (10) (0.083 x 0.8 x Step #1 x the total of all Step #2's)				
_____ cu.ft. Year	Total of all areas water demands.				

Addendum No.1
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TABLE NO. 1
REFERENCE EVAPOTRANSPIRATION
(ET_0)

CITY	ANNUAL ET_0
Beaumont	55.0"
Blythe	92.9"
Coachella	88.1"
Desert Center	90.0"
Elsinore	55.0"
Indio	87.6"
Palm Desert	75.1"
Palm Springs	71.1"
Riverside	56.6"

Addendum No.1
Riverside County
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TABLE NO. 2

KC (Plant Water Use Coefficient) Conversion Chart for use with Projected Landscape Irrigation Water Use Formula		
*** Water Use Categories**	**KC Ranges**	**** Typical KC :**
* Category 1	0 to 0.25	0.15
* Category 2	0.25 to 0.35`	0.30
* Category 3	0.40 to 0.60	0.50
* Category 4	0.60 to 0.80	0.70
* Category 5	0.80 or greater	0.80

* In accordance with Riverside County Ordinance No. 348.3446, Section 19.302.a.1., plants with crop coefficiency categories of 1 and 2 are plants with low water use requirements; plants with crop coefficiency categories of 3 and 4 are plants with medium water use requirements; and plants with a crop coefficiency category of 5 are plants with high water use requirements.

** Typical KC may be used in formula; however, for any plant material, if acceptable scientific data is presented to the County that clearly shows that a different KC should be applied to that plant material, that KC factor may be used in the formula.

Table prepared on July 27, 1993

TABLE NO. 3

TYPICAL IRRIGATION SYSTEM DISTRIBUTION EFFICIENCY FOR VARIOUS TYPES OF IRRIGATION
Insert 0.7 @ Step #4 in case of using spray heads
Insert 0.85 @ Step #4 in case of using bubbler heads
Insert 0.85 @ Step #4 in case of using rotor irrigation heads
Insert 0.9 @ Step #4 in case of using drip irrigation system

TABLE NO. 4

IRRIGATION SYSTEM OPERATION EFFICIENCY
Insert 0.85 @ (5) if the system has ET_0 controls, such as moisture sensor, central controller.
Insert 0.65 @ (5) if the system does not have soil or weather driven controls.

The Riverside County Guide to Trees, Shrubs and Ground Covers

April 1989

Table of Contents

INTRODUCTION

The purpose of this Manual is to serve as a complementary guide to Ordinance 348, Section 18.12, Parking and Landscaping.

This guide is designed to assist landscape architects, contractors, planners and the public in the proper selection of plant materials for parking lot shading, screening, and landscaping in general.