

**LANDSCAPE REGULATIONS  
FOR THE  
IMPLEMENTATION OF THE  
CITY OF RANCHO PALOS VERDES  
WATER EFFICIENT LANDSCAPE ORDINANCE**

# TABLE OF CONTENTS

<b><u>Section</u></b>	<b><u>Page No.</u></b>
<b>1. Purpose and Applicability</b> .....	1
1.1 Purpose.....	1
1.2 Applicability .....	1
<b>2. Submittal Requirements for New Landscape Area Installations or Altered Landscape Area Projects</b> .....	2
2.1 Standard Condition of Approval on a Discretionary Project.....	2
2.2 Compliance with Landscape Documentation Package.....	2
2.3 Elements of the Landscape Documentation Package .....	3
2.4 Water Efficient Landscape Calculations and Alternatives .....	4
2.5 Soil Management Report .....	5
2.6 Landscape Design Plan .....	6
2.7 Irrigation Design Plan.....	9
2.8 Grading Design Plan.....	13
2.9 Certification of Completion .....	14
2.10 Irrigation Scheduling .....	15
2.11 Landscape and Irrigation Maintenance.....	16
<b>3. Provisions for Existing Landscapes – Irrigation Audits</b> .....	17
<b>4. Irrigation Efficiency</b> .....	17
<b>5. Recycled Water</b> .....	17
<b>6. Storm Water Management</b> .....	18
<b>7. Public Education</b> .....	18
<b>8. Water Waste Prevention</b> .....	18
<b>9. Effective Precipitation</b> .....	19
 <b>Appendices</b>	
Appendix A – Water Efficient Landscape Worksheet.....	20
Appendix B – Sample Calculations for the Water Efficient Landscape Worksheet .....	23
Appendix C – Reference Evapotranspiration (ET <sub>o</sub> ) Table.....	26
Appendix D – Certificate of Completion.....	34
Appendix E – Definitions .....	36

## 1. Purpose and Applicability

### 1.1 Purpose

- (a) The primary purpose of these **Landscape Regulations** is to provide procedural and design guidance for **Project Applicants** proposing installation of **Landscaped Areas, Altered Landscaped Areas** or **Landscaped Area** irrigation systems that are subject to the **Water Efficient Landscape Ordinance** as codified in Chapter 15.34 of Title 15 of the Municipal Code. The **Landscape Regulations** are also intended for use and reference by **City** staff in reviewing and approving designs and verifying compliance with the **Water Efficient Landscape Ordinance**. The general purpose of the **Water Efficient Landscape Ordinance** 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 implemented 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:
  - (1) National Pollutant Discharge Elimination Permit for the Municipal Separate Storm Sewer System;
  - (2) Rancho Palos Verdes Fire Code;
  - (3) Rancho Palos Verdes Zoning Code;
  - (4) Rancho Palos Verdes Building Code;
  - (5) Specific plans, general plan or other similar land use and planning documents;
  - (6) Conditions of approval for a specific project; and
  - (7) Rancho Palos Verdes Landslide Moratorium Ordinance.

### 1.2 Applicability

- (a) The **Water Efficient Landscape Ordinance** and these **Landscape Regulations** apply to all of the following **Landscape Projects**:
  - (1) All new **Landscaped Areas** and **Altered Landscaped Areas** for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet.

- (2) All new Landscaped Areas and Altered Landscaped Areas which are Developer-Installed in Residential Projects (including a single-family project) with a landscape area equal to or greater than 2,500 square feet.
  - (3) All new Landscaped Areas which are Homeowner-Provided and/or homeowner-hired in residential projects (including a single-family project) with a total project landscape area equal to or greater than 5,000 square feet.
  - (4) Sections 3 and 8 of these Landscape Regulations apply to existing landscapes, including existing cemeteries, that were installed before January 1, 2010 and are over one acre in size.
  - (5) Sections 2.3, 2.10, and 3 apply to new and rehabilitated cemeteries.
- (b) The **Water Efficient Landscape Ordinance** and these **Landscape Regulations** do not apply to:
- (1) Landscape that is part of a property listed on any applicable local, state or federal register of historic places; or
  - (2) Plant collections as part of botanical gardens and arboretums open to the public.
  - (3) Ecological restoration projects that do not require a permanent irrigation system.

## **2. Submittal Requirements for New Landscape Area Installations or Altered Landscape Area Projects**

### **2.1 Standard Condition of Approval on a Discretionary Project.**

**Landscape Projects** that are subject to the **Water Efficient Landscape Ordinance** typically involve discretionary approval such that standard or special conditions of approval are imposed on the project. A standard condition of approval may be imposed that reads generally as follows:

“Landscaping for the project shall be designed, implemented and maintained to comply with the **City’s Water Efficient Landscape Ordinance** and with the **Landscape Regulations.**”

### **2.2 Compliance with Landscape Documentation Package.**

- (a) Prior to construction, the **City** shall:
  - (1) Provide the **Project Applicant** with the **Water Efficient Landscape Ordinance, Landscape Regulations**, and procedures for **Permits**;

- (2) Review the **Landscape Documentation Package** submitted by the **Project Applicant**;
- (3) Approve or deny the **Landscape Documentation Package**;
- (4) Issue a **Permit** to the **Project Applicant**; and
- (5) Upon approval of the **Landscape Documentation Package**, submit a copy of the **Water Efficient Landscape Worksheet** to West Basin Municipal Water District.

(b) Prior to construction, the **Project Applicant** shall:

- (1) Submit a **Landscape Documentation Package** to the **City**.

(c) Upon approval of the **Landscape Documentation Package** by the **City**, the **Project Applicant** shall:

(1) Receive a **Permit** and record the date of the **Permit** in the **Certificate of Completion**;

(2) Submit a copy of the approved **Landscape Documentation Package** along with the record drawings, and any other information to the **Property Owner** or his/her designee; and

(3) Submit a copy of the **Water Efficient Landscape Worksheet** to the West Basin Municipal Water District.

### **2.3 Elements of the Landscape Documentation Package**

(a) Prior to issuance of a **Permit** for any project that involves **Landscaped Areas** or **Altered Landscaped Areas**, the **Project Applicant** must submit a **Landscape Documentation Package** for review and approval by the **Department**. The **Landscape Documentation Package** shall include all of the documentation set forth in Section 15.34.040, all of the following information either on plan sheets or supplemental pages or on a form provided by the **City**, and the full payment of a fee as prescribed by the Rancho Palos Verdes Fees and Charges Schedule:

(1) Project Information, including, but not limited to, all of the following:

- (a) Date;
- (b) Project Applicant name;
- (c) Project address, including parcel and/or lot number(s);
- (d) Total **Landscaped Area/Altered Landscaped Area** (square feet) as applicable;

- (e) Project type (e.g., new, altered, public, private, homeowner-installed, irrigation system);
  - (f) Water supply type (e.g., potable, well);
  - (g) Checklist of all documents in the **Landscape Documentation Package**;
  - (h) Project contacts, including contact information for the **Project Applicant** and **Property Owner**;
  - (i) **Project Applicant**'s signature and date with the statement: "I agree to comply with the requirements of the **Water Efficient Landscape Ordinance** and **Landscape Regulations** and hereby submit a complete **Landscape Documentation Package**."
  - (j) Any other information the **City** deems relevant for determining whether the project complies with the **Water Efficient Landscape Ordinance** and these **Landscape Regulations**.
- (2) Landscape design plan as described in Section 15.34.050.
  - (3) Irrigation design plan as described in Section 15.34.060.
  - (4) Grading design plan as described in Section 15.34.070.
  - (5) A soil management report as described in Section 15.34.080.
  - (6) **Water Efficient Landscape Worksheet** as described in Section 15.34.090 and attached hereto as Appendix A.

#### 2.4 Water Efficient Landscape Calculations and Alternatives

- (a) The **Project Applicant** shall complete the **Water Efficient Landscape Worksheet** attached in Appendix A which contains two sections:
  - (1) A **Hydrozone** information table for the project, found in Appendix A, Section A; and
  - (2) A water budget calculation for the project, found in Appendix A, Section B, which includes the Maximum Applied Water Allowance (MAWA) and the Estimated Total Water Use (ETWU).
- (b) For the calculation of the **Maximum Applied Water Allowance** and **Estimated Total Water Use**, a **Project Applicant** shall use the **ETo** values for the City of Long Beach from the Reference Evapotranspiration Table in Appendix C, which are:

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
Long Beach	1.8	2.1	3.3	3.9	4.5	4.3	5.3	4.7	3.7	2.8	1.8	1.5	39.7

- (c) The water budget calculations shall adhere to the following requirements:
- (1) The **Plant Factor** shall be from **WUCOLS**. The **Plant Factor** ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
  - (2) All water features shall be included in the high water use **Hydrozone** and temporarily irrigated areas shall be included in the low water use **Hydrozone**.
  - (3) All **Special Landscaped Areas** shall be identified and their water use calculated as described in these **Landscape Regulations**.
  - (4) **ET adjustment factor** (“ETAF”) for **Special Landscape Areas** shall not exceed 1.0.

- (d) The **Maximum Applied Water Allowance** shall be calculated using the equation:

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

and as further described in Appendix B. The example calculation in Appendix B is a hypothetical example to demonstrate proper use of the equation and does not represent an existing and/or planned landscaped project.

- (e) The **Estimated Total Water Use** shall be calculated using the equation set forth in Appendix B. The sum of the **Estimated Total Water Use** calculated for all **Hydrozones** shall not exceed MAWA. The example calculation in Appendix B is hypothetical example to demonstrate proper use of the equation and does not represent an existing and/or planned **Landscape Project**.

## 2.5 Soil Management Report

- (a) 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.
    - (a) Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.

- (b) The soil analysis may include, but is not limited to:
  - 1. **Soil Texture**;
  - 2. **Infiltration Rate** determined by laboratory test or **Soil Texture** infiltration rate table;
  - 3. pH;
  - 4. Total soluble salts;
  - 5. Sodium;
  - 6. Percent organic matter; and
  - 7. Recommendations.
  
- (2) The **Project Applicant** or his/ her designee shall comply with one of the following:
  - (a) If significant mass grading is not planned, the soil analysis report shall be submitted to the **Department** as part of the **Landscape Documentation Package**; or
  - (b) If significant mass grading is planned, the soil analysis report shall be submitted to the **Department** as part of the **Certification of Completion**.
  
- (3) 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.
  
- (4) The **Project Applicant** or his/ her designee shall submit documentation verifying implementation of soil analysis report recommendations to the **Department** with the Certification of Completion.

## 2.6 Landscape Design Plan

- (a) For the efficient use of water, landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan that meets the following design criteria shall be submitted as part of the **Landscape Documentation Package**:
  - (1) Plant Material
    - (a) Any plant may be selected for the **Landscaped Area** or **Altered Landscaped Area** provided the **Estimated Total Water Use** (“ETWU”) does not exceed the **Maximum Applied Water Use**

(“MAWA”). To encourage the efficient use of water, the following is highly recommended:

1. Protection and preservation of native species and natural vegetation;
  2. Selection of water-conserving plant species and **Turf** species;
  3. Selection of plants based on disease and pest resistance;
  4. Selection of trees based on applicable **City** tree ordinances or tree shading guidelines; and
  5. 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 2.6(a)(2)(d) of these Landscape Regulations.
- (c) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:
1. Use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;
  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
  3. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.
- (d) Turf is not allowed on slopes greater than 25% 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) A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources

Code Section 4291(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.

- (f) The use of invasive and/or noxious plant species is strongly discouraged.
- (g) The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

(2) Water Features

- (a) Recirculating water systems shall be used for water features.
- (b) Where available, recycled water shall be used as a source for decorative water features.
- (c) Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.
- (d) Pool and spa covers are highly recommended.

(3) **Mulch** and Amendments

- (a) A minimum two inch (2") layer of **Mulch** shall be applied on all exposed soil surfaces of planting areas except in **Turf** areas, creeping or rooting groundcovers, or direct seeding applications where **Mulch** is contraindicated.
- (b) Stabilizing **Mulching** products shall be used on slopes.
- (c) The **Mulching** portion of the seed/mulch slurry in hydro-seeded applications shall meet the **Mulching** requirement.
- (d) Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 2.4).

(b) The landscape design plan, at a minimum, shall:

- (1) Delineate and label each **Hydrozone** by number, letter, or other method;
- (2) 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;
- (3) Identify recreational areas;

- (4) Identify areas permanently and solely dedicated to edible plants;
- (5) Identify areas irrigated with recycled water;
- (6) Identify type of **Mulch** and application depth;
- (7) Identify soil amendments, type, and quantity;
- (8) Identify type and surface area of water features;
- (9) Identify **Hardscapes (Pervious and Non-Pervious)**;
- (10) Identify location and installation details of applicable storm water best management practices that encourage on-site retention and infiltration of storm water. Storm water best management practices are encouraged in the landscape design plan and examples include, but are not limited to:
  - (a) Infiltration beds, swales, and basins that allow water to collect and soak into the ground;
  - (b) Constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and
  - (c) **Pervious** or porous surfaces (e.g., permeable pavers or blocks, **Pervious** or porous concrete, etc.) that minimize **Runoff**.
- (11) Identify any applicable rain harvesting or catchment technologies (i.e, rain gardens, cisterns, etc.);
- (12) Contain the following statement: “I have complied with the criteria of the **Water Efficient Landscape Ordinance** and **Landscape Regulations** and applied them for the efficient use of water in the landscape design plan;” and
- (13) Bear the signature of a licensed **Landscape Architect**, licensed **Landscape Contractor**, or any other person authorized to design a landscape.

## 2.7 Irrigation Design Plan

- (a) 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 part of the **Landscape Documentation Package**.
  - (1) System

- (a) Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.
- (b) **Automatic Irrigation Controllers** utilizing either evapotranspiration or **Soil Moisture Sensor Data** shall be required for irrigation scheduling in all irrigation systems.
- (c) The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
  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.
- (d) **Sensors** (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.
- (e) Manual shut-off **Valves** (such as a gate **Valve**, ball **Valve**, or butterfly **Valve**) shall be required as close as possible to the point of connection of the water supply to minimize water loss in case of an emergency (such as a **Main Line** break) or routine repair.
- (f) **Backflow prevention devices** shall be required to protect the water supply from contamination by the irrigation system.
- (g) High flow sensors that detect and report high flow conditions created by system damage or malfunction are recommended.
- (h) 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.

- (i) Relevant information from the soil management plan, such as soil type and **Infiltration Rate**, shall be utilized when designing irrigation systems.
- (j) The design of the irrigation system shall conform to the **Hydrozones** of the landscape design plan.
- (k) The irrigation system must be designed and installed to meet, at a minimum, the **Irrigation Efficiency** criteria as described in Section 2.3, regarding the **Maximum Applied Water Allowance**.
- (l) It is highly recommended that the **Project Applicant** inquire with West Basin Municipal Water District about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.
- (m) In **Mulched** planting areas, the use of **Low Volume Irrigation** is required to maximize water infiltration into the root zone.
- (n) **Sprinkler Heads** and other emission devices shall have matched **Precipitation Rates**, unless otherwise directed by the manufacturer's recommendations.
- (o) Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
- (p) **Swing joints** or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.
- (q) **Check Valves** or **Anti-Drain Valves** are required for all irrigation systems.
- (r) Narrow or irregularly shaped areas, including **Turf**, less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or a **Low Volume Irrigation** system.
- (s) 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 **Landscaped 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 2.6(a)(1)(h). Prevention of **Overspray** and **Runoff** must be confirmed during an **Irrigation Audit**.
- (f) Slopes greater than 25% shall not be irrigated with an irrigation system with a **Precipitation Rate** exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer 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**.
- (d) Individual **Hydrozones** that mix plants of moderate and low water use or moderate and high water use may be allowed if:
  1. The **Plant Factor** calculation is based on the proportions of the respective plant water uses and their respective **Plant Factors**; or
  2. 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**. This **Valve** number shall be used in the **Hydrozone** Information Table (Appendix A, Section A). This table can also assist with the **Irrigation Audit** and programming the controller.

- (b) The irrigation design plan, at a minimum, shall contain:
  - (1) The location and size of separate water meters for landscape;
  - (2) 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**;
  - (3) **Static Water Pressure** at the point of connection to the public water supply;
  - (4) **Flow Rate** (gallons per minute), application rate (inches per hour), and design **Operating Pressure** (pressure per square inch) for each **Station**;
  - (5) Recycled water irrigation systems as specified in Section 5 below;
  - (6) The following statement: “I have complied with the criteria of the **Water Efficient Landscape Ordinance** and the **Landscape Regulations** and applied them accordingly for the efficient use of water in the irrigation design plan”; and
  - (7) The signature of a licensed Landscape Architect, Certified Irrigation Designer, licensed Landscaped Contractor, or any other person authorized to design an irrigation system.

## 2.8 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. The **Project Applicant** shall submit a grading plan as part of the **Landscape Documentation Package**. A comprehensive grading plan prepared by a civil engineer for the project for other **City** permits, would satisfy this requirement.
- (b) The **Project Applicant** shall submit a landscape grading plan that indicates finished configurations and elevations of the **Landscaped 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 **Landscaped Areas**.
- (d) The Grading Design Plan shall contain the following statement: “I have complied with the criteria of the **Water Efficient Landscape Ordinance** and **Landscape Regulations** and applied them accordingly for the efficient use of water in the grading design plan.” This statement shall bear the signature of a licensed professional, as authorized by law.

## 2.9 Certification of Completion

- (a) A **Certificate of Completion** shall be in the form attached as Appendix D and shall include the following elements:
  - (1) A project information sheet that contains the following:
    - (a) Date;
    - (b) Project name;
    - (c) **Project Applicant** name, telephone and mailing address;
    - (d) Project address and location; and
    - (e) **Property Owner** name, telephone and mailing address.
  - (2) Certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed **Landscape Contractor** that the **Landscape Project** has been installed per the approved **Landscape Documentation Package**.
    - (a) Where there have been significant changes made in the field during construction, these **Record Drawings** or **As-Builts** shall be included with the certification.
  - (3) Irrigation scheduling parameters used to set the controller (see Section 2.9).

- (4) Landscape and irrigation maintenance schedule (see Section 2.10).
  - (5) Irrigation audit report (see Section 3).
  - (6) Soil management report, if not submitted with **Landscape Documentation Package**, and documentation verifying implementation of soil report recommendations (see Section 2.4).
- (b) The **Project Applicant** shall:
- (1) Submit the signed **Certificate of Completion** to the City for review; and
  - (2) Ensure that copies of the approved **Certificate of Completion** are submitted to the West Basin Municipal Water District and **Property Owner** or his or her designee.
- (c) The **City** shall:
- (1) Receive the signed **Certificate of Completion** from the **Project Applicant**; and
  - (2) Approve or deny the **Certificate of Completion**. If the **Certificate of Completion** is denied, the **City** shall provide information to the **Project Applicant** regarding reapplication, appeal, or other assistance.

## 2.10 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 **Smart Irrigation Controllers**.
  - (2) Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. Operation of the irrigation system outside the allowable **Watering Window** is allowed for auditing and system maintenance.
  - (3) For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, **Flow Rate**, and current **Reference Evapotranspiration**, so that **Applied Water** meets the **Estimated Total Water Use**. Total annual **Applied Water** shall be less than or equal to **Maximum Applied Water Allowance** (“MAWA”) Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (i.e., CIMIS) or **Soil Moisture Sensor** data.

- (4) Parameters used to set the automatic controller shall be developed and submitted for each of the following:
  - (a) The plant establishment period;
  - (b) The **Established Landscape**; and
  - (c) Temporarily irrigated areas.
- (5) Each irrigation schedule shall consider for each **Station** all of the following that apply:
  - (a) Irrigation interval (days between irrigation);
  - (b) Irrigation run times (hours or minutes per irrigation event to avoid **Runoff**);
  - (c) Number of cycle starts required for each irrigation event to avoid **Runoff**;
  - (d) Amount of **Applied Water** scheduled to be applied on a monthly basis;
  - (e) Application rate setting;
  - (f) Root depth setting;
  - (g) Plant type setting;
  - (h) Soil type;
  - (i) Slope factor setting;
  - (j) Shade factor setting; and
  - (k) Irrigation uniformity or efficiency setting.

## 2.11 Landscape and Irrigation Maintenance

- (a) Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the **Certificate of Completion**.
- (b) A regular maintenance schedule shall include, but not be limited to, routine inspection; adjustment and repair of the irrigation system and its components; aerating and dethatching **Turf** areas; replenishing **Mulch**; fertilizing; pruning, weeding in all **Landscape Areas**, and removing any obstruction to emission devices. Operation of the irrigation system outside the allowable **Watering Window** is allowed for auditing and system maintenance.

- (c) Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.
- (d) A **Project Applicant** is encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.

### 3. Provisions for Existing Landscapes – Irrigation Audits

- (a) For new **Landscaped Areas** or **Altered Landscaped Areas** installed after January 1, 2010, the **Project Applicant** shall submit an **Irrigation Audit** report with the **Certificate of Completion** that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting **Overspray** or **Runoff** that causes overland flow, and preparation of an irrigation schedule. The **City** may administer programs that may include, but not be limited to, **Irrigation Water Use Analysis**, **Irrigation Surveys** and/or **Irrigation Audits** for compliance with the **Maximum Applied Water Allowance**.
- (b) For all existing landscapes that were installed before January 1, 2010 and are over one acre in size, the following shall apply:
  - (1) For all landscapes that have a water meter, the **City** shall administer programs that may include, but not be limited to, irrigation water uses analyses, **Irrigation Surveys**, and **Irrigation Audits** to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the **Maximum Applied Water Allowance** for existing landscapes. The **Maximum Applied Water Allowance** for existing landscapes shall be calculated as  $MAWA = (0.8)(ET_0)(LA)(0.62)$ .
  - (2) For all landscapes that do not have a meter, the **City** shall administer programs that may include, but not be limited to, **Irrigation Surveys** and **Irrigation Audits** to evaluate water use and provide recommendations as necessary in order to prevent water waste.
- (c) All **Irrigation Audits** shall be conducted by a certified landscape irrigation auditor.

### 4. Irrigation Efficiency

For the purpose of determining **Maximum Applied Water Allowance**, average **Irrigation Efficiency** is assumed to be 0.71. Irrigation systems shall be designed, maintained and managed to meet or exceed an average landscape **Irrigation Efficiency** of 0.71.

### 5. Recycled Water

- (a) The installation of **Recycled Water** irrigation systems shall allow for the current and future use of **Recycled Water**, unless a written exemption has been granted as described herein.

- (b) Irrigation systems and decorative water features shall use **Recycled Water** unless the West Basin Municipal Water District provides a written exemption stating that recycled water meeting all public health code and standards is not available and will not be available for the foreseeable future.
- (c) All **Recycled Water** irrigation systems shall be designed and operated in accordance with all applicable local and state laws.
- (d) Landscapes using **Recycled Water** are considered **Special Landscape Areas**. The **ET Adjustment Factor** for **Special Landscape Areas** shall not exceed 1.0.

## 6. Storm Water Management

- (a) Storm water management practices minimize **Runoff** and increase infiltration which recharges groundwater and improves water quality. Implementing storm water best management practices into the landscape and grading design plans to minimize **Runoff** and to increase on-site retention and infiltration are encouraged.
- (b) **Project Applicants** shall refer to the **City** or Regional Water Quality Control Board for information on any applicable storm water ordinances and storm water management plans.
- (c) Rain gardens, cisterns, and other landscape features and practices that increase rainwater capture and create opportunities for infiltration and/or onsite storage are recommended.

## 7. Public Education

(a) 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 City. The Director shall cooperate with the West Basin Municipal Water District to provide information to owners of new, single-family residential homes regarding the design, installation, management and maintenance of water efficient landscapes.

(b) All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in the Water Efficient Landscape Ordinance and Landscape Regulations. 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. Information shall be provided about designing, installing, managing and maintaining water efficient landscapes.

## 8. Water Waste Prevention

The **City** prohibits **Runoff** from leaving the target landscape due to low head drainage, **Overspray**, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots or structures. Restrictions regarding **Overspray** and **Runoff** may be modified if the landscape area is adjacent to permeable surfacing and no **Runoff**

occurs or if the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.

## **9. Effective Precipitation**

The **City** may consider **Effective Precipitation** (25% of annual precipitation) in tracking water use and may use the following equation to calculate **Maximum Applied Water Allowance**:  $MAWA = (ET_o - E_{ppt})(0.62)[(0.7 \times LA) + (0.3 \times SLA)]$ .

## Appendix A – Water Efficient Landscape Worksheet

### WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package.  
Please complete all sections (A and B) of the worksheet.

#### SECTION A. HYDROZONE INFORMATION TABLE

Please complete the hydrozone table(s) for each hydrozone. Use as many tables as necessary to provide the square footage of landscape area per hydrozone.

Hydrozone*	Zone or Valve	Irrigation Method**	Area (Sq. Ft.)	% of Landscape Area
<b>Total</b>			<b>100%</b>	

\* **Hydrozone**  
*HW = High Water Use Plants*  
*MW = Moderate Water Use Plants*  
*LW = Low Water Use Plants*

\*\***Irrigation Method**  
*MS = Micro-spray*  
*S = Spray*  
*R = Rotor*  
*B = Bubbler*  
*D = Drip*  
*O = Other*

SECTION B. WATER BUDGET CALCULATIONS

**Section B1. Maximum Applied Water Allowance (MAWA)**

The project's Maximum Applied Water Allowance shall be calculated using this equation:

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

where:

- MAWA = Maximum Applied Water Allowance (gallons per year)
- ETo = Reference Evapotranspiration from Appendix C (inches per year)
- 0.7 = ET Adjustment Factor (ETAF)
- LA = Landscaped Area includes Special Landscape Area (square feet)
- 0.62 = Conversion factor (to gallons per square foot)
- SLA = Portion of the landscape area identified as Special Landscape Area (square feet)
- 0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 - 0.7 = 0.3)

**Maximum Applied Water Allowance = \_\_\_\_\_ gallons per year**

Show calculations.

**Effective Precipitation (Eppt)**

If considering Effective Precipitation, use 25% of annual precipitation. Use the following equation to calculate Maximum Applied Water Allowance:

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

**Maximum Applied Water Allowance = \_\_\_\_\_ gallons per year**

Show calculations.

**Section B2. Estimated Total Water Use (ETWU)**

The project's Estimated Total Water Use is calculated using the following formula:

$$ETWU = (ETo)(0.62) \left( \frac{PF \times HA}{IE} + SLA \right)$$

where:

- ETWU = Estimated total water use per year (gallons per year)
- ETo = Reference Evapotranspiration (inches per year)
- PF = Plant Factor from WUCOLS (see Definitions)
- HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
- SLA = Special Landscape Area (square feet)
- 0.62 = Conversion Factor (to gallons per square foot)
- IE = Irrigation Efficiency (minimum 0.71)

**Hydrozone Table for Calculating ETWU**

Please complete the hydrozone table(s). Use as many tables as necessary.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)	Area (HA) (square feet)	PF x HA (square feet)
			Sum	
	SLA			

**Estimated Total Water Use = \_\_\_\_\_ gallons**

Show calculations.

## Appendix B – Sample Calculations for the Water Efficient Landscape Worksheet

I. **MAWA:** the Maximum Applied Water Allowance shall be calculated using the equation:

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

The example calculations below are hypothetical to demonstrate proper use of the equations and do not represent an existing and/or planned landscape project. The ETo values used in these calculations are from the Reference Evapotranspiration Table in Appendix C, for planning purposes only. For actual irrigation scheduling, automatic irrigation controllers are required and shall use current reference evapotranspiration data, such as from the California Irrigation Management Information System (CIMIS), other equivalent data, or soil moisture sensor data.

(1) Example MAWA calculation: a hypothetical landscape project in Fresno, CA with an irrigated landscape area of 50,000 square feet without any Special Landscape Area (SLA= 0, no edible plants, recreational areas, or use of recycled water). To calculate MAWA, the annual reference evapotranspiration value for Fresno is 51.1 inches as listed in the Reference Evapotranspiration Table in Appendix C.

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

MAWA = Maximum Applied Water Allowance (gallons per year)

ETo = Reference Evapotranspiration (inches per year)

0.62 = Conversion Factor (to gallons)

0.7 = ET Adjustment Factor (ETAF)

LA = Landscape Area including SLA (square feet)

0.3 = Additional Water Allowance for SLA

SLA = Special Landscape Area (square feet)

$$\begin{aligned} \text{MAWA} &= (51.1 \text{ inches}) (0.62) [(0.7 \times 50,000 \text{ square feet}) + (0.3 \times 0)] \\ &= 1,108,870 \text{ gallons per year} \end{aligned}$$

To convert from gallons per year to hundred-cubic-feet per year:

$$= 1,108,870 / 748 = 1,482 \text{ hundred-cubic-feet per year}$$

(100 cubic feet = 748 gallons)

(2) In this next hypothetical example, the landscape project in Fresno, CA has the same ETo value of 51.1 inches and a total landscape area of 50,000 square feet. Within the 50,000 square foot project, there is now a 2,000 square foot area planted with edible plants. This 2,000 square foot area is considered to be a Special Landscape Area.

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

$$\text{MAWA} = (51.1 \text{ inches}) (0.62) [(0.7 \times 50,000 \text{ square feet}) + (0.3 \times 2,000 \text{ square feet})]$$

$$= 31.68 \times [35,000 + 600] \text{ gallons per year}$$

$$= 31.68 \times 35,600 \text{ gallons per year}$$

$$= 1,127,808 \text{ gallons per year or } 1,508 \text{ hundred-cubic-feet per year}$$

II. **ETWU:** The Estimated Total Water Use shall be calculated using the equation below. The sum of the Estimated Total Water Use calculated for all hydrozones shall not exceed MAWA.

$$ETWU = (ETo)(0.62) \left( \frac{PF \times HA}{IE} + SLA \right)$$

Where:

- ETWU = Estimated Total Water Use per year (gallons)
- ETo = Reference Evapotranspiration (inches)
- PF = Plant Factor from WUCOLS (see Section 491)
- HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
- SLA = Special Landscape Area (square feet)
- 0.62 = Conversion Factor
- IE = Irrigation Efficiency (minimum 0.71)

(1) Example ETWU calculation: landscape area is 50,000 square feet; plant water use type, plant factor, and hydrozone area are shown in the table below. The ETo value is 51.1 inches per year. There are no Special Landscape Areas (recreational area, area permanently and solely dedicated to edible plants, and area irrigated with recycled water) in this example.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)*	Hydrozone Area (HA) (square feet)	PF x HA (square feet)
1	High	0.8	7,000	5,600
2	High	0.7	10,000	7,000
3	Medium	0.5	16,000	8,000
4	Low	0.3	7,000	2,100
5	Low	0.2	10,000	2,000
			Sum	24,700

\*Plant Factor from WUCOLS

$$ETWU = (51.1)(0.62) \left( \frac{24,700}{0.71} + 0 \right)$$

= 1,102,116 gallons per year

Compare ETWU with MAWA: For this example MAWA = (51.1) (0.62) [(0.7 x 50,000) + (0.3 x 0)] = 1,108,870 gallons per year. The ETWU (1,102,116 gallons per year) is less than MAWA (1,108,870 gallons per year). In this example, the water budget complies with the MAWA.

(2) Example ETWU calculation: total landscape area is 50,000 square feet, 2,000 square feet of which is planted with edible plants. The edible plant area is considered a Special Landscape Area (SLA). The reference evapotranspiration value is 51.1 inches per year. The plant type, plant factor, and hydrozone area are shown in the table below.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)*	Hydrozone Area (HA) (square feet)	PF x HA (square feet)
1	High	0.8	7,000	5,600
2	High	0.7	9,000	6,300
3	Medium	0.5	15,000	7,500
4	Low	0.3	7,000	2,100
5	Low	0.2	10,000	2,000
			Sum	23,500
6	SLA	1.0	2,000	2,000

\*Plant Factor from WUCOLS

$$\begin{aligned}
 ETWU &= (51.1)(0.62) \left( \frac{23,500}{0.71} + 2,000 \right) \\
 &= (31.68) (33,099 + 2,000) \\
 &= 1,111,936 \text{ gallons per year}
 \end{aligned}$$

Compare ETWU with MAWA. For this example:

$$\begin{aligned}
 MAWA &= (51.1) (0.62) [(0.7 \times 50,000) + (0.3 \times 2,000)] \\
 &= 31.68 \times [35,000 + 600] \\
 &= 31.68 \times 35,600 \\
 &= 1,127,808 \text{ gallons per year}
 \end{aligned}$$

The ETWU (1,111,936 gallons per year) is less than MAWA (1,127,808 gallons per year). For this example, the water budget complies with the MAWA.

## Appendix C – Reference Evapotranspiration (ET<sub>o</sub>) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET <sub>o</sub>
<b>ALAMEDA</b>													
Fremont	1.5	1.9	3.4	4.7	5.4	6.3	6.7	6.0	4.5	3.4	1.8	1.5	47.0
Livermore	1.2	1.5	2.9	4.4	5.9	6.6	7.4	6.4	5.3	3.2	1.5	0.9	47.2
Oakland	1.5	1.5	2.8	3.9	5.1	5.3	6.0	5.5	4.8	3.1	1.4	0.9	41.8
Oakland Foothills	1.1	1.4	2.7	3.7	5.1	6.4	5.8	4.9	3.6	2.6	1.4	1.0	39.6
Pleasanton	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
Union City	1.4	1.8	3.1	4.2	5.4	5.9	6.4	5.7	4.4	3.1	1.5	1.2	44.2
<b>ALPINE</b>													
Markleeville	0.7	0.9	2.0	3.5	5.0	6.1	7.3	6.4	4.4	2.6	1.2	0.5	40.6
<b>AMADOR</b>													
Jackson	1.2	1.5	2.8	4.4	6.0	7.2	7.9	7.2	5.3	3.2	1.4	0.9	48.9
Shanandoah Valley	1.0	1.7	2.9	4.4	5.6	6.8	7.9	7.1	5.2	3.6	1.7	1.0	48.8
<b>BUTTE</b>													
Chico	1.2	1.8	2.9	4.7	6.1	7.4	8.5	7.3	5.4	3.7	1.7	1.0	51.7
Durham	1.1	1.8	3.2	5.0	6.5	7.4	7.8	6.9	5.3	3.6	1.7	1.0	51.1
Gridley	1.2	1.8	3.0	4.7	6.1	7.7	8.5	7.1	5.4	3.7	1.7	1.0	51.9
Oroville	1.2	1.7	2.8	4.7	6.1	7.6	8.5	7.3	5.3	3.7	1.7	1.0	51.5
<b>CALAVERAS</b>													
San Andreas	1.2	1.5	2.8	4.4	6.0	7.3	7.9	7.0	5.3	3.2	1.4	0.7	48.8
<b>COLUSA</b>													
Colusa	1.0	1.7	3.4	5.0	6.4	7.6	8.3	7.2	5.4	3.8	1.8	1.1	52.8
Williams	1.2	1.7	2.9	4.5	6.1	7.2	8.5	7.3	5.3	3.4	1.6	1.0	50.8
<b>CONTRA COSTA</b>													
Benicia	1.3	1.4	2.7	3.8	4.9	5.0	6.4	5.5	4.4	2.9	1.2	0.7	40.3
Brentwood	1.0	1.5	2.9	4.5	6.1	7.1	7.9	6.7	5.2	3.2	1.4	0.7	48.3
Concord	1.1	1.4	2.4	4.0	5.5	5.9	7.0	6.0	4.8	3.2	1.3	0.7	43.4
Courtland	0.9	1.5	2.9	4.4	6.1	6.9	7.9	6.7	5.3	3.2	1.4	0.7	48.0
Martinez	1.2	1.4	2.4	3.9	5.3	5.6	6.7	5.6	4.7	3.1	1.2	0.7	41.8
Moraga	1.2	1.5	3.4	4.2	5.5	6.1	6.7	5.9	4.6	3.2	1.6	1.0	44.9
Pittsburg	1.0	1.5	2.8	4.1	5.6	6.4	7.4	6.4	5.0	3.2	1.3	0.7	45.4
Walnut Creek	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
<b>DEL NORTE</b>													
Crescent City	0.5	0.9	2.0	3.0	3.7	3.5	4.3	3.7	3.0	2.0	0.9	0.5	27.7
<b>EL DORADO</b>													
Camino	0.9	1.7	2.5	3.9	5.9	7.2	7.8	6.8	5.1	3.1	1.5	0.9	47.3
<b>FRESNO</b>													
Clovis	1.0	1.5	3.2	4.8	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Coalinga	1.2	1.7	3.1	4.6	6.2	7.2	8.5	7.3	5.3	3.4	1.6	0.7	50.9
Firebaugh	1.0	1.8	3.7	5.7	7.3	8.1	8.2	7.2	5.5	3.9	2.0	1.1	55.4
FivePoints	1.3	2.0	4.0	6.1	7.7	8.5	8.7	8.0	6.2	4.5	2.4	1.2	60.4
Fresno	0.9	1.7	3.3	4.8	6.7	7.8	8.4	7.1	5.2	3.2	1.4	0.6	51.1
Fresno State	0.9	1.6	3.2	5.2	7.0	8.0	8.7	7.6	5.4	3.6	1.7	0.9	53.7
Friant	1.2	1.5	3.1	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Kerman	0.9	1.5	3.2	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.2
Kingsburg	1.0	1.5	3.4	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.6
Mendota	1.5	2.5	4.6	6.2	7.9	8.6	8.8	7.5	5.9	4.5	2.4	1.5	61.7

Orange Cove	1.2	1.9	3.5	4.7	7.4	8.5	8.9	7.9	5.9	3.7	1.8	1.2	56.7
Panoche	1.1	2.0	4.0	5.6	7.8	8.5	8.3	7.3	5.6	3.9	1.8	1.2	57.2
Parlier	1.0	1.9	3.6	5.2	6.8	7.6	8.1	7.0	5.1	3.4	1.7	0.9	52.0
Reedley	1.1	1.5	3.2	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Westlands	0.9	1.7	3.8	6.3	8.0	8.6	8.6	7.8	5.9	4.3	2.1	1.1	58.8
<b>GLENN</b>													
Orland	1.1	1.8	3.4	5.0	6.4	7.5	7.9	6.7	5.3	3.9	1.8	1.4	52.1
Willows	1.2	1.7	2.9	4.7	6.1	7.2	8.5	7.3	5.3	3.6	1.7	1.0	51.3
<b>HUMBOLDT</b>													
Eureka	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Ferndale	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Garberville	0.6	1.2	2.2	3.1	4.5	5.0	5.5	4.9	3.8	2.4	1.0	0.7	34.9
Hoopla	0.5	1.1	2.1	3.0	4.4	5.4	6.1	5.1	3.8	2.4	0.9	0.7	35.6
<b>IMPERIAL</b>													
Brawley	2.8	3.8	5.9	8.0	10.4	11.5	11.7	10.0	8.4	6.2	3.5	2.1	84.2
Calipatria/Mulberry	2.4	3.2	5.1	6.8	8.6	9.2	9.2	8.6	7.0	5.2	3.1	2.3	70.7
El Centro	2.7	3.5	5.6	7.9	10.1	11.1	11.6	9.5	8.3	6.1	3.3	2.0	81.7
Holtville	2.8	3.8	5.9	7.9	10.4	11.6	12.0	10.0	8.6	6.2	3.5	2.1	84.7
Meloland	2.5	3.2	5.5	7.5	8.9	9.2	9.0	8.5	6.8	5.3	3.1	2.2	71.6
Palo Verde II	2.5	3.3	5.7	6.9	8.5	8.9	8.6	7.9	6.2	4.5	2.9	2.3	68.2
Seeley	2.7	3.5	5.9	7.7	9.7	10.1	9.3	8.3	6.9	5.5	3.4	2.2	75.4
Westmoreland	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Yuma	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
<b>INYO</b>													
Bishop	1.7	2.7	4.8	6.7	8.2	10.9	7.4	9.6	7.4	4.8	2.5	1.6	68.3
Death Valley Jct	2.2	3.3	5.4	7.7	9.8	11.1	11.4	10.1	8.3	5.4	2.9	1.7	79.1
Independence	1.7	2.7	3.4	6.6	8.5	9.5	9.8	8.5	7.1	3.9	2.0	1.5	65.2
Lower Haiwee Res.	1.8	2.7	4.4	7.1	8.5	9.5	9.8	8.5	7.1	4.2	2.6	1.5	67.6
Oasis	2.7	2.8	5.9	8.0	10.4	11.7	11.6	10.0	8.4	6.2	3.4	2.1	83.1
<b>KERN</b>													
Arvin	1.2	1.8	3.5	4.7	6.6	7.4	8.1	7.3	5.3	3.4	1.7	1.0	51.9
Bakersfield	1.0	1.8	3.5	4.7	6.6	7.7	8.5	7.3	5.3	3.5	1.6	0.9	52.4
Bakersfield/Bonanza	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
Bakersfield/Greenlee	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
Belridge	1.4	2.2	4.1	5.5	7.7	8.5	8.6	7.8	6.0	3.8	2.0	1.5	59.2
Blackwells Corner	1.4	2.1	3.8	5.4	7.0	7.8	8.5	7.7	5.8	3.9	1.9	1.2	56.6
Buttonwillow	1.0	1.8	3.2	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.5	0.9	52.0
China Lake	2.1	3.2	5.3	7.7	9.2	10.0	11.0	9.8	7.3	4.9	2.7	1.7	74.8
Delano	0.9	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.4	0.7	52.0
Famoso	1.3	1.9	3.5	4.8	6.7	7.6	8.0	7.3	5.5	3.5	1.7	1.3	53.1
Grapevine	1.3	1.8	3.1	4.4	5.6	6.8	7.6	6.8	5.9	3.4	1.9	1.0	49.5
Inyokern	2.0	3.1	4.9	7.3	8.5	9.7	11.0	9.4	7.1	5.1	2.6	1.7	72.4
Isabella Dam	1.2	1.4	2.8	4.4	5.8	7.3	7.9	7.0	5.0	3.2	1.7	0.9	48.4
Lamont	1.3	2.4	4.4	4.6	6.5	7.0	8.8	7.6	5.7	3.7	1.6	0.8	54.4
Lost Hills	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
McFarland/Kern	1.2	2.1	3.7	5.6	7.3	8.0	8.3	7.4	5.6	4.1	2.0	1.2	56.5
Shafter	1.0	1.7	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.5	0.9	52.1
Taft	1.3	1.8	3.1	4.3	6.2	7.3	8.5	7.3	5.4	3.4	1.7	1.0	51.2
Tehachapi	1.4	1.8	3.2	5.0	6.1	7.7	7.9	7.3	5.9	3.4	2.1	1.2	52.9
<b>KINGS</b>													

Caruthers	1.6	2.5	4.0	5.7	7.8	8.7	9.3	8.4	6.3	4.4	2.4	1.6	62.7
Corcoran	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Hanford	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.2	5.4	3.4	1.4	0.7	51.5
Kettleman	1.1	2.0	4.0	6.0	7.5	8.5	9.1	8.2	6.1	4.5	2.2	1.1	60.2
Lemoore	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.4	0.7	51.7
Stratford	0.9	1.9	3.9	6.1	7.8	8.6	8.8	7.7	5.9	4.1	2.1	1.0	58.7
<b>LAKE</b>													
Lakeport	1.1	1.3	2.6	3.5	5.1	6.0	7.3	6.1	4.7	2.9	1.2	0.9	42.8
Lower Lake	1.2	1.4	2.7	4.5	5.3	6.3	7.4	6.4	5.0	3.1	1.3	0.9	45.4
<b>LASSEN</b>													
Buntingville	1.0	1.7	3.5	4.9	6.2	7.3	8.4	7.5	5.4	3.4	1.5	0.9	51.8
Ravendale	0.6	1.1	2.3	4.1	5.6	6.7	7.9	7.3	4.7	2.8	1.2	0.5	44.9
Susanville	0.7	1.0	2.2	4.1	5.6	6.5	7.8	7.0	4.6	2.8	1.2	0.5	44.0
<b>LOS ANGELES</b>													
Burbank	2.1	2.8	3.7	4.7	5.1	6.0	6.6	6.7	5.4	4.0	2.6	2.0	51.7
Claremont	2.0	2.3	3.4	4.6	5.0	6.0	7.0	7.0	5.3	4.0	2.7	2.1	51.3
El Dorado	1.7	2.2	3.6	4.8	5.1	5.7	5.9	5.9	4.4	3.2	2.2	1.7	46.3
Glendale	2.0	2.2	3.3	3.8	4.7	4.8	5.7	5.6	4.3	3.3	2.2	1.8	43.7
Glendora	2.0	2.5	3.6	4.9	5.4	6.1	7.3	6.8	5.7	4.2	2.6	2.0	53.1
Gorman	1.6	2.2	3.4	4.6	5.5	7.4	7.7	7.1	5.9	3.6	2.4	1.1	52.4
Hollywood Hills	2.1	2.2	3.8	5.4	6.0	6.5	6.7	6.4	5.2	3.7	2.8	2.1	52.8
Lancaster	2.1	3.0	4.6	5.9	8.5	9.7	11.0	9.8	7.3	4.6	2.8	1.7	71.1
Long Beach	1.8	2.1	3.3	3.9	4.5	4.3	5.3	4.7	3.7	2.8	1.8	1.5	39.7
Los Angeles	2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	50.1
Monrovia	2.2	2.3	3.8	4.3	5.5	5.9	6.9	6.4	5.1	3.2	2.5	2.0	50.2
Palmdale	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
Pasadena	2.1	2.7	3.7	4.7	5.1	6.0	7.1	6.7	5.6	4.2	2.6	2.0	52.3
Pearblossom	1.7	2.4	3.7	4.7	7.3	7.7	9.9	7.9	6.4	4.0	2.6	1.6	59.9
Pomona	1.7	2.0	3.4	4.5	5.0	5.8	6.5	6.4	4.7	3.5	2.3	1.7	47.5
Redondo Beach	2.2	2.4	3.3	3.8	4.5	4.7	5.4	4.8	4.4	2.8	2.4	2.0	42.6
San Fernando	2.0	2.7	3.5	4.6	5.5	5.9	7.3	6.7	5.3	3.9	2.6	2.0	52.0
Santa Clarita	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Santa Monica	1.8	2.1	3.3	4.5	4.7	5.0	5.4	5.4	3.9	3.4	2.4	2.2	44.2
<b>MADERA</b>													
Chowchilla	1.0	1.4	3.2	4.7	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Madera	0.9	1.4	3.2	4.8	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.5
Raymond	1.2	1.5	3.0	4.6	6.1	7.6	8.4	7.3	5.2	3.4	1.4	0.7	50.5
<b>MARIN</b>													
Black Point	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
Novato	1.3	1.5	2.4	3.5	4.4	6.0	5.9	5.4	4.4	2.8	1.4	0.7	39.8
Point San Pedro	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
San Rafael	1.2	1.3	2.4	3.3	4.0	4.8	4.8	4.9	4.3	2.7	1.3	0.7	35.8
<b>MARIPOSA</b>													
Coulterville	1.1	1.5	2.8	4.4	5.9	7.3	8.1	7.0	5.3	3.4	1.4	0.7	48.8
Mariposa	1.1	1.5	2.8	4.4	5.9	7.4	8.2	7.1	5.0	3.4	1.4	0.7	49.0
Yosemite Village	0.7	1.0	2.3	3.7	5.1	6.5	7.1	6.1	4.4	2.9	1.1	0.6	41.4
<b>MENDOCINO</b>													
Fort Bragg	0.9	1.3	2.2	3.0	3.7	3.5	3.7	3.7	3.0	2.3	1.2	0.7	29.0
Hopland	1.1	1.3	2.6	3.4	5.0	5.9	6.5	5.7	4.5	2.8	1.3	0.7	40.9
Point Arena	1.0	1.3	2.3	3.0	3.7	3.9	3.7	3.7	3.0	2.3	1.2	0.7	29.6

Sanel Valley	1.0	1.6	3.0	4.6	6.0	7.0	8.0	7.0	5.2	3.4	1.4	0.9	49.1
Ukiah	1.0	1.3	2.6	3.3	5.0	5.8	6.7	5.9	4.5	2.8	1.3	0.7	40.9
<b>MERCED</b>													
Kesterson	0.9	1.7	3.4	5.5	7.3	8.2	8.6	7.4	5.5	3.8	1.8	0.9	55.1
Los Banos	1.0	1.5	3.2	4.7	6.1	7.4	8.2	7.0	5.3	3.4	1.4	0.7	50.0
Merced	1.0	1.5	3.2	4.7	6.6	7.9	8.5	7.2	5.3	3.4	1.4	0.7	51.5
<b>MODOC</b>													
Modoc/Alturas	0.9	1.4	2.8	3.7	5.1	6.2	7.5	6.6	4.6	2.8	1.2	0.7	43.2
<b>MONO</b>													
Bridgeport	0.7	0.9	2.2	3.8	5.5	6.6	7.4	6.7	4.7	2.7	1.2	0.5	43.0
<b>MONTEREY</b>													
Arroyo Seco	1.5	2.0	3.7	5.4	6.3	7.3	7.2	6.7	5.0	3.9	2.0	1.6	52.6
Castroville	1.4	1.7	3.0	4.2	4.6	4.8	4.0	3.8	3.0	2.6	1.6	1.4	36.2
Gonzales	1.3	1.7	3.4	4.7	5.4	6.3	6.3	5.9	4.4	3.4	1.9	1.3	45.7
Greenfield	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
King City	1.7	2.0	3.4	4.4	4.4	5.6	6.1	6.7	6.5	5.2	2.2	1.3	49.6
King City-Oasis Rd.	1.4	1.9	3.6	5.3	6.5	7.3	7.4	6.8	5.1	4.0	2.0	1.5	52.7
Long Valley	1.5	1.9	3.2	4.1	5.8	6.5	7.3	6.7	5.3	3.6	2.0	1.2	49.1
Monterey	1.7	1.8	2.7	3.5	4.0	4.1	4.3	4.2	3.5	2.8	1.9	1.5	36.0
Pajaro	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.1
Salinas	1.6	1.9	2.7	3.8	4.8	4.7	5.0	4.5	4.0	2.9	1.9	1.3	39.1
Salinas North	1.2	1.5	2.9	4.1	4.6	5.2	4.5	4.3	3.2	2.8	1.5	1.2	36.9
San Ardo	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
San Juan	1.8	2.1	3.4	4.6	5.3	5.7	5.5	4.9	3.8	3.2	2.2	1.9	44.2
Soledad	1.7	2.0	3.4	4.4	5.5	5.4	6.5	6.2	5.2	3.7	2.2	1.5	47.7
<b>NAPA</b>													
Angwin	1.8	1.9	3.2	4.7	5.8	7.3	8.1	7.1	5.5	4.5	2.9	2.1	54.9
Carneros	0.8	1.5	3.1	4.6	5.5	6.6	6.9	6.2	4.7	3.5	1.4	1.0	45.8
Oakville	1.0	1.5	2.9	4.7	5.8	6.9	7.2	6.4	4.9	3.5	1.6	1.2	47.7
St Helena	1.2	1.5	2.8	3.9	5.1	6.1	7.0	6.2	4.8	3.1	1.4	0.9	44.1
Yountville	1.3	1.7	2.8	3.9	5.1	6.0	7.1	6.1	4.8	3.1	1.5	0.9	44.3
<b>NEVADA</b>													
Grass Valley	1.1	1.5	2.6	4.0	5.7	7.1	7.9	7.1	5.3	3.2	1.5	0.9	48.0
Nevada City	1.1	1.5	2.6	3.9	5.8	6.9	7.9	7.0	5.3	3.2	1.4	0.9	47.4
<b>ORANGE</b>													
Irvine	2.2	2.5	3.7	4.7	5.2	5.9	6.3	6.2	4.6	3.7	2.6	2.3	49.6
Laguna Beach	2.2	2.7	3.4	3.8	4.6	4.6	4.9	4.9	4.4	3.4	2.4	2.0	43.2
Santa Ana	2.2	2.7	3.7	4.5	4.6	5.4	6.2	6.1	4.7	3.7	2.5	2.0	48.2
<b>PLACER</b>													
Auburn	1.2	1.7	2.8	4.4	6.1	7.4	8.3	7.3	5.4	3.4	1.6	1.0	50.6
Blue Canyon	0.7	1.1	2.1	3.4	4.8	6.0	7.2	6.1	4.6	2.9	0.9	0.6	40.5
Colfax	1.1	1.5	2.6	4.0	5.8	7.1	7.9	7.0	5.3	3.2	1.4	0.9	47.9
Roseville	1.1	1.7	3.1	4.7	6.2	7.7	8.5	7.3	5.6	3.7	1.7	1.0	52.2
Soda Springs	0.7	0.7	1.8	3.0	4.3	5.3	6.2	5.5	4.1	2.5	0.7	0.7	35.4
Tahoe City	0.7	0.7	1.7	3.0	4.3	5.4	6.1	5.6	4.1	2.4	0.8	0.6	35.5
Truckee	0.7	0.7	1.7	3.2	4.4	5.4	6.4	5.7	4.1	2.4	0.8	0.6	36.2
<b>PLUMAS</b>													
Portola	0.7	0.9	1.9	3.5	4.9	5.9	7.3	5.9	4.3	2.7	0.9	0.5	39.4
Quincy	0.7	0.9	2.2	3.5	4.9	5.9	7.3	5.9	4.4	2.8	1.2	0.5	40.2
<b>RIVERSIDE</b>													

Beaumont	2.0	2.3	3.4	4.4	6.1	7.1	7.6	7.9	6.0	3.9	2.6	1.7	55.0
Blythe	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Cathedral City	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Coachella	2.9	4.4	6.2	8.4	10.5	11.9	12.3	10.1	8.9	6.2	3.8	2.4	88.1
Desert Center	2.9	4.1	6.4	8.5	11.0	12.1	12.2	11.1	9.0	6.4	3.9	2.6	90.0
Elsinore	2.1	2.8	3.9	4.4	5.9	7.1	7.6	7.0	5.8	3.9	2.6	1.9	55.0
Indio	3.1	3.6	6.5	8.3	10.5	11.0	10.8	9.7	8.3	5.9	3.7	2.7	83.9
<b>RIVERSIDE</b>													
La Quinta	2.4	2.8	5.2	6.5	8.3	8.7	8.5	7.9	6.5	4.5	2.7	2.2	66.2
Mecca	2.6	3.3	5.7	7.2	8.6	9.0	8.8	8.2	6.8	5.0	3.2	2.4	70.8
Oasis	2.9	3.3	5.3	6.1	8.5	8.9	8.7	7.9	6.9	4.8	2.9	2.3	68.4
Palm Deser	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
Palm Springs	2.0	2.9	4.9	7.2	8.3	8.5	11.6	8.3	7.2	5.9	2.7	1.7	71.1
Rancho California	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
Rancho Mirage	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Ripley	2.7	3.3	5.6	7.2	8.7	8.7	8.4	7.6	6.2	4.6	2.8	2.2	67.8
Salton Sea North	2.5	3.3	5.5	7.2	8.8	9.3	9.2	8.5	6.8	5.2	3.1	2.3	71.7
Temecula East II	2.3	2.4	4.1	4.9	6.4	7.0	7.8	7.4	5.7	4.1	2.6	2.2	56.7
Thermal	2.4	3.3	5.5	7.6	9.1	9.6	9.3	8.6	7.1	5.2	3.1	2.1	72.8
Riverside UC	2.5	2.9	4.2	5.3	5.9	6.6	7.2	6.9	5.4	4.1	2.9	2.6	56.4
Winchester	2.3	2.4	4.1	4.9	6.4	6.9	7.7	7.5	6.0	3.9	2.6	2.1	56.8
<b>SACRAMENTO</b>													
Fair Oaks	1.0	1.6	3.4	4.1	6.5	7.5	8.1	7.1	5.2	3.4	1.5	1.0	50.5
Sacramento	1.0	1.8	3.2	4.7	6.4	7.7	8.4	7.2	5.4	3.7	1.7	0.9	51.9
Twitchell Island	1.2	1.8	3.9	5.3	7.4	8.8	9.1	7.8	5.9	3.8	1.7	1.2	57.9
<b>SAN BENITO</b>													
Hollister	1.5	1.8	3.1	4.3	5.5	5.7	6.4	5.9	5.0	3.5	1.7	1.1	45.1
San Benito	1.2	1.6	3.1	4.6	5.6	6.4	6.9	6.5	4.8	3.7	1.7	1.2	47.2
San Juan Valley	1.4	1.8	3.4	4.5	6.0	6.7	7.1	6.4	5.0	3.5	1.8	1.4	49.1
<b>SAN BERNARDINO</b>													
Baker	2.7	3.9	6.1	8.3	10.4	11.8	12.2	11.0	8.9	6.1	3.3	2.1	86.6
Barstow NE	2.2	2.9	5.3	6.9	9.0	10.1	9.9	8.9	6.8	4.8	2.7	2.1	71.7
Big Bear Lake	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Chino	2.1	2.9	3.9	4.5	5.7	6.5	7.3	7.1	5.9	4.2	2.6	2.0	54.6
Crestline	1.5	1.9	3.3	4.4	5.5	6.6	7.8	7.1	5.4	3.5	2.2	1.6	50.8
Lake Arrowhead	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Lucerne Valley	2.2	2.9	5.1	6.5	9.1	11.0	11.4	9.9	7.4	5.0	3.0	1.8	75.3
Needles	3.2	4.2	6.6	8.9	11.0	12.4	12.8	11.0	8.9	6.6	4.0	2.7	92.1
Newberry Springs	2.1	2.9	5.3	8.4	9.8	10.9	11.1	9.9	7.6	5.2	3.1	2.0	78.2
San Bernardino	2.0	2.7	3.8	4.6	5.7	6.9	7.9	7.4	5.9	4.2	2.6	2.0	55.6
Twentynine Palms	2.6	3.6	5.9	7.9	10.1	11.2	11.2	10.3	8.6	5.9	3.4	2.2	82.9
Victorville	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
<b>SAN DIEGO</b>													
Chula Vista	2.2	2.7	3.4	3.8	4.9	4.7	5.5	4.9	4.5	3.4	2.4	2.0	44.2
Escondido SPV	2.4	2.6	3.9	4.7	5.9	6.5	7.1	6.7	5.3	3.9	2.8	2.3	54.2
Miramar	2.3	2.5	3.7	4.1	5.1	5.4	6.1	5.8	4.5	3.3	2.4	2.1	47.1
Oceanside	2.2	2.7	3.4	3.7	4.9	4.6	4.6	5.1	4.1	3.3	2.4	2.0	42.9
Otay Lake	2.3	2.7	3.9	4.6	5.6	5.9	6.2	6.1	4.8	3.7	2.6	2.2	50.4
Pine Valley	1.5	2.4	3.8	5.1	6.0	7.0	7.8	7.3	6.0	4.0	2.2	1.7	54.8
Ramona	2.1	2.1	3.4	4.6	5.2	6.3	6.7	6.8	5.3	4.1	2.8	2.1	51.6

San Diego	2.1	2.4	3.4	4.6	5.1	5.3	5.7	5.6	4.3	3.6	2.4	2.0	46.5
Santee	2.1	2.7	3.7	4.5	5.5	6.1	6.6	6.2	5.4	3.8	2.6	2.0	51.1
Torrey Pines	2.2	2.3	3.4	3.9	4.0	4.1	4.6	4.7	3.8	2.8	2.0	2.0	39.8
Warner Springs	1.6	2.7	3.7	4.7	5.7	7.6	8.3	7.7	6.3	4.0	2.5	1.3	56.0
<b>SAN FRANCISCO</b>													
San Francisco	1.5	1.3	2.4	3.0	3.7	4.6	4.9	4.8	4.1	2.8	1.3	0.7	35.1
<b>SAN JOAQUIN</b>													
Farmington	1.5	1.5	2.9	4.7	6.2	7.6	8.1	6.8	5.3	3.3	1.4	0.7	50.0
<b>SAN JOAQUIN</b>													
Lodi West	1.0	1.6	3.3	4.3	6.3	6.9	7.3	6.4	4.5	3.0	1.4	0.8	46.7
Manteca	0.9	1.7	3.4	5.0	6.5	7.5	8.0	7.1	5.2	3.3	1.6	0.9	51.2
Stockton	0.8	1.5	2.9	4.7	6.2	7.4	8.1	6.8	5.3	3.2	1.4	0.6	49.1
Tracy	1.0	1.5	2.9	4.5	6.1	7.3	7.9	6.7	5.3	3.2	1.3	0.7	48.5
<b>SAN LUIS OBISPO</b>													
Arroyo Grande	2.0	2.2	3.2	3.8	4.3	4.7	4.3	4.6	3.8	3.2	2.4	1.7	40.0
Atascadero	1.2	1.5	2.8	3.9	4.5	6.0	6.7	6.2	5.0	3.2	1.7	1.0	43.7
Morro Bay	2.0	2.2	3.1	3.5	4.3	4.5	4.6	4.6	3.8	3.5	2.1	1.7	39.9
Nipomo	2.2	2.5	3.8	5.1	5.7	6.2	6.4	6.1	4.9	4.1	2.9	2.3	52.1
Paso Robles	1.6	2.0	3.2	4.3	5.5	6.3	7.3	6.7	5.1	3.7	2.1	1.4	49.0
San Luis Obispo	2.0	2.2	3.2	4.1	4.9	5.3	4.6	5.5	4.4	3.5	2.4	1.7	43.8
San Miguel	1.6	2.0	3.2	4.3	5.0	6.4	7.4	6.8	5.1	3.7	2.1	1.4	49.0
San Simeon	2.0	2.0	2.9	3.5	4.2	4.4	4.6	4.3	3.5	3.1	2.0	1.7	38.1
<b>SAN MATEO</b>													
Hal Moon Bay	1.5	1.7	2.4	3.0	3.9	4.3	4.3	4.2	3.5	2.8	1.3	1.0	33.7
Redwood City	1.5	1.8	2.9	3.8	5.2	5.3	6.2	5.6	4.8	3.1	1.7	1.0	42.8
Woodside	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
<b>SANTA BARBARA</b>													
Betteravia	2.1	2.6	4.0	5.2	6.0	5.9	5.8	5.4	4.1	3.3	2.7	2.1	49.1
Carpenteria	2.0	2.4	3.2	3.9	4.8	5.2	5.5	5.7	4.5	3.4	2.4	2.0	44.9
Cuyama	2.1	2.4	3.8	5.4	6.9	7.9	8.5	7.7	5.9	4.5	2.6	2.0	59.7
Goleta	2.1	2.5	3.9	5.1	5.7	5.7	5.4	5.4	4.2	3.2	2.8	2.2	48.1
Goleta Foothills	2.3	2.6	3.7	5.4	5.3	5.6	5.5	5.7	4.5	3.9	2.8	2.3	49.6
Guadalupe	2.0	2.2	3.2	3.7	4.9	4.6	4.5	4.6	4.1	3.3	2.4	1.7	41.1
Lompoc	2.0	2.2	3.2	3.7	4.8	4.6	4.9	4.8	3.9	3.2	2.4	1.7	41.1
Los Alamos	1.8	2.0	3.2	4.1	4.9	5.3	5.7	5.5	4.4	3.7	2.4	1.6	44.6
Santa Barbara	2.0	2.5	3.2	3.8	4.6	5.1	5.5	4.5	3.4	2.4	1.8	1.8	40.6
Santa Maria	1.8	2.3	3.7	5.1	5.7	5.8	5.6	5.3	4.2	3.5	2.4	1.9	47.4
Santa Ynez	1.7	2.2	3.5	5.0	5.8	6.2	6.4	6.0	4.5	3.6	2.2	1.7	48.7
Sisquoc	2.1	2.5	3.8	4.1	6.1	6.3	6.4	5.8	4.7	3.4	2.3	1.8	49.2
Solvang	2.0	2.0	3.3	4.3	5.0	5.6	6.1	5.6	4.4	3.7	2.2	1.6	45.6
<b>SANTA CLARA</b>													
Gilroy	1.3	1.8	3.1	4.1	5.3	5.6	6.1	5.5	4.7	3.4	1.7	1.1	43.6
Los Gatos	1.5	1.8	2.8	3.9	5.0	5.6	6.2	5.5	4.7	3.2	1.7	1.1	42.9
Morgan Hill	1.5	1.8	3.4	4.2	6.3	7.0	7.1	6.0	5.1	3.7	1.9	1.4	49.5
Palo Alto	1.5	1.8	2.8	3.8	5.2	5.3	6.2	5.6	5.0	3.2	1.7	1.0	43.0
San Jose	1.5	1.8	3.1	4.1	5.5	5.8	6.5	5.9	5.2	3.3	1.8	1.0	45.3
<b>SANTA CRUZ</b>													
De Laveaga	1.4	1.9	3.3	4.7	4.9	5.3	5.0	4.8	3.6	3.0	1.6	1.3	40.8
Green Valley Rd	1.2	1.8	3.2	4.5	4.6	5.4	5.2	5.0	3.7	3.1	1.6	1.3	40.6
Santa Cruz	1.5	1.8	2.6	3.5	4.3	4.4	4.8	4.4	3.8	2.8	1.7	1.2	36.6

Watsonville	1.5	1.8	2.7	3.7	4.6	4.5	4.9	4.2	4.0	2.9	1.8	1.2	37.7
Webb	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.2
<b>SHASTA</b>													
Burney	0.7	1.0	2.1	3.5	4.9	5.9	7.4	6.4	4.4	2.9	0.9	0.6	40.9
Fall River Mills	0.6	1.0	2.1	3.7	5.0	6.1	7.8	6.7	4.6	2.8	0.9	0.5	41.8
Glenburn	0.6	1.0	2.1	3.7	5.0	6.3	7.8	6.7	4.7	2.8	0.9	0.6	42.1
McArthur	0.7	1.4	2.9	4.2	5.6	6.9	8.2	7.2	5.0	3.0	1.1	0.6	46.8
Redding	1.2	1.4	2.6	4.1	5.6	7.1	8.5	7.3	5.3	3.2	1.4	0.9	48.8
<b>SIERRA</b>													
Downieville	0.7	1.0	2.3	3.5	5.0	6.0	7.4	6.2	4.7	2.8	0.9	0.6	41.3
Sierraville	0.7	1.1	2.2	3.2	4.5	5.9	7.3	6.4	4.3	2.6	0.9	0.5	39.6
<b>SISKIYOU</b>													
Happy Camp	0.5	0.9	2.0	3.0	4.3	5.2	6.1	5.3	4.1	2.4	0.9	0.5	35.1
MacDoel	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
Mt Shasta	0.5	0.9	2.0	3.0	4.5	5.3	6.7	5.7	4.0	2.2	0.7	0.5	36.0
Tule lake FS	0.7	1.3	2.7	4.0	5.4	6.3	7.1	6.4	4.7	2.8	1.0	0.6	42.9
Weed	0.5	0.9	2.0	2.5	4.5	5.3	6.7	5.5	3.7	2.0	0.9	0.5	34.9
Yreka	0.6	0.9	2.1	3.0	4.9	5.8	7.3	6.5	4.3	2.5	0.9	0.5	39.2
<b>SOLANO</b>													
Dixon	0.7	1.4	3.2	5.2	6.3	7.6	8.2	7.2	5.5	4.3	1.6	1.1	52.1
Fairfield	1.1	1.7	2.8	4.0	5.5	6.1	7.8	6.0	4.8	3.1	1.4	0.9	45.2
Hastings Tract	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Putah Creek	1.0	1.6	3.2	4.9	6.1	7.3	7.9	7.0	5.3	3.8	1.8	1.2	51.0
Rio Vista	0.9	1.7	2.8	4.4	5.9	6.7	7.9	6.5	5.1	3.2	1.3	0.7	47.0
Suisun Valley	0.6	1.3	3.0	4.7	5.8	7.0	7.7	6.8	5.3	3.8	1.4	0.9	48.3
Winters	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
<b>SONOMA</b>													
Bennett Valley	1.1	1.7	3.2	4.1	5.5	6.5	6.6	5.7	4.5	3.1	1.5	0.9	44.4
Cloverdale	1.1	1.4	2.6	3.4	5.0	5.9	6.2	5.6	4.5	2.8	1.4	0.7	40.7
Fort Ross	1.2	1.4	2.2	3.0	3.7	4.5	4.2	4.3	3.4	2.4	1.2	0.5	31.9
Healdsburg	1.2	1.5	2.4	3.5	5.0	5.9	6.1	5.6	4.5	2.8	1.4	0.7	40.8
Lincoln	1.2	1.7	2.8	4.7	6.1	7.4	8.4	7.3	5.4	3.7	1.9	1.2	51.9
Petaluma	1.2	1.5	2.8	3.7	4.6	5.6	4.6	5.7	4.5	2.9	1.4	0.9	39.6
Santa Rosa	1.2	1.7	2.8	3.7	5.0	6.0	6.1	5.9	4.5	2.9	1.5	0.7	42.0
Valley of the Moon	1.0	1.6	3.0	4.5	5.6	6.6	7.1	6.3	4.7	3.3	1.5	1.0	46.1
Windsor	0.9	1.6	3.0	4.5	5.5	6.5	6.5	5.9	4.4	3.2	1.4	1.0	44.2
<b>STANISLAUS</b>													
Denair	1.0	1.9	3.6	4.7	7.0	7.9	8.0	6.1	5.3	3.4	1.5	1.0	51.4
La Grange	1.2	1.5	3.1	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Modesto	0.9	1.4	3.2	4.7	6.4	7.7	8.1	6.8	5.0	3.4	1.4	0.7	49.7
Newman	1.0	1.5	3.2	4.6	6.2	7.4	8.1	6.7	5.0	3.4	1.4	0.7	49.3
Oakdale	1.2	1.5	3.2	4.7	6.2	7.7	8.1	7.1	5.1	3.4	1.4	0.7	50.3
Patterson	1.3	2.1	4.2	5.4	7.9	8.6	8.2	6.6	5.8	4.0	1.9	1.3	57.3
Turlock	0.9	1.5	3.2	4.7	6.5	7.7	8.2	7.0	5.1	3.4	1.4	0.7	50.2
<b>SUTTER</b>													
Nicolaus	0.9	1.6	3.2	4.9	6.3	7.5	8.0	6.9	5.2	3.4	1.5	0.9	50.2
Yuba City	1.3	2.1	2.8	4.4	5.7	7.2	7.1	6.1	4.7	3.2	1.2	0.9	46.7
<b>TEHAMA</b>													
Corning	1.2	1.8	2.9	4.5	6.1	7.3	8.1	7.2	5.3	3.7	1.7	1.1	50.7
Gerber	1.0	1.8	3.5	5.0	6.6	7.9	8.7	7.4	5.8	4.1	1.8	1.1	54.7

Gerber Dryland	0.9	1.6	3.2	4.7	6.7	8.4	9.0	7.9	6.0	4.2	2.0	1.0	55.5
Red Bluff	1.2	1.8	2.9	4.4	5.9	7.4	8.5	7.3	5.4	3.5	1.7	1.0	51.1
<b>TRINITY</b>													
Hay Fork	0.5	1.1	2.3	3.5	4.9	5.9	7.0	6.0	4.5	2.8	0.9	0.7	40.1
Weaverville	0.6	1.1	2.2	3.3	4.9	5.9	7.3	6.0	4.4	2.7	0.9	0.7	40.0
<b>TULARE</b>													
Alpaugh	0.9	1.7	3.4	4.8	6.6	7.7	8.2	7.3	5.4	3.4	1.4	0.7	51.6
Badger	1.0	1.3	2.7	4.1	6.0	7.3	7.7	7.0	4.8	3.3	1.4	0.7	47.3
Delano	1.1	1.9	4.0	4.9	7.2	7.9	8.1	7.3	5.4	3.2	1.5	1.2	53.6
<b>TULARE</b>													
Dinuba	1.1	1.5	3.2	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Lindcove	0.9	1.6	3.0	4.8	6.5	7.6	8.1	7.2	5.2	3.4	1.6	0.9	50.6
Porterville	1.2	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.3	3.4	1.4	0.7	52.1
Visalia	0.9	1.7	3.3	5.1	6.8	7.7	7.9	6.9	4.9	3.2	1.5	0.8	50.7
<b>TUOLUMNE</b>													
Groveland	1.1	1.5	2.8	4.1	5.7	7.2	7.9	6.6	5.1	3.3	1.4	0.7	47.5
Sonora	1.1	1.5	2.8	4.1	5.8	7.2	7.9	6.7	5.1	3.2	1.4	0.7	47.6
<b>VENTURA</b>													
Camarillo	2.2	2.5	3.7	4.3	5.0	5.2	5.9	5.4	4.2	3.0	2.5	2.1	46.1
Oxnard	2.2	2.5	3.2	3.7	4.4	4.6	5.4	4.8	4.0	3.3	2.4	2.0	42.3
Piru	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Port Hueneme	2.0	2.3	3.3	4.6	4.9	4.9	4.9	5.0	3.7	3.2	2.5	2.2	43.5
Thousand Oaks	2.2	2.6	3.4	4.5	5.4	5.9	6.7	6.4	5.4	3.9	2.6	2.0	51.0
Ventura	2.2	2.6	3.2	3.8	4.6	4.7	5.5	4.9	4.1	3.4	2.5	2.0	43.5
<b>YOLO</b>													
Bryte	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
Davis	1.0	1.9	3.3	5.0	6.4	7.6	8.2	7.1	5.4	4.0	1.8	1.0	52.5
Esparto	1.0	1.7	3.4	5.5	6.9	8.1	8.5	7.5	5.8	4.2	2.0	1.2	55.8
Winters	1.7	1.7	2.9	4.4	5.8	7.1	7.9	6.7	5.3	3.3	1.6	1.0	49.4
Woodland	1.0	1.8	3.2	4.7	6.1	7.7	8.2	7.2	5.4	3.7	1.7	1.0	51.6
Zamora	1.1	1.9	3.5	5.2	6.4	7.4	7.8	7.0	5.5	4.0	1.9	1.2	52.8
<b>YUBA</b>													
Browns Valley	1.0	1.7	3.1	4.7	6.1	7.5	8.5	7.6	5.7	4.1	2.0	1.1	52.9
Brownsville	1.1	1.4	2.6	4.0	5.7	6.8	7.9	6.8	5.3	3.4	1.5	0.9	47.4

\* 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; and
- 3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922, 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426

## Appendix D – Certificate of Completion

### CERTIFICATE OF COMPLETION

This certificate is filled out by the project applicant upon completion of the landscape project.

#### PART 1. PROJECT INFORMATION SHEET

Date		
Project Name		
Name of Project Applicant	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

#### Project Address and Location:

Street Address	Parcel, tract or lot number, if available.	
City	Latitude/Longitude (optional)	
State	Zip Code	

#### Property Owner or his/her designee:

Name	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

#### Property Owner

“I/we certify that I/we have received copies of all the documents within the Landscape Documentation Package and the Certificate of Completion and that it is our responsibility to see that the project is maintained in accordance with the Landscape and Irrigation Maintenance Schedule.”

\_\_\_\_\_  
Property Owner Signature

\_\_\_\_\_  
Date

#### Please answer the questions below:

1. Date the Landscape Documentation Package was submitted to the City of Rancho Palos Verdes \_\_\_\_\_
2. Date the Landscape Documentation Package was approved by the City of Rancho Palos Verdes \_\_\_\_\_
3. Date that a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) was submitted to City of Rancho Palos Verdes \_\_\_\_\_

PART 2. CERTIFICATION OF INSTALLATION ACCORDING TO THE LANDSCAPE DOCUMENTATION PACKAGE

“I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the Water Efficient Landscape Ordinance and Landscape Regulations, and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package.”

Signature*	Date	
Name (print)	Telephone No.	
	Fax No.	
Title	Email Address	
License No. or Certification No.		
Company	Street Address	
City	State	Zip Code

\*Signer of the landscape design plan, signer of the irrigation plan, or a licensed landscape contractor.

PART 3. IRRIGATION SCHEDULING

Attach parameters for setting the irrigation schedule on controller per Landscape Regulations Section 2.9.

PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

Attach schedule of Landscape and Irrigation Maintenance per Landscape Regulations Section 2.10.

PART 5. LANDSCAPE IRRIGATION AUDIT REPORT

Attach Landscape Irrigation Audit Report per Landscape Regulations Section 3.

PART 6. SOIL MANAGEMENT REPORT

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package per Landscape Regulations Section 2.4.

Attach documentation verifying implementation of recommendations from soil analysis report per Landscape Regulations Section 2.4.

## Appendix E – Definitions

The terms defined in the **Water Efficient Landscape Ordinance** apply also to the **Landscape Regulations**. In addition, the terms below, as used in these **Landscape Regulations** and in the **Water Efficient Landscape Ordinance**, have the meanings set forth below:

1. **Applied Water**: the portion of water supplied by the irrigation system to the landscape.
2. **Automatic Irrigation Controller**: an automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.
3. **Backflow prevention device**: a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.
4. **Certified irrigation designer**: a person certified to design irrigation systems by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency’s WaterSense irrigation designer certification program and Irrigation Association’s Certified Irrigation Designer program.
5. **Check Valve** or **Anti-Drain Valve**: 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.
6. **City**: the City of Rancho Palos Verdes.
7. **Common Interest Developments**: community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
8. **Conversion Factor (0.62)**: the number that converts acre-inches per acre per year to gallons per square foot per year.
9. **Drip Irrigation**: 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.
10. **Ecological Restoration Project**: a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
11. **Effective Precipitation** or **Usable Rainfall (Eppt)**: the portion of total precipitation which becomes available for plant growth.
12. **Emitter**: a **Drip Irrigation** emission device that delivers water slowly from the system to the soil.
13. **Established Landscape**: the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.
14. **Establishment Period of the Plants**: the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.

15. **Evapotranspiration adjustment factor** or **ET Adjustment Factor (ETAF)**: a factor of 0.7, that, when applied to **Reference Evapotranspiration**, adjusts for **Plant Factors** and **Irrigation Efficiency**, two major influences upon the amount of water that needs to be applied to the landscape. A combined plant mix with a site-wide average of 0.5 is the basis of the **Plant Factor** portion of this calculation. For purposes of the ETAF, the average **Irrigation Efficiency** is 0.71. Therefore, the **ET Adjustment Factor** is  $(0.7)=(0.5/0.71)$ . **ETAF** for a Special Landscape Area shall not exceed 1.0. **ETAF** for existing non-rehabilitated landscapes is 0.8.
16. **Evapotranspiration Rate**: the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.
17. **Flow rate**: 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.
18. **Hardscapes**: 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.
19. **Hydrozone**: 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.
20. **Infiltration Rate**: the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).
21. **Invasive Plant Species**: species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. “Noxious weeds” means any weed designated by the Weed Control Regulations in the Weed Control Act and identified on a Regional District noxious weed control list. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.
22. **Irrigation Efficiency (IE)**: the measurement of the amount of water beneficially used divided by the amount of water applied. **Irrigation Efficiency** is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average **Irrigation Efficiency** for purposes of the **Water Efficient Landscape Ordinance** 0.71. Greater **Irrigation Efficiency** can be expected from well designed and maintained systems.
23. **Irrigation Survey**: an evaluation of an irrigation system that is less detailed than an **Irrigation Audit**. An **Irrigation Survey** includes, but is not limited to inspection, system test, and written recommendations to improve performance of the irrigation system.
24. **Irrigation Water Use Analysis**: an analysis of water use data based on meter readings and billing data.
25. **Landscape Architect**: a person who holds a license to practice landscape architecture in the state of California pursuant to California Business and Professions Code Section 5615.
26. **Landscape Contractor**: a person licensed by the State of California to construct, maintain, repair, install or subcontract the development of landscape systems.
27. **Landscape Project**: the total area of landscape in a project as defined in Landscape Area.

28. **Lateral Line:** the water delivery pipeline that supplies water to the **Emitters** or sprinklers from the **Valve**.
29. **Low Volume Irrigation:** 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.
30. **Main Line:** the pressurized pipeline that delivers water from the water source to the **Valve** or outlet.
31. **Microclimate:** 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.
32. **Mulch:** 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.
33. **Non-Pervious:** any surface or natural material that does not allow for the passage of water through the material and into the underlying soil.
34. **Noxious weeds:** any weed designated by the Weed Control Regulations in the Weed Control Act and identified on a Regional District noxious weed control list. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.
35. **Operating Pressure:** the pressure at which the parts of an irrigation system of sprinklers are designed to operate at by the manufacturer
36. **Overhead Sprinkler Irrigation Systems:** systems that deliver water through the air (e.g., spray heads and rotors).
37. **Overspray:** the irrigation water which is delivered beyond the target area.
38. **Person:** 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 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.
39. **Pervious:** any surface or material that allows the passage of water through the material and into the underlying soil.
40. **Plant Factor** or **Plant Water Use Factor:** a factor, when multiplied by **ET<sub>o</sub>**, that estimates the amount of water needed by plants. For purposes of this **Water Efficient Landscape Ordinance**, the **Plant Factor** range for low water use plants is 0 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 **Landscape Regulations** are derived from the Department of Water Resources' 2000 publication "Water Use Classification of Landscape Species."

41. **Precipitation Rate:** the rate of application of water measured in inches per hour.
42. **Property Owner** or **Owner:** the record owner of real property as shown on the most recently issued equalized assessment roll.
43. **Rain Sensor** or **Rain Sensing Shutoff Device:** a component which automatically suspends an irrigation event when it rains.
44. **Record Drawing** or **As-Builts:** a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.
45. **Recreational Area:** areas dedicated to active play such as parks, sports fields and golf courses where turf provides a playing surface.
46. **Recycled Water, Reclaimed Water, or Treated Sewage Effluent Water:** 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.
47. **Reference Evapotranspiration** or **ET<sub>o</sub>:** a standard measurement of environmental parameters which affect the water use of plants. **ET<sub>o</sub>** is 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** so that regional differences in climate can be accommodated.
48. **Runoff:** 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.
49. **Soil Moisture Sensing Device** or **Soil Moisture Sensor:** a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.
50. **Soil Texture:** the classification of soil based on its percentage of sand, silt and clay.
51. **Special Landscaped Areas** or **SLA:** an area of the landscape dedicated solely to edible plants such as vegetable gardens, areas irrigated with recycled water, water features using recycled water, and areas dedicated to active play such as parks, sports fields, golf courses, and where **Turf** provides a playing surface.
52. **Sprinkler head:** a device which delivers water through a nozzle.
53. **Static Water Pressure:** the pipeline or municipal water supply pressure when water is not flowing.
54. **Station:** an area served by one **Valve** or by a set of **Valves** that operate simultaneously.
55. **Swing joint:** 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.

56. **Turf:** 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.
57. **Valve:** a device used to control the flow of water in an irrigation system.
58. **Water Efficient Landscape Ordinance:** Ordinance No. \_\_\_\_\_, adopted by the City Council on \_\_\_\_\_, and codified in the Municipal Code in Chapter 34 of Title 15.
59. **Water Conserving Plant Species:** a plant species identified as having a low **Plant Factor**.
60. **Water feature:** 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 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.
61. **Watering window:** the time of day irrigation is allowed, which is between 8:00 p.m. and 10:00 a.m.
62. **WUCOLS:** the Water Use Classification of Landscape Species List published by the University of California Cooperative Extension, the Department of Water Resources, and the Bureau of Reclamation, 2000.