County of Yolo

PLANNING AND PUBLIC WORKS DEPARTMENT

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PLANNING COMMISSION STAFF REPORT **OCTOBER 14, 2010**

FILE #2009-046: Adoption of the proposed Water Efficient Landscape Ordinance, an amendment to Chapter 2, Title 8 of the Yolo County Code.

APPLICANT/OWNER: Yolo County

LOCATION: Within the unincorporated area of Yolo County **GENERAL PLAN:** Various **ZONING:** Various	**SUPERVISORIAL DISTRICT:** All districts **FLOOD ZONE:** Various **SOILS:** Various **FIRE SEVERITY ZONE:** Various

ENVIRONMENTAL DETERMINATION: Categorical Exemption

REPORT PREPARED BY:	**REVIEWED BY:**
Jeff Anderson, Assistant Planner	David Morrison, Assistant Director

RECOMMENDED ACTIONS

That the Planning Commission recommends the Board of Supervisors:

1. **HOLD** a public hearing and receive comments on the proposed Water Efficient Landscape Ordinance **(Attachment A)**;

2. **DETERMINE** that the Water Efficient Landscape Ordinance is exempt from review under the California Environmental Quality Act (CEQA) and Guidelines **(Attachment F)**; and

3. **APPROVE** an ordinance amending Chapter 2 of Title 8 of the Yolo County Code.

REASONS FOR RECOMMENDED ACTIONS

The proposed ordinance will establish a structure for planning, designing, installing, maintaining, and managing water efficient landscapes. All California cities and counties are required to adopt the model ordinance, or develop an ordinance that is at least as effective as the State's model ordinance.

Additionally, the adoption of a Water Efficient Landscape Ordinance is called out as an action item in the 2030 Countywide General Plan:

> *Action CO-A83: Adopt a Water Efficient Landscape Ordinance to require greater use of regionally native drought-tolerant vegetation, limitations on the amount of turf in residential development, computer controlled irrigation systems, and other measures as appropriate. (Policy CO-5.2, Policy CO-5.3, Policy CO-5.4)*

BACKGROUND

In 2006, the State Legislature adopted the "Water Conservation in Landscaping Act of 2006" (AB 1881) requiring the Department of Water Resources (DWR) to update the State Model Water Efficient Landscape Ordinance (originally adopted in 1993). The updated model ordinance **(Attachment D)** contains several new landscape and irrigation design requirements aimed at reducing water consumption and waste in landscape irrigation.

The primary objectives of AB 1881 and the State's model ordinance are as follows:

- Encourage appropriate use of plants;
- Establish "water budgets" for properties;
- Require automatic irrigation systems and schedules;
- Require soil assessment;
- Promote use of recycled water resources; and
- Minimize overspray and runoff.

By January 1, 2010, all local land use agencies were required to adopt the model ordinance, or develop an ordinance that is at least as effective as the model ordinance. The Planning and Public Works Department has been implementing the State's model ordinance for all applicable landscape projects, and will continue to do so until this ordinance is enacted.

The State's model ordinance is rather complex and difficult to interpret. In response, staff has drafted an ordinance that is based on the State's model ordinance and meets AB 1881 requirements, but better suits the County's needs. The proposed ordinance has been substantially streamlined compared to the State's model ordinance, reducing the amount of technical information within the proposed ordinance, and moving the more detailed information to the County's proposed Application and Submittal Guidance Package **(Attachment B)**. The Application and Submittal Guidance Package describes the water budgeting requirements and calculations, plan submittal requirements, and related resources for plant choice and soil amendments.

STAFF ANALYSIS

The proposed ordinance will play a large role in the County's effort to promote water conservation. The proposed ordinance includes requirements for landscape water budgets, the prevention of excessive erosion and irrigation runoff, landscape and irrigation design, irrigation audits, and scheduling of irrigation based on the local climate. The water budget approach serves as a design tool, allowing the design of the landscape to be based on a regionally appropriate amount of water. The budget takes into account plant type, plant water needs, irrigation system design, and applied water that the landscape receives either by irrigation or by precipitation, depending on the time of year. The proposed ordinance requires a 70 percent evapotranspiration (ETo) adjustment factor. This means that the designed landscape is restricted to use only 70 percent of the amount of water required by a similar-sized landscape composed entirely of turf grass.

Differences between State and County ordinances

AB 1881 requires that local jurisdictions establish an ordinance that is at least as effective as the State's model ordinance in terms of conserving water. No clear direction is provided from the State as to what constitutes "as effective." For comparison purposes, the County's proposed ordinance contains many of the components of the State's model ordinance, such as requiring establishment of a water budget, submittal of a landscape documentation package, and establishment of a public outreach and education program. However, there are also some minor differences between the two ordinances. A detailed list of these differences can be found in Table 1, below. These minor differences, which include increased turf restrictions, a requirement for installing native plants, and a modification to the applicability of the ordinance to homeowner-provided landscapes in single-family and multi-family residential projects, are tailored to meet special circumstances and existing regulations already in place in Yolo County. Staff believes that these differences and the County's proposed ordinance overall, is as effective as the State's model ordinance at conserving water.

Table 1
Differences Between State's Model Ordinance and the County's Proposed Ordinance

Section	Selected Text	Comment
Applicability (a)(3)	"Homeowner-provided in single-family and multi-family residential projects. New construction landscape projects with landscape area equal to or greater than 5,000 square feet *that are served by a public water purveyor or community water system, or otherwise required by discretionary permit.*"	The State's model ordinance was designed primarily to address water conservation efforts in urban areas; however, it must be applied to all cities and counties, including homes in rural areas. PPW does not have the staff resources or enforcement capability to require all new single-family homes served by groundwater or surface water to comply with the ordinance, unless a discretionary permit is required. In general, staff anticipates that this ordinance will be applied most often to commercial and industrial projects (including agricultural research facilities) and new subdivisions in the unincorporated area.
Applicability (c)(2)	"ecological restoration projects and similar projects that do not require irrigation systems for *longer than five years in duration to establish the plants*"	Staff added the language "longer than five years in duration to establish the plants" in order to provide a temporary time limit to allow irrigation for establishing landscaping for ecological restoration projects.
Applicability (c)(3)	"mined-land reclamation projects that do not require irrigation systems for *longer than five years in duration to establish the plants*"	Staff added the language "longer than five years in duration to establish the plants" in order to provide a temporary time limit to allow irrigation for establishing landscaping for mined-land reclamation projects.

Applicability (c)(5)	"*community gardens*"	Staff exempted community gardens from the proposed ordinance in order to promote access to healthy and sustainable food, which is in compliance with Policy AG-5.4 and Policy AG-5.5 of the 2030 Countywide General Plan.
Submittal Requirements	Entire section	This section follows the general process described in the State's model ordinance. However, staff has included much of the technical information and water use calculations in the Application and Submittal Guidance Package, not the ordinance **(Attachment B)**.
Landscaping Standards (a)(2)	*With the exception of Special Landscape Areas, a minimum of 25% of landscape area shall be comprised of native plants.*	The State's model ordinance encourages the use of native plants, but does not make it a requirement. The 25% native plant requirement that was added to the proposed ordinance was derived from the Yolo County Design Guidelines, which encourages at least 25% of new plantings to be native and drought tolerant. The requirement of native plants is also consistent with Action CO-A83 of the 2030 Countywide General Plan.
Landscaping Standards (b)(2)	*Turf shall not comprise greater than 25% of the front yard landscape area of developer-installed single-family landscaping.*	Turf uses more water than any other part of a landscape and overhead irrigation methods often contribute to significant water waste. This requirement was added to the ordinance, and is taken from Policy CC-2.16cc of the 2030 Countywide General Plan.
Landscaping Standards (b)(3)	*With the exception of Special Landscape Areas, turf shall not comprise greater than 30% of non-residential landscaping.*	Staff added this requirement to reduce turf use in unnecessary areas.

Overview of the submittal process

Staff has proposed to streamline the process for complying with the requirements of the Water Efficient Landscape Ordinance. The proposed Application and Submittal Guidance Package **(Attachment B)** includes step-by-step instructions for navigating through the application process. In general, if a project is subject to the requirements of the ordinance, the applicant must submit a Landscape Documentation Package to the Planning and Public Works Department prior to the installation of landscaping. The Landscape Documentation Package must contain the following: (1) general project information (application form); (2) Water Efficient Landscape Worksheet (water budget calculations); (3) soil management report; (4) landscape and grading design plan; and (5) irrigation design plan. Once the Landscape Documentation Package is approved by the department, the applicant may begin the installation of landscaping.

After the landscaping is installed, the applicant must submit a Certificate of Completion. The Certificate of Completion is the enforcement mechanism of this ordinance and will indicate if the installed landscaping meets the requirements previously approved in the Landscape Documentation Package. The Certificate of Completion must contain the following: (1) general project information (application); (2) Certificate of Installation; and (3) copy of landscape irrigation audit. Upon satisfactory submittal of the Certificate of Completion, the department will issue the final landscape permit to the applicant.

A plan check process and associated fees will be created in the Planning and Public Works fee schedule for the implementation of the proposed ordinance. The Planning and Public Works Department will be responsible for processing the Landscape Documentation Package and the Certificate of Completion, and also for issuing the final landscape permit. Staff within the General Services Department will review the landscape and grading design plans and the irrigation plans.

Monitoring and enforcement

The State's model ordinance requires local agencies to monitor landscape water use and ensure compliance with the Water Efficient Landscape Ordinance. Due to limited budget and staff resources, the County does not have the ability to conduct periodic site inspections to verify compliance. The Planning Division will be responsible for ensuring that construction plans comply with ordinance requirements during plan check. Compliance with the proposed ordinance will also rely on self-certification by landscape architects and landscape installers, who will be required to sign affidavits verifying that the landscaping has been designed and installed to comply with the ordinance. Self-certification is effective, as it requires licensed professionals to sign against their license, who could then be subject to disciplinary procedures through their respective license governing boards. This will alleviate the need for periodic site inspections and irrigation audits to verify compliance.

Turf restrictions

Turf uses more water than any other part of a landscape. In an effort to further reduce irrigation water use, the proposed ordinance exceeds the requirements of the State's model ordinance by restricting turf to no greater than 30% of the total landscaped area in non-residential projects. Additionally, the proposed ordinance restricts turf to no greater than 25% of the front yard landscape area of developer installed single-family landscaping, which is in direct compliance with Policy CC-2.16 of the 2030 Countywide General Plan.

The turf limitations described above do not apply to active play areas such as parks, sports fields, golf courses, and where turf provides a playing surface. These areas are considered "special landscape areas" and are allowed to use more water than other landscaped areas.

OTHER AGENCY INVOLVEMENT

The proposed ordinance was released for public review on July 14, 2010. Copies of the proposed ordinance were mailed to all citizens' advisory committee members, numerous county agencies, local landscape architects, and other interested agencies. The proposed ordinance has also been posted on the Planning and Public Works Department website. Additionally, the proposed ordinance was reviewed at the July 28, 2010, Development Review Committee meeting. The proposed ordinance has been reviewed by several of the citizens' advisory committees over the last several months. However, none of the committees have made any specific recommendations for action.

The proposed ordinance has undergone significant edits over the past several months to make the ordinance more user-friendly and to remove unnecessary restrictions. These edits are shown as strikethrough changes in **Attachment C**. A letter submitted by the Farm Bureau **(Attachment E)** was in response to the first draft released on July 14, 2010. The Farm Bureau's comments have been incorporated into the proposed ordinance.

County Counsel has reviewed the proposed ordinance and recommended edits which have been incorporated.

ATTACHMENTS

A: Proposed Water Efficient Landscape Ordinance
B: Application and Submittal Guidance Package
C: Edits from July 14, 2010 Draft
D: State of California Model Ordinance
E: Letter from Farm Bureau
F: Categorical Exemption

Sec. 8-2.XXXX. Purpose.

This Article is adopted in accordance with Government Code Section 65595 for the purpose of complying with California law and promoting water conservation. The provisions set forth in this Article establish a framework for the design, installation, and management of water efficient landscapes.

Sec. 8-2.XXXX. Applicability.

(a) The provisions of this Article shall apply to all of the following landscape projects that are provided and/or required as part of a building permit, grading permit, discretionary permit, or site plan review:

(1) Public agency and private development projects. New construction and rehabilitated landscape projects with landscape area equal to or greater than 2,500 square feet.

(2) Developer-installed in single-family and multi-family residential projects. New construction and rehabilitated landscape projects with landscape area equal to or greater than 2,500 square feet cumulative.

(3) Homeowner-provided in single-family and multi-family residential projects. New construction landscape projects with landscape area equal to or greater than 5,000 square feet that are served by a public water purveyor or community water system, or otherwise required by discretionary permit.

(b) The provisions of this Article shall also apply to the following landscape projects with significant water needs:

(1) Existing landscapes equal to or greater than one acre, with a dedicated water meter. Such landscapes are limited to preparing a water efficient landscape worksheet in accordance with the specifications in the Landscape Documentation Package (see Section 8-2.XXXX Submittal Requirements). If water use exceeds the Maximum Applied Water Allowance, the property owner shall consult the Planning and Public Works Department for recommendations to reduce water use and to prevent water waste.

(2) New and rehabilitated cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries shall require the preparation of a water efficient landscape worksheet and submittal of a Certificate of Completion. Existing cemeteries are limited to (1) above.

(c) The provisions of this Article shall not apply to the following:

(1) registered local, state or federal historical sites;

(2) ecological restoration and similar projects that do not require irrigation systems for longer than five years in duration to establish the plants;

ATTACHMENT A

(3) mined-land reclamation projects that do not require irrigation systems for longer than five years in duration to establish the plants;

(4) plant collections, as part of botanical gardens, arboretums, and nature centers open to the public; and

(5) community gardens.

Sec. 8-2. XXXX. Definitions.

For the purposes of this Article, unless otherwise apparent from the context, certain words and phrases used in this Article are defined as follows:

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

(b) "California Invasive Plant Inventory" means the California Invasive Plant Inventory maintained by the California Invasive Plant Council.

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

(d) "Community garden" means a piece of property or area of a property that is dedicated solely to edible plants and gardened by a cooperative group of people living in the area.

(e) "Developer-installed" means a landscape project installed by or under the direction of the developer of a development project.

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

(g) "Estimated Total Water Use" (ETWU) means the total water used for the landscape.

(h) "ET adjustment factor" (ETAF) means, except for special landscape areas, 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. The ET adjustment factor for special landscape areas shall not exceed 1.0.

(i) "ETo" see reference evapotranspiration.

(j) "Head to head coverage" means full coverage from one sprinkler head to the next.

(k) "Homeowner-provided landscaping" means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner.

(l) "Hydrozone" means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.

(m) "Invasive plant species" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources.

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

(o) "Irrigation efficiency" (IE) means 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 this ordinance is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.

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

(q) "Landscape contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

(r) "Landscape project" means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 8-2.XXXX(Applicability).

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

(t) "Low-head drainage" means water that flows out of the system after the valve turns off due to elevation changes within the system.

(u) "Maximum Applied Water Allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area. It is based upon the area's

reference evapotranspiration, the ET Adjustment Factor (ETAF), and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance.

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

(w) "Mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and 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.

(x) "New construction" means, for the purposes of this ordinance, a new building or structure with a landscape, such as a house, accessory structure, pool, gazebo, or commercial or industrial building. This definition also includes other new landscapes, such as a park, playground, or greenbelt without an associated building.

(y) "Overhead irrigation system" means a system that delivers water through the air (e.g., spray heads and rotors).

(z) "Overspray" means the irrigation water which is delivered beyond the target area.

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

(bb) "Plant factor" is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this 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 this ordinance are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species."

(cc) "Point source irrigation" see low volume irrigation.

(dd) "Precipitation rate" means the rate of application of water measured in inches per hour.

(ee) "Rain sensor" means a component which automatically suspends an irrigation event when it rains.

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

(gg) "Reference Evapotranspiration" or "ETo" means a standard measurement of environmental parameters that affect the water use of plants, and is an estimate of the Evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered.

(hh) "Rehabilitated landscape" means any re-landscaping project that requires a permit, plan check, or design review, meets the requirements of Section 8-2.XXXX(Applicability), and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.

(ii) "Runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape 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.

(jj) "Special Landscape Area" (SLA) means an area of the landscape dedicated solely to edible plants (food producing gardens), areas irrigated with recycled water, water features using recycled water, storm water detention basins, and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.

(kk) "Subsurface irrigation" means an irrigation device with a delivery line and water emitters installed below the soil surface that slowly and frequently emit small amounts of water into the soil to irrigate plant roots.

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

(mm) "Turf" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses. The meaning of "turf" does not include landscape areas planted with non-irrigated native California grasses.

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

Sec. 8-2.XXXX. Submittal Requirements

(a) Landscape Documentation Package. Prior to commencing construction on a landscape project subject to the provisions of this Article, a Landscape Documentation Package shall be submitted to the County for review and approval.

(1) The Landscape Documentation Package shall be filed with the Planning and Public Works Department on a County approved application form. The Landscape Documentation Package application shall include all

required fees and/or deposits, and all plans, specifications, and submittals required by the department, including but not limited to:

(i) General project information
(ii) Water Efficient Landscape Worksheet
(iii) Soil management report
(iv) Landscape and grading design plan
(v) Irrigation design plan

(2) The Landscape Documentation Package application shall only be approved after the Planning Director verifies that the proposed landscape project complies with the provisions of this Article, other applicable provisions of this code, and any applicable conditions of a discretionary permit or other entitlement.

(b) Certificate of Completion. Following installation of landscaping subject to the provisions of this Article, the project applicant shall submit a Certificate of Completion to the Planning and Public Works Department for review and final approval.

(1) Prior to issuance of a certificate of occupancy or final building or grading permit, the Certificate of Completion shall be submitted to the Planning and Public Works Department on a form prescribed by the Planning Director that shall include the following information and documentation:

(i) General project information
(ii) Certificate of Installation
(iii) Copy of Landscape Irrigation Audit

(c) Permit Issuance and Enforcement.

(1) Upon successful completion of the Certificate of Completion, the County shall issue a "final" landscape permit to the property owner/project applicant.

(2) The County may conduct inspections for the purpose of enforcing this Ordinance and, as necessary and appropriate, may utilize any of the enforcement mechanisms set forth in the Yolo County Code or otherwise authorized by law to address violations.

Sec. 8-2.XXXX. Landscaping Standards.

All landscape projects subject to the provisions of this Article shall comply with the following landscaping standards.

(a) Plant selection and grouping.

(1) Any plant may be selected for the landscape, providing the Estimated Total Water Use (ETWU) in the landscape area does not exceed the Maximum Applied Water Allowance (MAWA), and that the plants meet the specifications set forth in (2), (3), (4), and (5) below.

(2) With the exception of Special Landscape Areas, a minimum 25% of landscape area shall be comprised of native plants.

(3) Plants having similar water needs shall be grouped together in distinct hydrozones.

(i) Within distinct hydrozones, plants of moderate and low water use, or moderate and high water use can be mixed, so long as the plant factor of the higher water using plant is used for calculations.

(ii) High water use plants shall not be mixed with low water use plants.

(4) Plants shall be selected appropriately based on their adaptability to the climate, geologic, and topographical conditions of the site. Protection and preservation of existing native California species and natural areas is encouraged.

(5) The use of invasive plant species, as listed in the California Invasive Plant Inventory produced by the California Invasive Plant Council, or as determined by the Director of Planning and Public Works, is prohibited.

(6) Fire prevention needs shall be addressed in fire-prone areas. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b).

(b) Turf requirements.

(1) Turf shall be used wisely and in response to functional needs and shall not be planted if the ETWU exceeds the MAWA.

(2) Turf shall not comprise greater than 25% of the front yard landscape area of developer-installed single-family landscaping.

(3) With the exception of Special Landscape Areas, turf shall not comprise greater than 30% of non-residential landscaped area.

(4) Turf shall not be planted on slopes exceeding 25% where the toe of the slope is adjacent to or within four feet of an impermeable hardscape (rise divided by run x 100 = slope percent).

(c) Soil Amendments, conditioning, and mulching.

(1) A minimum two inch layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications.

(2) Stabilizing mulching products shall be used on slopes.

(3) Soil amendments shall be incorporated based on the recommendations of the soil management report.

(d) Water features.

(1) Recirculating water systems shall be used for all water features.

(2) The surface area of a water feature shall be indicated on the landscape plans and included in the high water use hydrozone area of the water budget calculation.

(3) Recycled water shall be used for decorative water features when available on site.

(e) Stormwater Management.

(1) The landscape project area shall be graded so that all irrigation and normal rainfall remains within the property lines and does not drain on to non-permeable hardscapes.

(2) Rain gardens, cisterns, and other landscape features and practices that increase rainwater capture and create opportunities for infiltration and/or onsite storage are recommended.

(3) Soil compaction in landscape areas is prohibited unless required by the geotechnical or engineering report.

Sec. 8-2.XXXX. Irrigation Requirements.

All landscape projects subject to the provisions of this Article shall comply with the following irrigation requirements.

(a) Irrigation system.

(1) All irrigation systems shall be designed and installed to meet irrigation efficiency criteria as described in the Maximum Applied Water Allowance.

(2) Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system.

(3) Manual shut-off valves 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.

(4) Weather-based self-adjusting irrigation controllers with rain sensors shall be required.

(5) Pressure regulators and/or booster pumps shall be installed so that all components of the irrigation system operate at the manufacturer's recommended optimal pressure.

(6) Irrigation systems shall be designed to prevent runoff or overspray onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

(7) Point source irrigation is required where plant height at maturity will affect the uniformity of an overhead irrigation system.

(8) Low volume irrigation is required in mulched planting areas.

(9) Narrow or irregularly shaped areas, including turf, less than eight feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system.

(10) Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface unless the irrigation audit confirms no overspray or runoff occurs.

(11) Slopes greater than 15 percent shall be irrigated with point source or other low-volume irrigation technology.

(12) Sprinkler heads, rotors, and other emission devices on one valve shall have matched precipitation rates, unless otherwise directed by the manufacturer's specifications.

(13) Head to head coverage shall be required unless otherwise directed by the manufacturer's specifications.

(14) Swing joints or other riser protection components shall be required on all risers.

(15) Check valves or anti-drain valves shall be installed to prevent low-head drainage.

(b) Hydrozones.

(1) Irrigation systems that serve trees shall be exclusively low volume type, and shall be placed on separate valves except when planted in turf areas.

(2) Distinct hydrozones shall be irrigated with separate valves.

(3) Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.

Sec. 8-2.XXXX. Public Education.

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 throughout Yolo County.

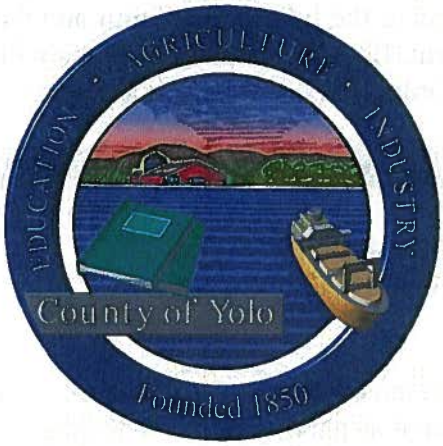
(a) Literature and resources. The Yolo County Planning and Public Works Department shall make available information to the general public regarding the

design, installation, management, and maintenance of water efficient landscapes.

(b) Model homes. Landscaping shall be installed, in compliance with this Article, for all model homes in subdivisions where a Final Subdivision Map has been approved by the County. The landscaping for model homes shall incorporate the policies of this Article and the developer shall include the following:

(1) Signs that identify the model home landscaping 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.

(2) Literature shall be provided to anyone touring a model home that describes the design, installation, management, and maintenance of water efficient landscapes.



COUNTY OF YOLO

DRAFT

WATER EFFICIENT LANDSCAPE ORDINANCE APPLICATION & SUBMITTAL GUIDANCE

Planning and Public Works Department
292 West Beamer Street
Woodland, California 95695-2598

(530) 666-8775
(530) 666-8156 fax

ATTACHMENT B

DOES THE WATER EFFICIENT LANDSCAPE ORDINANCE APPLY TO YOUR PROJECT?

Use the table below to determine if the Water Efficient Landscape Ordinance applies to your project. Answer the questions in the left-hand column and use the "yes" or "no" answers to the right to guide your assessment. If you have any questions with regards to the applicability of the Water Efficient Landscape Ordinance, please consult a planner.

Question	YES	NO
1. Does your project require a building permit, grading permit, discretionary permit, or site plan review from the County?	Answer question #2	Does not apply
2. Is new or rehabilitated landscaping provided and/or required as part of the Conditions of Approval for the project?	Answer question #3 or #4, whichever applies	Does not apply
3. Is this a public agency, private development, or developer installed project with 2,500 square feet or more of landscape area?	Applies	Does not apply
4. Is this a homeowner-provided project with 5,000 square feet or more of landscape area that is served by a public water purveyor or community water system, or otherwise required by discretionary permit?	Applies	Does not apply
5. Is the project a new or rehabilitated cemetery?	Special conditions apply.	

Exempt projects include:

- registered local, state, or federal historical sites;
- ecological restoration and similar projects that do not require irrigation systems for longer than five years in duration to establish the plants;
- mined-land reclamation projects that do not require irrigation systems for longer than five years in duration to establish the plants;
- plant collections, as part of botanical gardens, arboretums, and nature centers open to the public; and
- community gardens.

County of Yolo

PLANNING AND PUBLIC WORKS DEPARTMENT

John Bencomo
DIRECTOR

292 West Beamer Street
Woodland, CA 95695-2598
(530) 666-8775 FAX (530) 666-8156
www.yolocounty.org

LANDSCAPE DOCUMENTATION PACKAGE & CERTIFICATE OF COMPLETION REQUIRED MATERIALS

The following list specifies the information needed to submit the proposed application.

EXPLANATION Application Fee(s): Please check with a planner regarding applicable fees	**Required number of copies**
Landscape Documentation Package (To be submitted prior to landscape installation):	
1. Application Form (SECTION A)	1
2. Water Efficient Landscape Worksheet (SECTION B)	1
3. Soil Management Report (SECTION C)	1
4. Landscape and Grading Design Plan (SECTION D)	3 (two full size plans and one 8 ½ x 11 reduction)
5. Irrigation Design Plan (SECTION E)	3 (two full size plans and one 8 ½ x 11 reduction)
Certificate of Completion (To be submitted after landscape installation and prior to issuance of Final Building Permit or Certificate of Occupancy):	
1. Project Information Sheet (SECTION F)	1
2. Certification of Installation (SECTION G)	1
3. Landscape Irrigation audit (SECTION H)	1
Additional Information: Depending upon the exact nature of the application, additional information may be required after submittal of the project application	

APPLICATION FORM

Applicant/Owner Information						
Applicant			Owner (if different)		
Street Address			Street Address		
City	State	Zip	City	State	Zip
Daytime Phone			Daytime Phone		
E-mail			E-mail		

Project Information	
Property Address	
Assessor's Parcel Number (APN):	Parcel Size
Project Type (Check all that apply) ☐ New ☐ Public Agency ☐ Homeowner-installed ☐ Other _____ ☐ Rehabilitated ☐ Private Development ☐ Developer-installed	
Total Landscape Area (square feet)	
Water Supply Type (potable, recycled, well)	Name of Water Supplier (if not served by private well)

I agree to comply with the requirements of the Water Efficient Landscape Ordinance (SEC. 8-2.XXXX) and submit a complete Landscape Documentation Package. I certify that all the information contained in this application, including but not limited to the information contained in the Landscape Documentation Package (see items in checklist) is complete and accurate to the best of my knowledge.

_____ _____/_____/_____
Signature of Applicant Date

_____
Print Applicant Name

_____ _____/_____/_____
Signature of Property Owner Date

_____
Print Property Owner Name

WATER EFFICIENT LANDSCAPE WORKSHEET

Please complete all sections (B1, B2, & B3) of the worksheet.

SECTION B1. HYDROZONE INFORMATION TABLE

Please complete the hydrozone table 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 Total Landscape Area
		Total (Sq. Ft.):		100%

Summary Hydrozone Table		
Hydrozone*	**Area (Sq. Ft.)**	**% of Total Landscape Area**
High Water Use		
Moderate Water Use		
Low Water Use		
Total:		**100%**

** 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 B2. MAXIMUM APPLIED WATER ALLOWANCE

- Please complete the calculations below. Or, you may use the electronic form (excel spreadsheet) provided on the Department of Water Resources website at (http://www.water.ca.gov/wateruseefficiency/landscapeordinance/). Please print the completed excel spreadsheet and submit as part of the Landscape Documentation Package.
- See Appendix B for examples how to complete this worksheet.

The project's Maximum Applied Water Allowance shall be calculated using the following formula:

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]

where:
MAWA= Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration from Appendix A (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) (OPTIONAL)

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

MAWA= (ETo – Eppt) (0.62) [(0.7 x LA) + (0.3 x SLA)]

Maximum Applied Water Allowance = _____**gallons per year**

Show calculations.

SECTION B3. ESTIMATED TOTAL WATER USE (ETWU)

- Please complete the calculations below. Or, you may use the electronic form (excel spreadsheet) provided on the State of California Department of Water Resources website at (http://www.water.ca.gov/wateruseefficiency/docs/WaterBudget101.xls). Please print the completed excel spreadsheet and submit as part of the Landscape Documentation Package.
- See the examples (Appendix B) for how to complete this worksheet.

The project's Estimated Total Water Use shall be 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) (SEE ATTACHMENT)
PF = Plant Factor from WUCOLS[1]
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.

[1] To obtain plant factors from WUCOLS, see http://www.water.ca.gov/wateruseefficiency/docs/wucols00.pdf - *Water Use Classification of Landscape Species, UCCE 2000.*

SOIL MANAGEMENT REPORT

In order to reduce runoff and encourage healthy plant growth, the project applicant, or his/her designee shall submit soil samples to a laboratory for analysis and recommendations. The report must contain an analysis of the soil for the proposed landscaped areas of the project. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants. The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make any necessary adjustments to the design plans. A copy of the soil management report shall be submitted to Yolo County Planning and Public Works as part of this Landscape Documentation Package.

The soil analysis may include:

a. soil texture;
b. infiltration rate determined by laboratory test or soil texture infiltration rate table;
c. pH;
d. total soluble salts;
e. sodium;
f. percent organic matter; and
g. recommendations about the type and amount of amendments necessary to sustain the vegetation proposed in the landscape and grading design plan.

LANDSCAPE AND GRADING DESIGN PLAN

Provide two full-sized copies of the landscape and grading design plan and one 8 ½ x 11 reduction. The landscape and grading design plan shall describe the design actions that will be employed to meet the landscape design specifications required by the ordinance (Sec. 8-2.XXXX). At a minimum, the landscape and grading design plan shall also:

a. delineate all hydrozones grouped by water needs;
b. identify new and existing trees, shrubs, groundcovers, turf, and any other planting areas
c. identify plants by botanical name and common name separated by water needs;
d. identify plant sizes and quantities;
e. identify property lines, new and existing building footprints, streets, driveways, sidewalks, and other hardscape features;
f. identify pools, fountains, or other water features;
g. indicate total planned square footage of planted areas for high water use plants, moderate water use plants, and low water use plants;
h. identify height of graded slopes;
i. identify drainage patterns;
j. identify pad elevations;
k. identify finish grade;
l. indicate stormwater retention improvements, if applicable;
m. contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape and grading design plan"; and
n. bear the signature of a licensed landscape architect[2], licensed landscape contractor[3], or any other person authorized to design a landscape.

<u>When applicable, please include the following on the landscape and grading design plan:</u>

o. identify special landscape areas (e.g., recreation areas, areas permanently and solely dedicated to edible plants, and areas irrigated with recycled water);
p. identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.); and
q. identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Examples of stormwater best management practices include, but are not limited to:

    1. infiltration beds, swales, and basins that allow water to collect and soak into the ground;
    2. constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and
    3. pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.

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[2] "landscape architect means a person who holds a license to practice landscape architecture in the State of California Business and Professions Code, Section 5615.
[3] "landscape contractor means a person licensed by the State of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

IRRIGATION DESIGN PLAN

Provide two full-sized copies of the irrigation design plan and one 8 ½ x 11 reduction. The irrigation design plan shall describe the irrigation methods and design actions that will be employed to meet the irrigation specifications required by the ordinance (Sec. 8-2.XXXX). At a minimum, the irrigation design plan shall also:

a. identify and depict irrigation system point of connection;
b. identify and depict irrigation system components, (e.g., controller, pipe, remote-control valves, sprinklers, rain shutoff device, check valves, pressure regulating devices, and backflow prevention devices;
c. indicate flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
d. contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan"; and
e. bear the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system.

<u>When applicable, please include the following on the irrigation design plan:</u>

f. indicate location and size of separate water meters for landscape;
g. indicate static water pressure at the point of connection to the public water supply; and
h. identify any recycled water irrigation systems;

PROJECT INFORMATION SHEET

Owner Information	
Property Owner Name	
Mailing Address (street number, city, zip code)	
Daytime Phone	E-mail

Landscape Project Information	
Property Address (if different from above)	Assessor's Parcel Number (APN)
Total area of installed landscape (square feet)	Special Landscape Area (if any)
Date Landscape Documentation Package was submitted to PPW	Date Landscape Documentation Package was approved by PPW

"I/we certify that I/we have received copies of all the documents within the Landscape Documetnation 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

CERTIFICATE OF INSTALLATION

"I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the ordinance and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package. I/we have provided the applicant and/or property owner with a landscape and irrigation maintenance schedule to ensure water use efficiency."

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

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

LANDSCAPE IRRIGATION AUDIT

All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor. The applicant shall provide one copy of the landscape irrigation audit to the Planning and Public Works Department as part of this Certificate of Completion. The landscape irrigation audit shall include, but is not limited to:

a. proof of inspection;
b. system tune-up;
c. system test with distribution uniformity;
d. reporting overspray or run off that causes overland flow;
e. preparation of an irrigation schedule; and
f. photographs (hard copies) that reflect and accurate depiction of the landscape.

APPENDIX A
REFERENCE EVAPOTRANSPIRATION (ETo) TABLE*

The following table can be used to determine the Reference Evaoptranspiration (ETo) in inches per year for various locations in Yolo County. Select the reference location nearest your project or interpolate between two sites as appropriate to determine the Annual ETo for your particular project. Annual ETo is used to calculate your project's Maximum Applied Water Allowance (MAWA).

Nearest Reference Location	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	**Annual ETo (in/yr)**
W. Sac.	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

*Table excerpted from *Appendix A—Evapotranspiration Table, California Code of Regulations, Title 23. Waters, Division 2. Department of Water Resources, Chapter 2.7 – Model Water Efficient Landscape Ordinance* (09/10/09). The values in this table were derived from 1) California Irrigation Management Information System (CIMIS); 2) Reference Evapotranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept. of Water Resources 1999; 3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922; and 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426.

APPENDIX B
LANDSCAPE WATER USE CALCULATION EXAMPLES

This form is intended to assist applicants with landscape water use calculations required as part of Section B of the Landscape Documentation Package.

MAXIMUM APPLIED WATER ALLOWANCE (MAWA)

The Maximum Applied Water Allowance shall be calculated using the following equation:

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x 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 (Woodland is chosen for the example) used in these calculations are derived from the Reference Evapotranspiration Table in *Appendix A*. 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 near Woodland 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 Woodland is 51.6 inches as listed in the Reference Evapotranspiration Table in *Appendix A*.

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x 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)

MAWA = (51.6 inches) (0.62) [(0.7 x 50,000 square feet) + (0.3 x 0)]
MAWA = 1,119,650 gallons per year

(2) In this next hypothetical example, the landscape project near Woodland has the same ETo value of 51.6 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.

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]
MAWA = (51.6 inches) (0.62) [(0.7 x 50,000 square feet) + (0.3 x 2,000 square feet)]

= 31.99 x [35,000 + 600] gallons per year
= 31.99 x 35,600 gallons per year
MAWA=1,138,844 gallons per year

ESTIMATED TOTAL WATER USE: *For landscaping WITHOUT Special Landscape Areas*

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.

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

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 51.6 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

$$ETWU = (51.6)(0.62)\left(\frac{24{,}700}{0.71} + 0\right)$$

ETWU= 1,112,891 gallons per year

Compare ETWU with MAWA: For this example MAWA = (51.6)(0.62) [(0.7 x 50,000) + (0.3 x 0)] = 1,119,650 gallons per year. The ETWU (1,112,891 gallons per year) is less than MAWA (1,119,650 gallons per year). In this example, the water budget complies with the MAWA.

ESTIMATED TOTAL WATER USE: *For landscaping WITH Special Landscape Areas*

(1) 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 51.6 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

$$ETWU = (51.6)(0.62)\left(\frac{23,500}{0.71} + 2,000\right)$$

ETWU= (31.99) (33,099 + 2,000)
ETWU= 1,122,817 gallons per year

Compare ETWU with MAWA. For this example: MAWA = (51.6)(0.62) [(0.7 x 50,000) + (0.3 x 2,000)]
= 31.99 x [35,000 + 600]
= 31.99 x 35,600
=1,138,844 gallons per year

The ETWU (1,122,817 gallons per year) is less than MAWA (1,138,844 gallons per year). For this example, the water budget complies with the MAWA.

Proposed Water Efficient Landscape Ordinance

This document reflects revisions made to the text of the proposed ordinance as released for public review on July 14, 2010.

- All deletions to the July 14th version are designated by ~~strikethrough.~~
- All additions to the July 14th version are designated by <u>underline.</u>

ATTACHMENT C

Sec. 8-2.XXXX. Purpose.

This Article is adopted in accordance with Government Code Section 65595 for the purpose of complying with California law and promoting water conservation. The provisions set forth in this Article establish a ~~structure~~ framework for the design, installation, and management of water efficient landscapes.

Sec. 8-2.XXXX. Applicability.

(a) ~~-~~The provisions of this Article shall apply to all of the following landscape projects that are provided and/or required as part of a building permit, grading permit, discretionary permit, or site plan review:

~~(~~1) ~~-~~Public agency and private development projects. New construction and rehabilitated landscape projects with landscape area equal to or greater than 2,500 square feet.

~~(~~2) Developer-installed in single-family and multi-family residential projects. New construction and rehabilitated landscape projects with landscape area equal to or greater than 2,500 square feet cumulative.

~~(~~3) Homeowner-provided ~~and/or homeowner-hired~~ in single-family and multi-family residential projects. New construction landscape projects with landscape area equal to or greater than 5,000 square feet that are served by a public water purveyor or community water system, or otherwise required by ~~a~~ discretionary permit. ~~.~~

(b) The provisions of this Article shall also apply to the following landscape projects with significant water needs:

~~(~~41~~)~~ Existing landscapes equal to or greater than one acre, with a dedicated water meter. Such landscapes are limited to preparing a water efficient landscape worksheet in accordance with the specifications in the Landscape Documentation Package (see Section 8-2.XXXX Submittal Requirements). If water use exceeds the Maximum Applied Water Allowance, the property owner shall consult the Planning and Public Works Department for recommendations to reduce water use and to prevent water waste.

~~(~~5~~)~~2) New and rehabilitated cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries shall require the preparation of a water efficient landscape worksheet and submittal of a Certificate of Completion. Existing cemeteries are limited to (41) above.

(~~b~~c) The provisions of this Article shall not apply to the following:

~~(~~1) ~~-~~registered local, state or federal historical sites;

~~(2) new or renovated~~ ecological restoration and similar projects that do not require ~~permanent~~ irrigation systems ~~that exceed~~for longer than five years in duration to establish the plants;

~~(3)~~ mined-land reclamation projects that do not require ~~a permanent~~ irrigation systems for longer than five years in duration to establish the plants;

~~(4)~~ plant collections, as part of botanical gardens, ~~and~~ arboretums, and nature centers open to the public; ~~and~~and

~~5) nature centers or other demonstration areas designed to educate the public on the value of the wise use of natural resources.~~

(5) community gardens.

Sec. 8-2. XXXX. Definitions.

For the purposes of this Article, unless otherwise apparent from the context, certain words and phrases used in this Article are defined as follows:

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

(b) "California Invasive Plant Inventory" means the California Invasive Plant Inventory maintained by the California Invasive Plant Council.

~~"Certified irrigation designer" means 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.~~

~~"Certified landscape irrigation auditor" means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's WaterSense irrigation auditor certification program and Irrigation Association's Certified Landscape Irrigation Auditor program.~~

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

(d) "Community garden" means a piece of property or area of a property that is dedicated solely to edible plants and gardened by a cooperative group of people living in the area.

(e) "Developer-installed" means a landscape project installed by or under the direction of the developer of a development project.

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

(g) "Estimated Total Water Use" (ETWU) means the total water used for the landscape.

(h) "ET adjustment factor" (ETAF) means, except for special landscape areas, 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. The ET adjustment factor for special landscape areas shall not exceed 1.0.

(i) "ETo" see reference evapotranspiration.

(j) "Head to head coverage" means full coverage from one sprinkler head to the next.

(k) "Homeowner-provided landscaping" means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner.

(l) "Hydrozone" means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.

(m) "Invasive plant species" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources.

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

(o) "Irrigation efficiency" (IE) means 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 this ordinance is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.

~~"Landscape architect" means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.~~

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

(q) "Landscape contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

(r) "Landscape project" means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 8-2.XXXX(Applicability).

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

(t) "Low-head drainage" means water that flows out of the system after the valve turns off due to elevation changes within the system.

(u) "Maximum Applied Water Allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor (ETAF), and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance.

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

(w) "Mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and 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.

(x) "New construction" means, for the purposes of this ordinance, a new building or structure with a landscape, such as a house, accessory structure, pool, gazebo, or commercial or industrial building. This definition also includes ~~or~~ other new landscapes, such as a park, playground, or greenbelt without an associated building.

(y) "Overhead irrigation system" means a system that delivers water through the air (e.g., spray heads and rotors).

(z) "Overspray" means the irrigation water which is delivered beyond the target area.

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

(bb) "Plant factor" is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this 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 this ordinance are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species."

(cc) "Point source irrigation" see low volume irrigation.

(dd) "Precipitation rate" means the rate of application of water measured in inches per hour.

(ee) "Rain sensor" means a component which automatically suspends an irrigation event when it rains.

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

(gg) "Reference Evapotranspiration" or "ETo" means a standard measurement of environmental parameters that affect the water use of plants, and is an estimate of the Evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered.

(hh) "Rehabilitated landscape" means any re-landscaping project that requires a permit, plan check, or design review, meets the requirements of Section 8-2.XXXX(Applicability), and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.

(ii) "Runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape 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.

(jj) "Special Landscape Area" (SLA) means an area of the landscape dedicated solely to edible plants (food producing gardens), areas irrigated with recycled water, water features using recycled water, storm water detention basins, and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.

(kk) "Subsurface irrigation" means an irrigation device with a delivery line and water emitters installed below the soil surface that slowly and frequently emit small amounts of water into the soil to irrigate plant roots.

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

(mm) "Turf" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and

Buffalo grass are warm-season grasses. The meaning of "turf" does not include landscape areas planted with non-irrigated native California grasses.

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

Sec. 8-2.XXXX. Submittal Requirements

(a) Landscape Documentation Package. Prior to commencing construction on a landscape project subject to the provisions of this Article, a Landscape Documentation Package shall be submitted to the County for review and approval.

(1) The Landscape Documentation Package shall be filed with the Planning and Public Works Department on a County approved application form. The Landscape Documentation Package application shall include all required fees and/or deposits, and all plans, specifications, and submittals required by the department, including but not limited to:

(i) General project information
(ii) Water Efficient Landscape Worksheet
(iii) Soil management report
(iv) Landscape and grading design plan
(v) Irrigation design plan

(2) The Landscape Documentation Package application shall only be approved after the Planning Director verifies that the proposed landscape project complies with the provisions of this Article, other applicable provisions of this code, and any applicable conditions of a discretionary permit or other entitlement.

(b) Certificate of Completion. Following installation of landscaping subject to the provisions of this Article, the project applicant shall submit a Certificate of Completion to the Planning and Public Works Department for review and final approval.

(1) Prior to issuance of a certificate of occupancy or final building or grading permit, the Certificate of Completion shall be submitted to the Planning and Public Works Department on a form prescribed by the Planning Director that shall include the following information and documentation:

(i) A. General project information
(ii) B. Certificate of Installation

(iii)~~C.~~ Copy of Landscape Irrigation Audit

(c) Permit Issuance and Enforcement.

(1) Upon successful completion of the Certificate of ~~Compliance~~Completion, the County shall issue a "final" landscape permit to the property owner/project applicant.

(2) ~~Upon notice of the applicant or property owner, T~~the County ~~shall reserve the right to enter the project site to~~may conduct inspections ~~and irrigation audits~~ for the purpose of enforcing this Ordinance and, as necessary and appropriate, may utilize any of the enforcement mechanisms set forth in the Yolo County Code or otherwise authorized by law to address violations. ~~before, during, or after installation of the landscaping.~~

Sec. 8-2.XXXX. Landscaping Standards.

All landscape projects subject to the provisions of this Article shall comply with the following landscaping standards.

(a) Plant selection and grouping.

(1) Any plant may be selected for the landscape, providing the Estimated Total Water Use (ETWU) in the landscape area does not exceed the Maximum Applied Water Allowance (MAWA), and that the plants meet the specifications set forth in (2), (3), (4), and (5) below.

(2) With the exception of Special Landscape Areas, a minimum 25% of landscape area shall be comprised of native plants.

(3) Plants having similar water needs shall be grouped together in distinct hydrozones.

(i)~~A.~~ Within distinct hydrozones, plants of moderate and low water use, or moderate and high water use can be mixed, so long as the plant factor of the higher water using plant is used for calculations.

(ii) ~~B.~~ High water use plants shall not be mixed with low water use plants.

(4) Plants shall be selected appropriately based on their adaptability to the climate, geologic, and topographical conditions of the site. Protection and preservation of existing native California species and natural areas is encouraged.

(5) The use of invasive plant species, as listed in the California Invasive Plant Inventory produced by the California Invasive Plant Council, or as determined by the Director of Planning and Public Works, is prohibited.

(6) Fire prevention needs shall be addressed in fire-prone areas. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b).

(b) Turf requirements.

(1) Turf shall be used wisely and in response to functional needs and shall not be planted if the ETWU exceeds the MAWA.

(2) Turf shall not comprise greater than 25% of the front yard landscape area of developer-installed single-family landscaping.

(3) With the exception of Special Landscape Areas, turf shall not comprise greater than 30% of non-residential landscaped area.

(4) Turf shall not be planted ~~in the following conditions:~~

~~A. Slopes~~on slopes exceeding 25% where the toe of the slope is adjacent to or within four feet of an impermeable hardscape (rise divided by run x 100 = slope percent).

~~B. Planting areas eight feet wide or less.~~

~~C. Street medians, traffic islands, planter strips, or bulbouts of any size.~~

(c) Soil Amendments, conditioning, and mulching.

(1) A minimum two inch layer of mulch ~~installed over a synthetic filter fabric blanket~~ shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications.

(2) Stabilizing mulching products shall be used on slopes.

(3) Soil amendments shall be incorporated based on the recommendations of the soil management report.

(d) Water features.

(1) Recirculating water systems shall be used for all water features.

(2) The surface area of a water feature shall be indicated on the landscape plans and included in the high water use hydrozone area of the water budget calculation.

(3) Recycled water shall be used for decorative water features when available on site.

(e) Stormwater Management.

(1) The landscape project area shall be graded so that all irrigation and normal rainfall remains within the property lines and does not drain on to non-permeable hardscapes.

(2) Rain gardens, cisterns, and other landscape features and practices that increase rainwater capture and create opportunities for infiltration and/or onsite storage are recommended.

(3) Soil compaction in landscape areas is prohibited unless required by the geotechnical or engineering report.

Sec. 8-2.XXXX. Irrigation Requirements.

All landscape projects subject to the provisions of this Article shall comply with the following irrigation requirements.

(a) Irrigation system.

(1) All irrigation systems shall be designed and installed to meet irrigation efficiency criteria as described in the Maximum Applied Water Allowance.

~~2) A dedicated landscape water meter shall be installed for each landscape project greater than 5,000 square feet, except for single family residences.~~

~~3) Irrigation systems with meters 1.5 inches or greater shall have a high-flow sensor that can detect high flow conditions and have the capability to shut off the irrigation system automatically.~~

(42) Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system.

(~~5~~3) Manual shut-off valves 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.

(~~6~~4) Weather-based self-adjusting irrigation controllers with rain sensors shall be required.

(~~7~~5) Pressure regulators and/or booster pumps shall be installed so that all components of the irrigation system operate at the manufacturer's recommended optimal pressure.

~~(8)~~6) Irrigation systems shall be designed to prevent runoff or overspray onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

~~(9)~~7) Point source irrigation is required where plant height at maturity will affect the uniformity of an overhead irrigation system.

~~(10)~~8) Low volume irrigation is required in mulched planting areas.

(9) Narrow or irregularly shaped areas, including turf, less than eight feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system.

~~(11)~~10) Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface unless the irrigation audit confirms no overspray or runoff occurs.

~~(12)~~11) Slopes greater than 15 percent shall be irrigated with point source or other low-volume irrigation technology.

~~(13)~~12) Sprinkler heads, rotors, and other emission devices on one valve shall have matched precipitation rates, unless otherwise directed by the manufacturer's specifications.

~~(14)~~13) Head to head coverage shall be required unless otherwise directed by the manufacturer's specifications.

~~(15)~~14) Swing joints or other riser protection components shall be required on all risers.

~~(16)~~15) Check valves or anti-drain valves shall be installed to prevent low-head drainage.

~~(b)~~ Hydrozones.

(1) Irrigation systems that serve trees shall be exclusively ~~drip or bubbler~~low volume type, and shall be placed on separate valves except when planted in turf areas.

(2) Distinct hydrozones shall be irrigated with separate valves.

(3) Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.

Sec. 8-2.XXXX. Public Education.

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 throughout Yolo County.

~~(a)~~ Literature and resources. The Yolo County Planning and Public Works Department shall make available information to the general public regarding the design, installation, management, and maintenance of water efficient landscapes.

~~(b)~~ Model homes. Landscaping shall be installed, in compliance with this Article, for all model homes in subdivisions where a Final Subdivision Map has been approved by the County. The landscaping for model homes shall incorporate the policies of this Article and the developer shall include the following:

~~(1)~~ Signs that identify the model home landscaping 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.

~~(2)~~ Literature shall be provided to anyone touring a model home that describes the design, installation, management, and maintenance of water efficient landscapes.

Model Water Efficient Landscape Ordinance

ATTACHMENT D

California Code of Regulations
Title 23. Waters
Division 2. Department of Water Resources
Chapter 2.7. Model Water Efficient Landscape Ordinance

§ 490. Purpose.

(a) The State Legislature has found:

(1) that the waters of the state are of limited supply and are subject to ever increasing demands;

(2) that the continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future uses;

(3) that it is the policy of the State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource;

(4) that landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development; and

(5) that landscape design, installation, maintenance and management can and should be water efficient; and

(6) that Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use.

(b) Consistent with these legislative findings, the purpose of this model ordinance is to:

(1) promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;

(2) establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitated projects;

(3) establish provisions for water management practices and water waste prevention for existing landscapes;

(4) use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount;

(5) promote the benefits of consistent landscape ordinances with neighboring local and regional agencies;

(6) encourage local agencies and water purveyors to use economic incentives that promote the efficient use of water, such as implementing a tiered-rate structure; and

(7) encourage local agencies to designate the necessary authority that implements and enforces the provisions of the Model Water Efficient Landscape Ordinance or its local landscape ordinance.

Note: Authority cited: Section 65593, Government Code. Reference: Sections 65591, 65593, 65596, Government Code.

§ 490.1 Applicability

(a) After January 1, 2010, this ordinance shall apply to all of the following landscape projects:

(1) new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review;

(2) new construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review;

(3) new construction landscapes which are homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building or landscape permit, plan check or design review;

(4) existing landscapes limited to Sections 493, 493.1 and 493.2; and
(5) cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 492.4, 492.11 and 492.12; and existing cemeteries are limited to Sections 493, 493.1 and 493.2.
(b) This ordinance does not apply to:
(1) registered local, state or federal historical sites;
(2) ecological restoration projects that do not require a permanent irrigation system;
(3) mined-land reclamation projects that do not require a permanent irrigation system; or
(4) plant collections, as part of botanical gardens and arboretums open to the public.

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

§ 491. Definitions.
The terms used in this ordinance have the meaning set forth below:
(a) "applied water" means the portion of water supplied by the irrigation system to the landscape.
(b) "automatic irrigation controller" means 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.
(c) "backflow prevention device" means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.
(d) "Certificate of Completion" means the document required under Section 492.9.
(e) "certified irrigation designer" means 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.
(f) "certified landscape irrigation auditor" means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's WaterSense irrigation auditor certification program and Irrigation Association's Certified Landscape Irrigation Auditor program.
(g) "check valve" or "anti-drain valve" means a valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.
(h) "common interest developments" means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
(i) "conversion factor (0.62)" means the number that converts acre-inches per acre per year to gallons per square foot per year
(j) "drip irrigation" means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
(k) "ecological restoration project" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
(l)"effective precipitation" or "usable rainfall" (Eppt) means the portion of total precipitation which becomes available for plant growth.
(m) "emitter" means a drip irrigation emission device that delivers water slowly from the system to the soil.
(n) "established landscape" means 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.
(o) "establishment period of the plants" means 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.

(p) "Estimated Total Water Use" (ETWU) means the total water used for the landscape as described in Section 492.4.
(q) "ET adjustment factor" (ETAF) means 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.
(r) "evapotranspiration rate" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.
(s) "flow rate" means the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.
(t) "hardscapes" means any durable material (pervious and non-pervious).
(u) "homeowner-provided landscaping" means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who occupies the dwelling he or she owns. This excludes speculative homes, which are not owner-occupied dwellings.
(v) "hydrozone" means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.
(w) "infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).
(x)"invasive plant species" means 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.
(y) "irrigation audit" means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule.
(z) "irrigation efficiency" (IE) means 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 this ordinance is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.
(aa) "irrigation survey" means 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.
(bb) "irrigation water use analysis" means an analysis of water use data based on meter readings and billing data.
(cc) "landscape architect" means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.
(dd) "landscape area" means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).

(ee) "landscape contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
(ff) "Landscape Documentation Package" means the documents required under Section 492.3.
(gg) "landscape project" means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 490.1.
(hh) "lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
(ii) "local agency" means a city or county, including a charter city or charter county, that is responsible for adopting and implementing the ordinance. The local agency is also responsible for the enforcement of this ordinance, including but not limited to, approval of a permit and plan check or design review of a project.
(jj) "local water purveyor" means any entity, including a public agency, city, county, or private water company that provides retail water service.
(kk) "low volume irrigation" means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
(ll) "main line" means the pressurized pipeline that delivers water from the water source to the valve or outlet.
(mm) "Maximum Applied Water Allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 492.4. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.
(nn) "microclimate" means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.
(oo) "mined-land reclamation projects" means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.
(pp) "mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and 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.
(qq) "new construction" means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.
(rr) "operating pressure" means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.
(ss) "overhead sprinkler irrigation systems" means systems that deliver water through the air (e.g., spray heads and rotors).
(tt) "overspray" means the irrigation water which is delivered beyond the target area.
(uu) "permit" means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.
(vv) "pervious" means any surface or material that allows the passage of water through the material and into the underlying soil.
(ww) "plant factor" or "plant water use factor" is a factor , when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this 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 this ordinance are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species".
(xx) "precipitation rate" means the rate of application of water measured in inches per hour.
(yy) "project applicant" means the individual or entity submitting a Landscape Documentation Package required under Section 492.3, to request a permit, plan check, or design review from the local agency. A project applicant may be the property owner or his or her designee.
(zz) "rain sensor" or "rain sensing shutoff device" means a component which automatically suspends an irrigation event when it rains.
(aaa) "record drawing" or "as-builts" means 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.
(bbb) "recreational area" means areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.
(ccc) "recycled water", "reclaimed water", or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.
(ddd) "reference evapotranspiration" or "ETo" means a standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month, or year as represented in Section 495.1, 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 Allowance so that regional differences in climate can be accommodated.
(eee) "rehabilitated landscape" means any re-landscaping project that requires a permit , plan check, or design review, meets the requirements of Section 490.1, and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.
(fff) "runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape 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.
(ggg) "soil moisture sensing device" or "soil moisture sensor" means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.
(hhh) "soil texture" means the classification of soil based on its percentage of sand, silt, and clay.
(iii)"Special Landscape Area" (SLA) means an area of the landscape dedicated solely to edible plants, 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.
(jjj) "sprinkler head" means a device which delivers water through a nozzle.
(kkk) "static water pressure" means the pipeline or municipal water supply pressure when water is not flowing.
(lll) "station" means an area served by one valve or by a set of valves that operate simultaneously.
(mmm) "swing joint" means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.
(nnn) "turf" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses.
(ooo) "valve" means a device used to control the flow of water in the irrigation system.
(ppp) "water conserving plant species" means a plant species identified as having a low plant factor.
(qqq) "water feature" means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in

the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.
(rrr) "watering window" means the time of day irrigation is allowed.
(sss) "WUCOLS" means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2000.

Note: Authority Cited: Section 65595, Government Code. Reference: Sections 65592, 65596, Government Code.

§ 492. Provisions for New Construction or Rehabilitated Landscapes.
(a) A local agency may designate another agency, such as a water purveyor, to implement some or all of the requirements contained in this ordinance. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this ordinance.

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

§ 492.1 Compliance with Landscape Documentation Package.
(a) Prior to construction, the local agency shall:
(1) provide the project applicant with the ordinance and procedures for permits, plan checks, or design reviews;
(2) review the Landscape Documentation Package submitted by the project applicant;
(3) approve or deny the Landscape Documentation Package;
(4) issue a permit or approve the plan check or design review for the project applicant; and
(5) upon approval of the Landscape Documentation Package, submit a copy of the Water Efficient Landscape Worksheet to the local water purveyor.
(b) Prior to construction, the project applicant shall:
(1) submit a Landscape Documentation Package to the local agency.
(c) Upon approval of the Landscape Documentation Package by the local agency, the project applicant shall:
(1) receive a permit or approval of the plan check or design review 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 local water purveyor.

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

§ 492.2 Penalties.
(a) A local agency may establish and administer penalties to the project applicant for non-compliance with the ordinance to the extent permitted by law.

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

§ 492.3 Elements of the Landscape Documentation Package.
(a) The Landscape Documentation Package shall include the following six (6) elements:
(1) project information;
(A) date
(B) project applicant
(C) project address (if available, parcel and/or lot number(s))
(D) total landscape area (square feet)
(E) project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)
(F) water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well
(G) checklist of all documents in Landscape Documentation Package
(H) project contacts to include contact information for the project applicant and property owner
(I) applicant signature and date with statement, "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package".
(2) Water Efficient Landscape Worksheet;
(A) hydrozone information table
(B) water budget calculations
1. Maximum Applied Water Allowance (MAWA)
2. Estimated Total Water Use (ETWU)
(3) soil management report;
(4) landscape design plan;
(5) irrigation design plan; and
(6) grading design plan.

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

§ 492.4 Water Efficient Landscape Worksheet.
(a) A project applicant shall complete the Water Efficient Landscape Worksheet which contains two sections (see sample worksheet in Appendix B):
(1) a hydrozone information table (see Appendix B, Section A) for the landscape project; and
(2) a water budget calculation (see Appendix B, Section B) for the landscape project. For the calculation of the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use the ETo values from the Reference Evapotranspiration Table in Appendix A. For geographic areas not covered in Appendix A, use data from other cities located nearby in the same reference evapotranspiration zone, as found in the CIMIS Reference Evapotranspiration Zones Map, Department of Water Resources, 1999.
(b) Water budget calculations shall adhere to the following requirements:
(1) The plant factor used 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 Landscape Areas shall be identified and their water use calculated as described below.
(4) ETAF for Special Landscape Areas shall not exceed 1.0.
(c) Maximum Applied Water Allowance
The Maximum Applied Water Allowance shall be calculated using the equation:

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

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 A, 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 A.

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x 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)
MAWA = (51.1 inches) (0.62) [(0.7 x 50,000 square feet) + (0.3 x 0)]
= 1,108,870 gallons per year
To convert from gallons per year to hundred-cubic-feet per year:
= 1,108,870/748 = 1,482 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.

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]
MAWA = (51.1 inches) (0.62) [(0.7 x 50,000 square feet) + (0.3 x 2,000 square feet)]
= 31.68 x [35,000 + 600] gallons per year
= 31.68 x 35,600 gallons per year
=1,127,808 gallons per year or 1,508 hundred-cubic-feet per year

(d) Estimated Total Water Use.
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

$$ETWU = (51.1)(0.62)\left(\frac{23{,}500}{0.71} + 2{,}000\right)$$

= (31.68) (33,099 + 2,000)

= 1,111,936 gallons per year

Compare ETWU with MAWA. For this example:
MAWA = (51.1) (0.62) [(0.7 x 50,000) + (0.3 x 2,000)]
= 31.68 x [35,000 + 600]
= 31.68 x 35,600
=1,127,808 gallons per year

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.

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

§ 492.5 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 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:
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 local agency as part of the Landscape Documentation Package; or
(B) If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate 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 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 local agency with Certificate of Completion.

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

§ 492.6 Landscape Design Plan.

(a) For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.
(1) Plant Material
(A) Any plant may be selected for the landscape, providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance. 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 and turf species;

3. selection of plants based on disease and pest resistance;
4. selection of trees based on applicable local 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 492.7(a)(2)(D).
(C) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:
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, 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 492.5).
(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 landscape 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 any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:
(A) infiltration beds, swales, and basins that allow water to collect and soak into the ground;
(B) constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; 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 (e.g., rain gardens, cisterns, etc.);
(12) contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan"; and
(13) bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title16 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code.)

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

§ 492.7 Irrigation Design Plan.
(a) For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.
(1) System
(A) 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. A project applicant shall refer to the applicable local agency code (i.e., public health) for additional backflow prevention requirements.
(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 492.4 regarding the Maximum Applied Water Allowance.
(L) It is highly recommended that the project applicant or local agency inquire with the local water purveyor about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.
(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 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 landscape area is adjacent to permeable surfacing and no runoff occurs; or
2. the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
3. the irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package and clearly demonstrates strict adherence to irrigation system design criteria in Section 492.7 (a)(1)(H). Prevention of overspray and runoff must be confirmed during the irrigation audit.
(T) 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 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. plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
2. the plant factor of the higher water using plant is used for calculations.
(E) Individual hydrozones that mix high and low water use plants shall not be permitted.
(F) On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table (see Appendix B 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) location and size of separate water meters for landscape;
(2) 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 492.14;
(6) the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan"; and
(7) the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code.)

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

§ 492.8 Grading Design Plan.
(a) For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading plan shall be submitted as part of the Landscape Documentation Package. A comprehensive grading plan prepared by a civil engineer for other local agency permits satisfies this requirement.
(1) The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including:
(A) height of graded slopes;
(B) drainage patterns;
(C) pad elevations;
(D) finish grade; and
(E) stormwater retention improvements, if applicable.
(2) To prevent excessive erosion and runoff, it is highly recommended that project applicants:
(A) grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;
(B) avoid disruption of natural drainage patterns and undisturbed soil; and
(C) avoid soil compaction in landscape areas.
(3) The grading design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan" and shall bear the signature of a licensed professional as authorized by law.

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

§ 492.9 Certificate of Completion.

(a) The Certificate of Completion (see Appendix C for a sample certificate) shall include the following six (6) elements:

(1) project information sheet that contains:

(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 "as-built" or record drawings shall be included with the certification;

(3) irrigation scheduling parameters used to set the controller (see Section 492.10);

(4) landscape and irrigation maintenance schedule (see Section 492.11);

(5) irrigation audit report (see Section 492.12); and

(6) soil analysis report, if not submitted with Landscape Documentation Package, and documentation verifying implementation of soil report recommendations (see Section 492.5).

(b) The project applicant shall:

(1) submit the signed Certificate of Completion to the local agency for review;

(2) ensure that copies of the approved Certificate of Completion are submitted to the local water purveyor and property owner or his or her designee.

(c) The local agency shall:

(1) receive the signed Certificate of Completion from the project applicant;

(2) approve or deny the Certificate of Completion. If the Certificate of Completion is denied, the local agency shall provide information to the project applicant regarding reapplication, appeal, or other assistance.

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

§ 492.10 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 automatic irrigation controllers.

(2) Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. If allowable hours of irrigation differ from the local water purveyor, the stricter of the two shall apply. Operation of the irrigation system outside the normal 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 (e.g., 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.

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

§ 492.11 Landscape and Irrigation Maintenance Schedule.
(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 and obstruction to emission devices. Operation of the irrigation system outside the normal 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.

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

§ 492.12 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.
(a) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.
(b) For new construction and rehabilitated landscape projects installed after January 1, 2010, as described in Section 490.1:
(1) the project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule;
(2) the local agency shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Allowance.

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

§ 492.13 Irrigation Efficiency.

(a) 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.

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

§ 492.14 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 in Section 492.14(b).

(b) Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the local water purveyor stating that recycled water meeting all public health codes 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.

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

§ 492.15 Stormwater Management.

(a) Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site retention and infiltration are encouraged.

(b) Project applicants shall refer to the local agency or Regional Water Quality Control Board for information on any applicable stormwater ordinances and stormwater management plans.

(c) Rain gardens, cisterns, and other landscapes features and practices that increase rainwater capture and create opportunities for infiltration and/or onsite storage are recommended.

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

§ 492.16 Public Education.

(a) Publications. Education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation, management and maintenance that save water is encouraged in the community.

(1) A local agency shall provide information to owners of new, single-family residential homes regarding the design, installation, management, and maintenance of water efficient landscapes.

(b) Model Homes. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this ordinance.

(1) Signs shall be used to identify the model as an example of a water efficient landscape featuring elements such as hydrozones, irrigation equipment, and others that contribute to the overall water efficient theme.

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

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

§ 492.17 Environmental Review.
(a) The local agency must comply with the California Environmental Quality Act (CEQA), as appropriate.

Note: Authority cited: Section 21082, Public Resources Code. Reference: Sections 21080, 21082, Public Resources Code.

§ 493. Provisions for Existing Landscapes.
(a) A local agency may designate another agency, such as a water purveyor, to implement some or all of the requirements contained in this ordinance. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this ordinance.

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

§ 493.1 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.
(a) This section, 493.1, shall apply to all existing landscapes that were installed before January 1, 2010 and are over one acre in size.
(1) For all landscapes in 493.1(a) that have a water meter, the local agency shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys, and irrigation audits to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the Maximum Applied Water Allowance for existing landscapes. The Maximum Applied Water Allowance for existing landscapes shall be calculated as: MAWA = (0.8) (ETo)(LA)(0.62).
(2) For all landscapes in 493.1(a), that do not have a meter, the local agency shall administer programs that may include, but not be limited to, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.
(b) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

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

§ 493.2 Water Waste Prevention.
(a) Local agencies shall prevent water waste resulting from inefficient landscape irrigation by prohibiting 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. Penalties for violation of these prohibitions shall be established locally.
(b) Restrictions regarding overspray and runoff may be modified if:
(1) the landscape area is adjacent to permeable surfacing and no runoff occurs; or
(2) the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.

Note: Authority cited: Section 65594, Government Code. Reference: Section 65596, Government Code.

§ 494. Effective Precipitation.
(a) A local agency 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= (ETo - Eppt) (0.62) [(0.7 x LA) + (0.3 x SLA)].

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

Appendices.

Appendix A. Reference Evapotranspiration (ETo) Table.

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
ALAMEDA													
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
ALPINE													
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
AMADOR													
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
BUTTE													
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
CALAVERAS													
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
COLUSA													
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
CONTRA COSTA													
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
DEL NORTE													
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
EL DORADO													
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
FRESNO													
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													
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

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
GLENN													
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
HUMBOLDT													
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
Hoopa	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
IMPERIAL													
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
INYO													
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
KERN													
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
KERN													
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
KINGS													
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

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
LAKE													
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
LASSEN													
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
LOS ANGELES													
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
LOS ANGELES													
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
MADERA													
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
MARIN													
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
MARIPOSA													
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
MENDOCINO													
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
MERCED													
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

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
MODOC													
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
MONO													
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
MONTEREY													
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
MONTEREY													
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
NAPA													
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
NEVADA													
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
ORANGE													
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
PLACER													
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
PLUMAS													
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
RIVERSIDE													
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

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
RIVERSIDE													
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
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
SACRAMENTO													
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
SAN BENITO													
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
SAN BERNARDINO													
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
SAN DIEGO													
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
SAN DIEGO													
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

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County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
SAN FRANCISCO													
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
SAN JOAQUIN													
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
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
SAN LUIS OBISPO													
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
SAN MATEO													
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
SANTA BARBARA													
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 BARBARA													
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
SANTA CLARA													
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
SANTA CRUZ													
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

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
SHASTA													
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
SIERRA													
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
SISKIYOU													
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
SOLANO													
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
SONOMA													
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
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
STANISLAUS													
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
SUTTER													
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
TEHAMA													
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

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
TRINITY													
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
TULARE													
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
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
TUOLUMNE													
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
VENTURA													
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
YOLO													
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
YUBA													
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 B – Sample 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
	Total			100%

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:

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]

where:

MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration from Appendix A (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:

MAWA= (ETo – Eppt) (0.62) [(0.7 x LA) + (0.3 x 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:

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

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 C – Sample 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 local agency_____
2. Date the Landscape Documentation Package was approved by the local agency_____
3. Date that a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) was submitted to the local water purveyor_____

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 ordinance 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 ordinance Section 492.10.

PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

Attach schedule of Landscape and Irrigation Maintenance per ordinance Section 492.11.

PART 5. LANDSCAPE IRRIGATION AUDIT REPORT

Attach Landscape Irrigation Audit Report per ordinance Section 492.12.

PART 6. SOIL MANAGEMENT REPORT

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package per ordinance Section 492.5.

Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 492.5.

American Farm Bureau Federation/California Farm Bureau Federation

YOLO COUNTY FARM BUREAU

69 West Kentucky Avenue • P.O. Box 1556, Woodland, California 95776
530-662-6316 • FAX 530-662-8611 • www.yolofarmbureau.org

PRESIDENT
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1ST VICE-PRESIDENT
Joe F. Martinez
2ND VICE-PRESIDENT
Fred Manas
SECRETARY/TREASURER
Denise Sagara

September 13, 2010

Jeff Anderson, Assistant Planner
Planning and Public Works Department
292 West Beamer Street
Woodland, CA 95695-2598

Re: Yolo County Farm Bureau Comments on Draft Water Efficient Landscape Ordinance

Dear Mr. Anderson:

The Yolo County Farm Bureau board has carefully reviewed the county's draft Water Efficient Landscape ordinance and as part of this process has compared it with relevant sections of the Yolo County Land Development and Zoning Ordinance, the Yolo County building permit requirements as they are presently constituted, the text of AB 1881, and the model state ordinance. It is the board's conclusion that the draft ordinance can and must be read to exclude houses built on agriculturally zoned parcels.

The text of AB 1881 insofar as it spells out the Legislative history clarifies that it was the intent of the Legislature to focus on "urban landscapes". (Please see Government Code section 65592 (g)(1) which recites that in 2004 the Legislature requested a to-be-selected stakeholder group to "develop recommendations for improving the efficiency of water use in urban irrigated landscapes". It appears that the model ordinance which was drafted at the state level has been construed by many to go beyond this very reasonable limitation.

The actual text of the draft ordinance suggests that it does not apply to landscaping installed to compliment a farmhouse on an agricultural parcel. First, paragraph (a) of the Applicability portion of the draft ordinance states "The provisions of this Article shall apply to all the following landscape projects that are provided and/or required as part of a building permit, grading permit, discretionary permit, or site plan review". Review of the Yolo County submittal requirements for a residential building permit shows that there is no requirement that an applicant submit any type of plan for landscaping. Thus, there is no basis to argue that landscaping plans are provided or required as part of the building permit application. The YCFB board believes that this provision excludes housing built on agriculturally zoned acreage: landscaping connected to these houses has never been subjected to any type of permit or design review, much less a requirement to install same.

And, the language "Homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects" (see, Sec. 8-2.XXXX. Applicability) suggests that it pertains only to houses built on parcels in zoned areas that are primarily residential, such as RS, RRA, R-1, R-2 etc. These zoning designations all focus on residential characteristics and protect the environment suitable thereto. (see, the "purpose" sections of each of the zoned areas referred to above). However, the purpose of agricultural zoning is completely different: it is to limit land best suited for agriculture to that and closely related uses (see, Section 8-2.601) and protect it from urbanization .(see, Section 8-2.401). Since the ordinance is geared to residential projects, there is no reason to extend its reach to agricultural environments especially in light of the Legislative purpose set out above.

ATTACHMENT E

The YCFB is concerned that some may construe the net effect of the draft ordinance to impose a landscaping requirement on rural farmers and ranchers who are building homes on their agricultural parcels. Review of the Yolo County zoning ordinance discloses no landscaping requirement: there are minimum parcel size requirements for each zoning designation but these have only to do with minimum distances from rights of way and property lines of adjacent parcels. Thus, to inferentially require rural farmers and ranchers to design and install landscaping that meets the rather onerous and quite costly requirements set out in your draft ordinance (see, Sec. 8-2XXXX. Submittal Requirements (a) through (c)) is an unreasonable reach, with no basis in existing law, and which is contrary to the legislative intent as demonstrated above.

There is an additional compelling reason why the ordinance cannot apply to landscaping on agricultural parcels. Most farmers pump groundwater for all domestic purposes, including landscape maintenance, even though they may use surface water for crop irrigation. The California State Constitution gives overlying owners the right to reasonable use of their pumped water. It is not up to a blanket county ordinance to define what is an unreasonable use of water in any given case. The reasonableness of such use is typically decided in court on a case-by-case basis, and there is no Legislative discussion at all of unreasonableness of landscaping water use on an agricultural parcel.

Farmers frequently regard landscaping around their personal farm residences as an afterthought. They do not have adjacent neighbors, or a neighborhood, that is impacted by their lack of landscape. Farmhouse landscape becomes relevant when time, money and materials coincide to make it so. I note in passing that an informal survey of our YCFB board members confirms that many homes go many years before any landscaping is installed.

For the above reasons YCFB assumes the draft ordinance does not apply to farmers and ranchers who are building on their agriculturally zoned land.

Sincerely,

Chuck Dudley
President

COUNTY RECORDER
Filing Requested by:

Yolo County, Planning and Public Works
Name
292 West Beamer Street
Address
Woodland, CA 95695
City, State, Zip
Attention: Jeff Anderson

Notice of Exemption

To: Yolo County Clerk
625 Court Street
Woodland, CA 95695

To: Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, CA 95814

Project Title: Yolo County Water Efficient Landscape Ordinance

Applicant: Yolo County

Project Location: Unincorporated Yolo County

Project Description: In 2006, the State Legislature adopted the "Water Conservation in Landscaping Act of 2006" (AB 1881) requiring the Department of Water Resources (DWR) to update the State Model Water Efficient Landscape Ordinance (originally adopted in 1993). The updated model ordinance contains several new landscape and irrigation design requirements aimed at reducing water consumption and waste in landscape irrigation. The State's model ordinance is rather complex and difficult to interpret. In response, staff has drafted an ordinance that is based on the State's model ordinance and meets AB 1881 requirements, but better suits the County's needs.The proposed ordinance will play a large role in the County's effort to promote water conservation. The proposed ordinance includes requirements for landscape water budgets, the prevention of excessive erosion and irrigation runoff, landscape and irrigation design, irrigation audits, and scheduling of irrigation based on the local climate.

Exempt Status: The project is exempt from further environmental review based on Sections 15307 and 15308 of the California Environmental Quality Act Guidelines (CEQA).

Reasons why project is exempt: The Water Efficient Landscape Ordinance ("Ordinance") is exempt from the California Environmental Quality Act ("CEQA") pursuant to State CEQA Regulations 15307 and 15308, as an action taken to assure the maintenance, restoration, enhancement, and protection of natural resources and the environment where the regulatory process involves procedures for protection of the environment. The Ordinance does not in itself approve any construction activities, but instead establishes standards, permit requirements, and other measures that regulate the design, installation, and maintenance of new and rehabilitated landscapes more stringently than existing codes. These standards, permit requirements, and other measures will not result in any direct physical change to the environment on their own, and will instead assure the maintenance, restoration, enhancement, and protection of natural resources and the environment by strengthening existing environmental standards and establishing new limitations.

Lead Agency Contact Person: Jeff Anderson, Assistant Planner **Telephone Number:** (530) 666-8036

Signature (Public Agency): _____ Date:

ATTACHMENT F

FILE NAME: Water Efficient Landscape Ordinance **RECEIPT #N/A**
AUTHORIZED SIGNATURE_____ **FEE STATUS** _____