



AGENDA
January 26, 2016

PUBLIC UTILITIES COMMISSION MEETING

7:00 p.m.

City Council Chambers
311 Vernon Street
Roseville, California

- 1. ROLL CALL**
- 2. PLEDGE OF ALLEGIANCE**
- 3. Approval of the November 24, 2015 Minutes**
 - 3.1. November 24, 2015 Minutes
- 4. Oral Communications/Public Comment**
- 5. New Business**
 - 5.1. Roseville Electric Utility Monthly Update
Report by Electric Utility Director Michelle Bertolino summarizing monthly status of Electric issues, for information.
 - 5.2. Roseville Utility Exploration Center Overview
Report by Utility Exploration Center Interpretive Services Supervisor Rachel Tooker on the Roseville Utility Exploration Center Overview, for information.
 - 5.3. Environmental Utilities Monthly Update
Report by Solid Waste Utility Manager Devin Whittington summarizing monthly status of Environmental Utilities issues, for information.
 - 5.4. Water Efficiency Landscape Ordinance
Presentation by Development Services Senior Planner Derek Ogden and Environmental Utilities Water Efficiency Administrator Bobby Alvarez on the Water Efficiency Landscape Ordinance, for recommendation.
 - 5.5. Environmental Utilities Recycled Water Program Update
Presentation by Senior Engineer Todd Jordan on the Recycled Water Program, for information.
 - 5.6. Environmental Utilities Solid Waste Overview
Presentation by Refuse Utility Manager Devin Whittington on the Solid Waste Overview, for information.

- 6. Reports – Commission/Staff**
- 7. Proposed Future Agenda Items**
- 8. ADJOURNMENT**

Title: November 24, 2015 Minutes

Meeting Date: 1/26/2016
Item #: 3.1.

ATTACHMENTS:

Description

November 24, 2015 Draft Minutes

MINUTES
Public Utilities Commission

November 24, 2015
7:00 p.m.

Council Chambers
311 Vernon Street
Roseville, CA 95678

1. Roll Call

PUC Commissioners Present: Mike Blumenberg
James McHan
John Speight
Jim Viele

PUC Commissioners Absent: Blandon Granger, Gretchen Hildebrand, John Vertido

Staff Present: Richard Plecker, Environmental Utilities Director
Carol Margetich, EU Business Services Administrator
Sean Bigley, Public Affairs & Communications
Administrator
Michelle Bertolino, Electric Utility Director
Jason Grace, Electric Operations Manager
Chris Romero, Electric Government Relations Analyst
Mike Bloom, Assistant Electric Utility Director
Sonny Person, Assistant Electric Utility Director
Shawn Matchim, Electric Regulatory Compliance Administrator
Michael Christensen, Deputy City Attorney
Karen Sainsbury, Recording Secretary

2. Pledge of Allegiance

3. Minutes of October 27, 2015

The minutes of October 27, 2015 were approved as presented.

4. Oral Comments/Public Comment

None.

5. New Business

- a. Roseville Electric Utility Monthly Report
Report by Electric Utility Director Michelle Bertolino summarizing monthly status of Electric issues, for information.
- b. Roseville Electric Utility Lake County Fire Mutual Aid Response

Report by Electric Operations Manager Jason Grace on the Lake County Fire Mutual Aid Response, for information.

c. Roseville Electric Utility Legislative Summary

Presentation by Government Relations Analyst Chris Romero summarizing the 2015 State Legislative Session, for information.

Commissioner McHan requested a legislative summary in the format similar to the Environmental Utilities report providing more detail on the various bills. Michelle Bertolino responded they will share City Council's legislative priorities set in January 2016 as well as information the Electric Utility provides to the monthly Law and Regulation Committee meeting.

d. Environmental Utilities Monthly Report

Report by Environmental Utilities Director Richard Plecker summarizing monthly status of Environmental Utilities issues, for information.

e. Environmental Utilities Legislative Summary

Presentation by Public Affairs and Communications Administrator Sean Bigley summarizing the 2015 State Legislative Session, for information.

f. Environmental Utilities Water Rate Proposal

Presentation by Business Services Administrator Carol Margetich on the Water Rate Proposal, for recommendation.

Commissioner McHan requested information on the impact to large customers of recycled water when the information is available.

MOTION: Commissioner Viele made the motion, which was seconded by Commissioner Blumenberg, to recommend City Council adopt the proposed Water and Recycled Water Rates and Solid Waste Collection Municipal Code changes as presented.

Ayes: Blumenberg, Speight, Viele
Noes: McHan
Absent: Granger, Hildebrand, Vertido

6. Reports – Commission/Staff

None.

7. Proposed Future Agenda Items

None.

8. Adjournment

Commissioner Viele moved for adjournment of the November 24, 2015 Public Utilities Commission meeting. Commissioner McHan seconded the motion. The motion passed unanimously at 8:58 p.m.

John Speight
Vice-Chairperson

Karen Sainsbury
Recording Secretary

DRAFT

Title: Water Efficiency Landscape Ordinance

Meeting Date: 1/26/2016
Item #: 4.4.

ATTACHMENTS:

Description

WELO Staff Report



STAFF REPORT

TO:	Roseville Public Utility Commission
FROM:	Derek Ogden, Senior Planner and Bobby Alvarez, Water Conservation Administrator
DATE:	January 19, 2016
RE:	Water Efficient Landscape Ordinance (WELO) – Proposed Public Utilities Chapter 14.18

Meeting Date: January 26, 2016

SUMMARY RECOMMENDATION

The Environmental Utilities Department and the Planning Division recommend that the Public Utilities Commission take the following action:

- A. Recommend the City Council adopt the proposed Ordinance creating Chapter 14.18 of the Roseville Municipal Code (RMC), relating to water efficient landscaping.

BACKGROUND

The current Water Efficient Landscape Ordinance (WELO) was adopted by the Council in 2009, and has been updated twice to reflect changing legislative requirements from the State to aid in water conservation efforts. The first amendment to the WELO was adopted in June of 2013. This amendment was intended to clarify the types of controllers to be installed in residential applications. On April 2, 2014, the City Council adopted the second amendment to the current WELO. This amendment sought to improve the irrigation efficiency in residential production home landscaping.

The WELO is currently incorporated into the City's Zoning Ordinance (Title 19, RMC). As mentioned above, given recent legislation and state oversight of the City's water conservation efforts, the revised WELO is now proposed to be incorporated into the Public Utilities Chapter (Title 14) of the RMC.

Current Legislation

Governor Brown's Drought Executive Order of April 1, 2015 (EO B-29-15) directed the Department of Water Resources (DWR) to update the State's Model Water Efficient Landscape Ordinance (MWELO) through expedited regulation. The California Water Commission approved a revised MWELO on July 15, 2015 with five errata sections. DWR issued the finalized MWELO in September of 2015.

The updated model ordinance contains several new landscape and irrigation design requirements aimed at reducing water waste in landscape irrigation. All local land use agencies were required to adopt the model ordinance, or develop an ordinance that is at least as effective by December 1, 2015. Since the City has not taken action, the DWR model ordinance

automatically became effective on December 1st by statute. For reasons cited below, staff is modifying the current City WELO so that it meets the City's needs and is at least as effective as the model ordinance. The revised ordinance will supersede the City's existing code. Additional background and detail on the required changes are provided below.

EVALUATION

The proposed ordinance addresses the objectives of the DWR model ordinance by incorporating the new water efficient landscape requirements into Chapter 14.18 of the RMC. The items noted below are new requirements mandated by the DWR MWELO. Many of these measures are already required in some form by the City, or are considered industry best practices and are already being implemented by landscape architects and contractors.

More efficient irrigation systems

- Dedicated landscape water meters or sub-meters are required for residential landscapes over 5000 sq. ft. and non-residential landscapes over 1000 sq. ft.
- Irrigation systems are required to have pressure regulators and master shut-off valves.
- All irrigation emission devices must meet the national standard stated in the MWELO to ensure that only high efficiency sprinklers are installed.
- Flow sensors that detect and report high flow conditions due to broken pipes and/or popped sprinkler heads are required for landscape areas greater than 5000 sq. ft.
- The minimum width of areas that can be irrigated with overhead spray was changed from 8 feet to 10 feet; areas less than 10 feet wide must be irrigated with subsurface drip or other technology that produces no over spray or runoff.
- Audits are required on 15% of the landscape irrigation stations installed. This would equal about 1 in every 7 homes for new subdivisions within the City.

Limiting the use of high water requiring plants

- The maximum amount of water that can be applied in landscapes was reduced for both residential and non-residential projects. This water allowance reduces the landscape area that can be planted with high water use plants such as cool season turf.
- In non-residential landscapes, planting with high water use plants would not comply with the new ordinance. However, extra water allowance is made for landscapes irrigated with recycled water, as was the case in the previous ordinance.
- Median strips cannot be landscaped with high water use plants, precluding the use of cool season turf. Also because of the requirement to irrigate areas less than ten feet wide with subsurface irrigation or other means that produces no runoff or overspray, the use of cool season turf in parkways will be limited.

Reporting requirements

- All local agencies had to report on the implementation and enforcement of their ordinances to DWR by December 31, 2015. Reporting for all agencies will be due by January 31st of each year thereafter.

Applicability

The proposed Water Efficient Landscape Ordinance will apply to the following landscape projects:

- New Construction and Rehabilitated projects requiring a building permit, plan check, or Design Review Permit.
- Developer or Home-Owner provided landscaping less than 2,500 square feet (of planting area) in single-family residential projects (attached or detached) may comply with the prescriptive measures including the following:
 - o Incorporate compost within the soil;
 - o Install climate adapted plants;
 - o Install a minimum of three inch layer of mulch;
 - o Turf shall not comprise greater than 25 percent of the planting area;
 - o The irrigation system shall be operated by an automatic controller and must use either evapotranspiration or soil moisture data and a rain sensor. The controller must also be programmable to eight stations;
 - o Landscape areas less than 10 feet in width shall utilize subsurface irrigation or drip irrigation;
 - o An irrigation schedule shall be provided to the new homeowner; and
 - o Audits shall be provided on 1 in 7 lots or 15% of valves within a landscape.

Specific Plan Consistency

Landscape and irrigation plans are required to comply with the design guidelines outlined in each of the specific plans, if applicable. If inconsistencies arise between the WELO and other policy documents, the more restrictive requirement shall govern.

Monitoring and Enforcement

The State's MWELo contains provisions that statutorily require local agencies to monitor landscape water use and ensure compliance with the water efficient landscape ordinance. The new MWELo and proposed City Ordinance contain provisions for irrigation audits to be performed on 15% of the irrigation valves within a landscape project or 1 in 7 production homes prior to a certificate of compliance or occupancy being issued by the City's Building Division. The applicant of the project will be required to hire a third party certified auditor to perform the audit which will be reviewed by the City's Environmental Utilities Division.

The Planning Division will continue to require that construction plans comply with ordinance requirements during plan check and will rely on the assistance of Environmental Utilities plan review staff to assist with this task. Environmental Utilities will verify compliance in the field during site inspections for final occupancy of non-residential and multi-family projects. The Building Department will be responsible for verifying general compliance during single-family residential inspections, as the Planning Division does not inspect single family dwellings.

Post-construction enforcement will fall to the City's Water Conservation Division within the Environmental Utilities Department (EUD), which also enforces the provisions of the City's Water Conservation Ordinance. EUD monitors irrigation water use through monthly billing cycles and will compare a site's actual water use against its approved irrigation water budget. Where a property exceeds its established water budget, EUD staff will take steps to notify the property owner that corrective action is needed.

Compliance with the WELO ordinance will continue to 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. As mentioned

above, auditing will also be implemented moving forward to better demonstrate compliance with the proposed WELO during installation of new and rehabilitated landscape projects.

PUBLIC OUTREACH

Planning and EUD staff presented the proposed requirements at a workshop for development professionals on January 11, 2016. The draft ordinance was posted for public review on January 20, 2016 on the City's website, at all three public libraries, the City Clerk's Office, and Permit Center. A notice of public review was advertised in an eighth-page ad in the Roseville Press Tribune on January 15, 2016, inviting public comment. Staff also forwarded the public hearing notice and pertinent background to the Roseville Chamber of Commerce and to the Northstate Building Industry Association.

CONCLUSION

Adoption of the proposed Water Efficient Landscape Ordinance is necessary to comply with recent legislation requiring more stringent standards for landscape irrigation. The proposed ordinance responds to the State's mandate to adopt requirements that are at least as effective as the state model ordinance. Lastly, the proposed ordinance is easier to interpret and administer than the state model ordinance. Staff therefore recommends that the Public Utilities Commission recommend the City Council adopt the proposed Ordinance creating Chapter 14.18 of the Roseville Municipal Code relating to water efficient landscaping.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to activities that will not result in a direct or reasonably foreseeable indirect physical change in the environment (CEQA Guidelines §15061(b)(3)). The City of Roseville WELO Amendment project does not include the potential for a significant environmental effect, and therefore is not subject to CEQA.

RECOMMENDATION

Water Conservation Staff and the Planning Division recommend that the Utilities Commission take the following actions:

- A. Recommend the City Council adopt the proposed Ordinance creating Chapter 14.18 of the Roseville Municipal Code, relating to water efficient landscaping.

ATTACHMENTS

1. Department of Water Resources Model Ordinance

EXHIBITS

- A. Proposed Chapter 14.18 of the Roseville Municipal Code (Water Efficient Landscape Ordinance)

TEXT OF PROPOSED REGULATIONS

NOTE:

- Text proposed to be added is displayed in underlined type.
- Text proposed to be deleted is displayed in ~~strikeout~~ type.

In Division 2, Title 23, California Code of Regulations, to amend Chapter 2.7 Model Water Efficient Landscape Ordinance, Sections 490 through 495, to read as follows:

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 the legislative findings, the purpose of this model ordinance is to:

- (1) promote the values and benefits of landscaping practices that integrate and go beyond the conservation and efficient use of water; 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 by encouraging the use of a watershed approach that requires cross-sector collaboration of industry, government and property owners to achieve the many benefits possible;
- (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.

(c) Landscapes that are planned, designed, installed, managed and maintained with the watershed based approach can improve California's environmental conditions and provide benefits and realize sustainability goals. Such landscapes will make the urban environment resilient in the face of climatic extremes. Consistent with the legislative findings and purpose of the Ordinance, conditions in the urban setting will be improved by:

- (1) Creating the conditions to support life in the soil by reducing compaction, incorporating organic matter that increases water retention, and promoting productive plant growth that leads to more carbon storage, oxygen production, shade, habitat and esthetic benefits.
- (2) Minimizing energy use by reducing irrigation water requirements, reducing reliance on petroleum based fertilizers and pesticides, and planting climate appropriate shade trees in urban areas.

- (3) Conserving water by capturing and reusing rainwater and graywater wherever possible and selecting climate appropriate plants that need minimal supplemental water after establishment.
- (4) Protecting air and water quality by reducing power equipment use and landfill disposal trips, selecting recycled and locally sourced materials, and using compost, mulch and efficient irrigation equipment to prevent erosion.
- (5) Protecting existing habitat and creating new habitat by choosing local native plants, climate adapted non-natives and avoiding invasive plants. Utilizing integrated pest management with least toxic methods as the first course of action.

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

§ 490.1. Applicability.

(a) After January 1, 2010, December 1, 2015, and consistent with Executive Order No. B-29-15, this ordinance shall apply to all of the following landscape projects:

- (1) new construction projects with an aggregate landscape area equal to or greater than 500 square feet requiring a building or landscape permit, plan check or design review;
- (2) rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review;
- ~~(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;~~
- (3) (4) existing landscapes limited to Sections 493, 493.1 and 493.2; and
- (4) (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) For local land use agencies working together to develop a regional water efficient landscape ordinance, the reporting requirements of this ordinance shall become effective December 1, 2015 and the remainder of this ordinance shall be effective no later than February 1, 2016.

(c) Any project with an aggregate landscape area of 2,500 square feet or less may comply with the performance requirements of this ordinance or conform to the prescriptive measures contained in Appendix D.

(d) For projects using treated or untreated graywater or rainwater captured on site, any lot or parcel within the project that has less than 2500 sq. ft. of landscape and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with treated or untreated graywater or through stored rainwater captured on site is subject only to Appendix D section (5).

(b)e) 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) existing plant collections, as part of botanical gardens and arboreturns 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 are able to self-adjust and 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) “compost” means the safe and stable product of controlled biologic decomposition of organic materials that is beneficial to plant growth.
- (~~j~~) “conversion factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year.
- (~~k~~) “distribution uniformity” means the measure of the uniformity of irrigation water over a defined area.
- (~~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.
- (~~h~~) “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. Native habitat mitigation areas and trees may need three to five years for establishment.
- (~~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 ~~0.70~~ 0.55 for residential areas and 0.45 for non-residential areas, 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).~~ The ETAF for a new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0. The ETAF for existing non-rehabilitated landscapes is 0.8.

~~(f)~~ “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.

~~(v)~~ “flow sensor” means an inline device installed at the supply point of the irrigation system that produces a repeatable signal proportional to flow rate. Flow sensors must be connected to an automatic irrigation controller, or flow monitor capable of receiving flow signals and operating master valves. This combination flow sensor/controller may also function as a landscape water meter or submeter.

~~(w)~~ “friable” means a soil condition that is easily crumbled or loosely compacted down to a minimum depth per planting material requirements, whereby the root structure of newly planted material will be allowed to spread unimpeded.

~~(x)~~ “Fuel Modification Plan Guideline” means guidelines from a local fire authority to assist residents and businesses that are developing land or building structures in a fire hazard severity zone.

~~(y)~~ “graywater” means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. “Graywater” includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers. Health and Safety Code Section 17922.12.

~~(z)~~ “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.

~~(aa)~~ ~~(v)~~ “hydrozone” means a portion of the landscaped area having plants with similar water needs and rooting depth. A hydrozone may be irrigated or non-irrigated.

~~(bb)~~ ~~(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).

~~(cc)~~ ~~(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 as described in the Food and Agricultural Code, Section 5004. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.

~~(dd)~~ ~~(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. The audit must be conducted in a manner consistent with the Irrigation Association’s Landscape Irrigation Auditor Certification program or other U.S. Environmental Protection Agency “Watersense” labeled auditing program.

~~(ee)~~ ~~(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 are 0.75 for overhead spray devices and 0.81 for drip systems. Greater irrigation efficiency can be expected from well designed and maintained systems.

~~(ff)~~ ~~(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.

(gg) ~~(bb)~~ “irrigation water use analysis” means an analysis of water use data based on meter readings and billing data.

(hh) ~~(ee)~~ “landscape architect” means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.

(ii) ~~(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).

(jj) ~~(ee)~~ “landscape contractor” means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

(kk) ~~(ff)~~ “Landscape Documentation Package” means the documents required under Section 492.3.

(ll) ~~(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.

(mm) “landscape water meter” means an inline device installed at the irrigation supply point that measures the flow of water into the irrigation system and is connected to a totalizer to record water use.

(nn) ~~(hh)~~ “lateral line” means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.

(oo) ~~(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.

(pp) ~~(jj)~~ “local water purveyor” means any entity, including a public agency, city, county, or private water company that provides retail water service.

(qq) ~~(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.

(rr) ~~(H)~~ “main line” means the pressurized pipeline that delivers water from the water source to the valve or outlet.

(ss) “master shut-off valve” is an automatic valve installed at the irrigation supply point which controls water flow into the irrigation system. When this valve is closed water will not be supplied to the irrigation system. A master valve will greatly reduce any water loss due to a leaky station valve.

(tt) ~~(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. $MAWA = (ET_o) (0.62) [(ETAF \times LA) + ((1-ETAF) \times SLA)]$

(uu) “median” is an area between opposing lanes of traffic that may be unplanted or planted with trees, shrubs, perennials, and ornamental grasses.

(vv) ~~(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.

(ww) ~~(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.

(xx) ~~(pp)~~ “mulch” means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and/or decomposed granite left loose and applied to the soil surface for the

beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

(yy) (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.

(zz) “non-residential landscape” means landscapes in commercial, institutional, industrial and public settings that may have areas designated for recreation or public assembly. It also includes portions of common areas of common interest developments with designated recreational areas.

(aaa) (rr) “operating pressure” means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

(bbb) (ss) “overhead sprinkler irrigation systems” or “overhead spray irrigation systems” means systems that deliver water through the air (e.g., spray heads and rotors).

(ccc) (tt) “overspray” means the irrigation water which is delivered beyond the target area.

(ddd) “parkway” means the area between a sidewalk and the curb or traffic lane. It may be planted or unplanted, and with or without pedestrian egress.

(eee) (uu) “permit” means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.

(fff) (vv) “pervious” means any surface or material that allows the passage of water through the material and into the underlying soil.

(ggg) (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 very low water use plants is 0 to 0.1, the plant factor range for low water use plants is 0.1 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this ordinance are derived from the Department of Water Resources 2000 publication “Water Use Classification of Landscape Species”. Plant factors may also be obtained from horticultural researchers from academic institutions or professional associations as approved by the California Department of Water Resources (DWR).

~~(xx) “precipitation rate” means the rate of application of water measured in inches per hour.~~

(hhh) (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.

(iii) (zz) “rain sensor” or “rain sensing shutoff device” means a component which automatically suspends an irrigation event when it rains.

(jii) (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.

(kkk) (bbb) “recreational area” means areas, excluding private single family residential areas, dedicated designated for active play, recreation or public assembly such as in parks, sports fields, picnic grounds, amphitheaters and/or golf courses where turf provides a playing surface, tees, fairways, roughs, surrounds and greens.

(lll) (eee) “recycled water,” “reclaimed water,” or “treated sewage effluent water” means treated or recycled waste water of a quality suitable for nonpotable uses such as landscape irrigation and water features. This water is not intended for human consumption.

(mmm) (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 Appendix A 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 Allowances so that regional differences in climate can be accommodated.

(nnn) “Regional Water Efficient Landscape Ordinance” means a local Ordinance adopted by two or more local agencies, water suppliers and other stakeholders for implementing a consistent set of

landscape provisions throughout a geographical region. Regional ordinances are strongly encouraged to provide a consistent framework for the landscape industry and applicants to adhere to.

(ooo) (eee) “rehabilitated landscape” means any relandscaping 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.~~

(ppp) “residential landscape” means landscapes surrounding single or multifamily homes.

(qqq) (fff) “run off” means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, run off may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.

(rrr) (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.

(sss) (hhh) “soil texture” means the classification of soil based on its percentage of sand, silt, and clay.

(ttt) (iii) “Special Landscape Area” (SLA) means an area of the landscape dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or 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.~~

(uuu) (jjj) “sprinkler head” or “spray head” means a device which delivers water through a nozzle.

(vvv) (kkk) “static water pressure” means the pipeline or municipal water supply pressure when water is not flowing.

(www) (lll) “station” means an area served by one valve or by a set of valves that operate simultaneously.

(xxx) (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.

(yyv) (nnn) “submeter” means a metering device to measure water applied to the landscape that is installed after the primary utility water meter.

(zzz) (ooo) “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.

(aaa) (ooo) “valve” means a device used to control the flow of water in the irrigation system.

(ss) (ooo) “water conservation concept statement” means a one page checklist and a narrative summary of the project as shown in Section 492(c)(1).

(bbb) (ppp) “water conserving plant species” means a plant species identified as having a very low or low plant factor.

(ccc) (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.

(ddd) (rrr) “watering window” means the time of day irrigation is allowed.

(eee) (sss) “WUCOLS” means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, and the Department of Water Resources ~~and the Bureau of Reclamation, 2000~~ 2014.

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

§ 492. Provisions for New Construction or Rehabilitated Landscapes.

(a) A local agency may designate by mutual agreement, 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.

§ 492.4. Water Efficient Landscape Worksheet.

(a) A project applicant shall complete the Water Efficient Landscape Worksheet in Appendix B which contains information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydrozone. Calculations are then made to show that the evapotranspiration adjustment factor (ETAF) for the landscape project does not exceed a factor of 0.55 for residential areas and 0.45 for non-residential areas, exclusive of Special Landscape Areas. The ETAF for a landscape project is based on the plant factors and irrigation methods selected. The Maximum Applied Water Allowance is calculated based on the maximum ETAF allowed (0.55 for residential areas and 0.45 for non-residential areas) and expressed as annual gallons required. The Estimated Total Water Use (ETWU) is calculated based on the plants used and irrigation method selected for the landscape design. ETWU must be below the MAWA. ~~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~~

~~(1) In calculating 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 or from horticultural researchers with academic institutions or professional associations as approved by the California Department of Water Resources (DWR). The plant factor ranges from 0 to 0.1 for very low water using plants, 0.1 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 shown in Appendix B described below.~~

~~(4) ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.~~

~~(c) Maximum Applied Water Allowance~~

~~The Maximum Applied Water Allowance shall be calculated using the equation;~~

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

~~The example calculations below are hypothetical to demonstrate proper use of the equations and do not represent an existing and/or planned landscape project. The ETo values used in these calculations are from the Reference Evapotranspiration Table in Appendix 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 or 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.

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

MAWA = Maximum Applied Water Allowance (gallons per year)

ET_o = 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)

$$MAWA = (51.1 \text{ inches})(0.62) [(0.7 \times 50,000 \text{ square feet}) + (0.3 \times 0)]$$

$$= 1,108,870 \text{ gallons per year}$$

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

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

(100 cubic feet = 748 gallons)

(2) In this next hypothetical example, the landscape project in Fresno, CA has the same ET_o 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.

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

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

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

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

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

(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.

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

Where:

ETWU = Estimated Total Water Use per year (gallons)

ET_o = 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 ET_o 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~~shall 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.

(C) In projects with multiple landscape installations (i.e. production home developments) a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement. Large landscape projects shall sample at a rate equivalent to 1 in 7 lots.

(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~~ Methods to achieve water efficiency shall include one or more of the following:

1. protection and preservation of native species and natural vegetation;

2. selection of water-conserving plant, tree and turf species, especially local native plants;
3. selection of plants based on local climate suitability, disease and pest resistance;
4. selection of trees based on applicable local tree ordinances or tree shading guidelines, and size at maturity as appropriate for the planting area; and
5. selection of plants from local and regional landscape program plant lists.
6. selection of plants from local Fuel Modification Plan Guidelines.

(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~~ Methods to achieve water efficiency shall include one or more of the following:

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]; allow for adequate soil volume for healthy root growth; and
3. consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

(D) Turf is 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) High water use plants, characterized by a plant factor of 0.7 to 1.0, are prohibited in street medians.

(F) ~~(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. Refer to the local Fuel Modification Plan guidelines.

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

(H) ~~(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) Soil Preparation, Mulch and Amendments

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

(B) Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 492.5).

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

(D) ~~(A)~~ A minimum ~~two~~three inch (23") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated. To provide habitat for beneficial insects and other wildlife, up to 5 % of the landscape area may be left without mulch. Designated insect habitat must be included in the landscape design plan as such.

(E) ~~(B)~~ Stabilizing mulching products shall be used on slopes that meet current engineering standards.

(F) ~~(C)~~ The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.

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

~~(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, and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Project applicants shall refer to the local agency or regional Water Quality Control Board for information on any applicable stormwater technical requirements. Stormwater best management practices are encouraged in the landscape design plan and examples ~~include, but are not limited to:~~ are provided in Section 492.16.

~~(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, eisterns, etc.) as discussed in Section 492.16 and their 24-hour retention or infiltration capacity;~~

~~(12) identify any applicable graywater discharge piping, system components and area(s) of distribution;~~

(13) (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
(14) (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 Title 16 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) This section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the 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, defined as either a dedicated water service meter or private submeter, are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management shall be installed for all non-residential irrigated landscapes of 1,000 sq. ft. but not more than 5,000 sq.ft. (the level at which Water Code 535 applies) and residential irrigated landscapes of 5,000 sq. ft. or greater. A landscape water meter may be either:

1. a customer service meter dedicated to landscape use provided by the local water purveyor; or
2. a privately owned meter or submeter.

(B) Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems.

(C) If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required ~~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~~ required for all on non-residential landscapes and residential landscapes of 5000 sq. ft. or larger.

(H) Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.

~~(I)~~ ~~(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.

~~(J)~~ ~~(H)~~ Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

~~(K)~~ ~~(H)~~ The design of the irrigation system shall conform to the hydrozones of the landscape design plan.

~~(L)~~ ~~(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.

(M) All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers' / International Code Council's (ASABE/ICC) 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard, All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.

~~(N)~~ ~~(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.

~~(O)~~ ~~(M)~~ In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.

~~(P)~~ ~~(N)~~ Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.

~~(Q)~~ ~~(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.

~~(R)~~ ~~(P)~~ Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to hardscapes or in high traffic areas of turfgrass.

~~(S)~~ ~~(Q)~~ Check valves or anti-drain valves are required ~~for all irrigation systems on all sprinkler heads where low point drainage could occur.~~

~~(T)~~ ~~(R)~~ ~~Narrow or irregularly shaped areas, including turf, Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system. other means that produces no runoff or overspray.~~

~~(U)~~ ~~(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)(~~I~~H). Prevention of overspray and runoff must be confirmed during the irrigation audit.

(V) (~~T~~) Slopes greater than 25% shall not be irrigated with an irrigation system with a ~~precipitation~~application 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 to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.

(D) Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:

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.

§ 492.9. 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;

(B) A diagram of the irrigation plan showing hydrozones shall be kept with the irrigation controller for subsequent management purposes.

(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.

§ 492.11. 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; auditing, adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; topdressing with compost, replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing ~~and~~ obstructions 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 or with components with greater efficiency.

(d) A project applicant is encouraged to implement established landscape industry sustainable Best Practices ~~or environmentally friendly practices~~ for overall all landscape maintenance activities.

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 local agency landscape irrigation auditor or a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.

(b) In large projects or projects with multiple landscape installations (i.e. production home developments) an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.

~~(b)~~(c) For new construction and rehabilitated landscape projects installed after ~~January 1, 2010~~December 1, 2015, 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, including configuring irrigation controllers with application rate, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming;

(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~~Estimated Total Water Use, average irrigation efficiency is assumed to be ~~0.750.74~~ for overhead spray devices and 0.81 for drip system devices. ~~Irrigation systems shall be designed, maintained, and managed to meet or exceed an average landscape irrigation efficiency of 0.74.~~

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.~~

~~(e)~~ (b) All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.

~~(d)~~ (c) Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

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

§ 492.15. Graywater Systems.

(a) Graywater systems promote the efficient use of water and are encouraged to assist in on-site landscape irrigation. All graywater systems shall conform to the California Plumbing Code (Title 24, Part 5, Chapter 16) and any applicable local ordinance standards. Refer to § 490.1 (d) for the applicability of this ordinance to landscape areas less than 2,500 square feet with the Estimated Total Water Use met entirely by graywater.

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

§ 492.165. Stormwater Management and Rainwater Retention.

(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 rainwater 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 technical requirements~~ordinances and stormwater management plans~~.

(c) All planted landscape areas are required to have friable soil to maximize water retention and infiltration. Refer to § 492.6(a)(3).

(d) It is strongly recommended that landscape areas be designed for capture and infiltration capacity that is sufficient to prevent runoff from impervious surfaces (i.e. roof and paved areas) from either: the one inch, 24-hour rain event or (2) the 85th percentile, 24-hour rain event, and/or additional capacity as required by any applicable local, regional, state or federal regulation.

(e) It is recommended that storm water projects incorporate any of the following elements to improve on-site storm water and dry weather runoff capture and use:

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

~~(e) 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.

§ 492.176. 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 or water supplier/purveyor shall provide information to owners of permitted renovations and new, single-family residential homes regarding the design, installation, management, and maintenance of water efficient landscapes based on a water budget.

(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. Signage shall include information about the site water use as designed per the local ordinance; specify who designed and installed the water efficient landscape; and demonstrate low water use approaches to landscaping such as using native plants, graywater systems, and rainwater catchment systems.

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

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

§ 492.187. 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 and 21082, Public Resources Code.

§ 493. Provisions for Existing Landscapes.

(a) A local agency may by mutual agreement, 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~~ December 1, 2015 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: $MAWA = (0.8) (ET_o)(LA)(0.62)$.

(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.

§ 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:

$MAWA = (ET_o - Eppt) (0.62) [(0.70.55 \times LA) + (0.30.45 \times SLA)]$ for residential areas.

$MAWA = (ET_o - EPPT) (0.62) [(0.45 \times LA) + (0.55 \times SLA)]$ for non-residential areas.

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

§ 495. Reporting.

(a) Local agencies shall report on implementation and enforcement by December 31, 2015. Local agencies responsible for administering individual ordinances shall report on their updated ordinance, while those agencies developing a regional ordinance shall report on their existing ordinance. Those agencies crafting a regional ordinances shall also report on their new ordinance by March 1, 2016. Subsequently, reporting for all agencies will be due by January 31st of each year. Reports shall be submitted to the Department of Water Resources.

(b) Local agencies are to address the following:

(1) State whether you are adopting a single agency ordinance or a regional agency alliance ordinance, and the date of adoption or anticipated date of adoption.

(2) Define the reporting period. The reporting period shall commence on December 1, 2015 and the end on December 28, 2015. For local agencies crafting regional ordinances with other agencies, there shall be an additional reporting period commencing on February 1, 2016 and ending on February 28, 2016. In subsequent years, all local agency reporting will be for the calendar year.

(3) State if using a locally modified Water Efficient Landscape Ordinance (WELO) or the MWELO. If using a locally modified WELO, how is it different than MWELO, is it at least as efficient as MWELO, and are there any exemptions specified?

(4) State the entity responsible for implementing the ordinance.

(5) State number and types of projects subject to the ordinance during the specified reporting period.

(6) State the total area (in square feet or acres) subject to the ordinance over the reporting period, if available.

(7) Provide the number of new housing starts, new commercial projects, and landscape retrofits during the reporting period.

(8) Describe the procedure for review of projects subject to the ordinance.

(9) Describe actions taken to verify compliance. Is a plan check performed; if so, by what entity? Is a site inspection performed; if so, by what entity? Is a post-installation audit required; if so, by whom?

(10) Describe enforcement measures.

(11) Explain challenges to implementing and enforcing the ordinance.

(12) Describe educational and other needs to properly apply the ordinance.

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

Appendix A. Reference Evapotranspiration (ET_o) Table.

Appendix A - Reference Evapotranspiration (ET _o) Table*														
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET _o	
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	0.7	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	2.5	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	6.8	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	1.8	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	7.8	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	5.1	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	6.2	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	
Panama	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	53.0	
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 (ET _o) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET _o
GLEN													
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	1.2	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	8.1	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	7.8	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	3.2	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	4.2	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	5.6	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	6.1	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	8.1	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	8.8	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	4.1	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	1.5	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	1.1	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
Seaford	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*														Annual ETo
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
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	4.0	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	4.1	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	5.8	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	5.1	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 (ET _o) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET _o
MODOC													
Modoc/Auroras	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	2.4	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	5.5	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	1.2	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	1.5	2.7	3.8	4.8	4.7	5.2	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	5.5	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	6.4	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	6.2	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	2.4	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	2.9	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	5.5	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	6.8	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	7.7	5.7	4.1	2.6	2.2	56.7	
Thermal	2.4	2.3	5.5	7.6	9.1	9.6	9.3	7.6	7.1	5.2	3.1	2.1	72.8	
Riverside UC	2.5	2.5	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	3.1	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	5.7	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	6.6	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	6.6	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	4.5	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	4.9	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	2.5	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	8.8	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	
San Lee	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	

Appendix A - Reference Evapotranspiration (ET_o) Table*

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET _o
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	1.3	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	2.0	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	3.9	3.5	4.2	4.4	4.3	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	4.3	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	4.6	5.2	5.5	5.7	4.5	3.4	2.4	2.0	44.9
Cuyama	2.1	2.4	3.8	5.1	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	5.8	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	2.7	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	3.7	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	38.6
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 (ET _o) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET _o
SHASTA													
Burney	0.7	1.0	2.1	3.5	4.9	5.9	7.4	6.4	4.4	2.9	0.9	0.5	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	1.2	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	2.9	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	4.2	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	7.3	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	4.2	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	2.7	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	4.7	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	5.8	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	5.2	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	3.7	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													
Cornland	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	51.7
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	55.3
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 (ET _o) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET _o
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	1.1	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	6.8	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	6.5	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	5.9	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	1.5	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													
Brown's 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	3.5	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 A - Reference Evapotranspiration (ET_o) Table*

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET _o
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													
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	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

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
FRESNO													
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
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
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

Appendix A - Reference Evapotranspiration (ET_o) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET_o
KINGS													
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
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
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

Appendix A - Reference Evapotranspiration (ET_o) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET_o
MENDOCINO													
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
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
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

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
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
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 Desert	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
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

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

Appendix A - Reference Evapotranspiration (ET_o) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET_o
SANTA CLARA													
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
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													
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
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
STANISLAUS													
Denair	1.0	1.9	3.6	4.7	7.0	7.9	8.0	6.1	5.3	3.4	1.5	1.0	51.4
La Grange	1.2	1.5	3.1	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Modesto	0.9	1.4	3.2	4.7	6.4	7.7	8.1	6.8	5.0	3.4	1.4	0.7	49.7
Newman	1.0	1.5	3.2	4.6	6.2	7.4	8.1	6.7	5.0	3.4	1.4	0.7	49.3
Oakdale	1.2	1.5	3.2	4.7	6.2	7.7	8.1	7.1	5.1	3.4	1.4	0.7	50.3

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
STANISLAUS													
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
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

WATER EFFICIENT LANDSCAPE WORKSHEET

SECTION A. HYDROZONE INFORMATION TABLE

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

MS = Micro-spray
S = Spray
R = Rotor
B = Bubbler
D = Drip
O = Other

SECTION B. WATER BUDGET CALCULATIONS

Section B1. Maximum Applied Water Allowance (MAWA)

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

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

where:

MAWA = Maximum Applied Water Allowance (gallons per year)

ETo = Reference Evapotranspiration from Appendix 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:

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

Maximum Applied Water Allowance = _____ gallons per year

Show calculations.

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.

Reference Evapotranspiration (ET_o)

Hydrozone # /Planting Description ^a	Plant Factor (PF)	Irrigation Method ^b	Irrigation Efficiency (IE) ^c	ETAF (PF/IE)	Landscape Area (sq. ft.)	ETAF x Area	Estimated Total Water Use (ETWU) ^e
Regular Landscape Areas							
				Totals	(A)	(B)	
Special Landscape Areas							
				1			
				1			
				1			
				Totals	(C)	(D)	
						ETWU Total	
						Maximum Allowed Water Allowance (MAWA)^e	

^aHydrozone #/Planting Description

E.g.

1.) front lawn

2.) low water use plantings

3.) medium water use planting

^bIrrigation Method

overhead spray
or drip

^cIrrigation Efficiency

0.75 for spray head
0.81 for drip

^dETWU (Annual Gallons Required) =

$ET_o \times 0.62 \times ETAF \times Area$

where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

^eMAWA (Annual Gallons Allowed) = $(ET_o) (0.62) [(ETAF \times LA) + ((1-ETAF) \times SLA)]$

where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

ETAF Calculations

Regular Landscape Areas

Total ETAF	Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.
Total Area	
Average ET	

All Landscape Areas

Total ETAF x Area	(B+D)
Total Area	(A+C)
Sitewide ETAF	$(B+D) \div (A+C)$

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.

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 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 492.6.

Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 492.6.

Appendix D – Prescriptive Compliance Option

(a) This appendix contains prescriptive requirements which may be used as a compliance option to the Model Water Efficient Landscape Ordinance.

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

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

(A) date

(B) project applicant

(C) project address (if available, parcel and/or lot number(s))

(D) total landscape area (square feet), including a breakdown of turf and plant material

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

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

(G) contact information for the project applicant and property owner

(H) applicant signature and date with statement, "I agree to comply with the requirements of the prescriptive compliance option to the MWELO".

(2) Incorporate compost at a rate of at least four cubic yards per 1,000 square feet to a depth of six inches into landscape area (unless contra-indicated by a soil test):

(3) Plant material shall comply with all of the following:

(A) For residential areas, install climate adapted plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for 75% of the plant area excluding edibles and areas using recycled water; For non-residential areas, install climate adapted plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for 100% of the plant area excluding edibles and areas using recycled water;

(B) A minimum three inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.

(4) Turf shall comply with all of the following:

(A) Turf shall not exceed 25% of the landscape area in residential areas, and there shall be no turf in non-residential areas;

(B) Turf shall not be planted on sloped areas which exceed a slope of 1 foot vertical elevation change for every 4 feet of horizontal length;

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

(5) Irrigation systems shall comply with the following:

(A) Automatic irrigation controllers are required and must use evapotranspiration or soil moisture sensor data and utilize a rain sensor.

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

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

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

(E) All irrigation emission devices must meet the requirements set in the ANSI standard, ASABE/ICC 802-2014. "Landscape Irrigation Sprinkler and Emitter Standard." All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.

(F) Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.

(6) For non-residential projects with landscape areas of 1,000 sq. ft. or more, a private submeter(s) to measure landscape water use shall be installed.

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

CHAPTER 14.189.67 – WATER EFFICIENT LANDSCAPING

Section 19.67.010 - Purpose

- A. Intelligent design and water management can enable citizens of Roseville to enjoy a well landscaped community, while at the same time conserving resources. Skillful planting and irrigation design, appropriate use of plants, and intelligent landscape management, can ensure that excessive water demands are reduced and allow the community to be less vulnerable during periods of severe drought. Efficient design practices such as: irrigation systems that apply water at a usable rate within the root zone of the plants, automatic irrigation controllers that allow early morning watering when there is less heat and wind allowing more efficient irrigation, and properly maintained moisture sensors that override automatic irrigation when the soil is already moist or wet are all measures that can reduce water demands, yet at the same time provide sufficient moisture to maintain the City's climate-appropriate landscaping.
- B. The purpose of these requirements is to comply with the Water Conservation in Landscaping Act of 2006, Government Code Sections 65591 et. seq, and to define the standards and procedures for the design, installation, and management of landscaping. This is intended to utilize available plant, water, land and human resources to the greatest benefit of Roseville residents. Water resources are a finite resource. Therefore, in times of water shortages, water cutbacks may be required, combined with limits to landscaping installation and water usage, as specified in the Roseville Municipal Code Chapter 14.09 (Water Conservation).
- C. Landscapes that are planned, designed, installed, managed and maintained with the watershed based approach can improve California's environmental conditions and provide benefits and realize sustainability goals. Such landscapes will make the urban environment resilient in the face of climatic extremes. Consistent with the legislative findings and purpose of the Ordinance, conditions in the urban setting will be improved by:
- Creating the conditions to support life in the soil by reducing compaction, incorporating organic matter that increases water retention, and promoting productive plant growth that leads to more carbon storage, oxygen production, shade, habitat and esthetic benefits.
 - Minimizing energy use by reducing irrigation water requirements, reducing reliance on petroleum based fertilizers and pesticides, and planting climate appropriate shade trees in urban areas.
 - Conserving water by capturing and reusing rainwater and graywater wherever possible and selecting climate appropriate plants that need minimal supplemental water after establishment.
 - Protecting air and water quality by reducing power equipment use and landfill disposal trips, selecting recycled and locally sourced materials, and using compost, mulch and efficient irrigation equipment to prevent erosion.
 - Protecting existing habitat and creating new habitat by choosing local native plants, climate adapted non-natives and avoiding invasive plants. Utilizing integrated pest management with least toxic methods as the first course of action.

(Ord. ~~22224786~~ (part), 2009.)

Section 19.67.020 - Authority and Relationship to other Documents

- A. **Consistency with specific plans and other design guidelines.** Landscape and irrigation plans shall be designed consistent with this Chapter and any adopted specific plans or other planning area design guidelines, if applicable. Where any inconsistencies arise between this Chapter and other adopted policy documents, the more restrictive requirement shall govern, the only exception being for the West Roseville Specific Plan Village Center. Due to its unique nature, the West Roseville Specific Plan Design Guidelines shall guide landscape design for the remaining

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undeveloped properties within the Village Center boundaries, as depicted in the West Roseville Specific Plan.

- B. Water use consumption information for specific plant species. Should conflicts arise between the water use information contained in the Water Use Classification of Landscape Species publication, as defined in Section 19.67.040, and the Specific Plan or planting area design guidelines, the Water Use Classification of Landscape Species publication shall govern.

(Ord. 4786 (part), 2009.)

Section 19.67.030 - Applicability

- A. The provisions of this Chapter shall apply to all of the following landscape projects:

1. **New Construction and Rehabilitated Projects.** ~~New construction and rehabilitated landscape projects requiring a building permit, plan check or Design Review Permit.~~ **Public Agency and Non-Residential Projects.** ~~New construction and rehabilitated landscaping for public agency projects and private development projects.~~
2. ~~Developer-Installed Landscaping Exceeding 2,500 Square Feet in Single-Family Residential Projects.~~ ~~New construction and rehabilitated landscaping which is developer-installed in single-family projects with a landscape area equal to or greater than 2,500 square feet requiring a building permit, improvement plan approval, or design review.~~
32. **Developer-Installed or Homeowner Provided Landscaping Less than 2,500 Square Feet in Single-Family Residential Projects.** ~~Any new or rehabilitated single-family or two-family landscape project that is developer installed or homeowner provided with an aggregate landscape area of 2,500 square feet or less may comply with the performance requirements of this ordinance or conform to the prescriptive measures contained below.~~ **Developer-Installed Landscaping Less than 2,500 Square Feet in Single-Family Residential Projects.** ~~New construction and rehabilitated landscaping which is developer-installed in single-family projects with a landscape area less than 2,500 square feet shall be required to comply only with the following:~~
- ~~A. Compliance with the following items is mandatory and must be documented on a landscape plan in order to use the prescriptive compliance option:~~
- ~~(A) date~~
~~(B) project applicant~~
~~(C) project address (if available, parcel and/or lot number(s))~~
~~(D) total landscape area (square feet), including a breakdown of turf and plant material~~
~~(E) project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)~~
~~(F) water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well~~
~~(G) contact information for the project applicant and property owner~~
~~(H) applicant signature and date with statement, "I agree to comply with the requirements of the prescriptive compliance option to the MWELO".~~
- ~~(2) Incorporate compost at a rate of at least four cubic yards per 1,000 square feet to a depth of six inches into landscape area (unless contra-indicated by a soil test);~~
- ~~(3) Plant material shall comply with all of the following:~~
~~(A) Install climate adapted plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for 75% of the plant area excluding edibles and areas using recycled water;~~

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(B) A minimum three inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.

(4) Turf shall comply with all of the following:

(A) Turf shall not exceed 25% of the landscape area;

(B) Turf shall not be planted on sloped areas which exceed a slope of 1 foot of vertical elevation change for every 4 feet of horizontal length;

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

(5) Irrigation systems shall comply with the following:

(A) Automatic irrigation controllers are required and must use evapotranspiration or soil moisture sensor data and utilize a rain sensor.

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

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

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

(E) All irrigation emission devices must meet the requirements set in the ANSI standard, ASABE/ICC 802-2014. "Landscape Irrigation Sprinkler and Emitter Standard." All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.

(F) Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.

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

Turf shall not comprise greater than 50-percent of the front yard planting area of developer-installed single-family landscaping.

b. The irrigation system shall be operated by a weather-based irrigation controller, soil moisture-based controller, or other self-adjusting irrigation controller that automatically adjusts irrigation in response to changes in plants' needs and as weather conditions change as referenced in the California Green Building Standards Code, as amended. Controller must have a minimum of 6 stations or be upgradable to 6 stations or more. An exception for additional stations may be provided for front yard landscapes that will be maintained by a homeowner's association.

c. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic and topographical conditions of the project site.

d. 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 or other devices shall be installed to meet the required dynamic pressure of the irrigation system.

e. The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-

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targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

- f. Sprinkler system shall have proper head-to-head coverage (water from one sprinkler overlaps all the way to the next sprinkler head). This helps to increase overall system efficiency and prevents dry spots in the landscape.
- g. Low volume irrigation shall be used in mulched planting areas to maximize water infiltration into the root zone.
- h. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations. Sprinklers shall have head-to-head coverage so that water from one sprinkler overlaps all the way to the next sprinkler head to increase overall system efficiency.
- i. Check valves (or anti-drain valves) are required for all irrigation systems. The check valves can be 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 turned off.
- j. Slopes greater than 4:1 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 designer specifies an alternative design or technology and clearly demonstrates no runoff or erosion will occur.
- k. Where feasible, trees shall be placed on separate valves from shrubs, groundcovers and turf.
- l. An irrigation program shall be left for the buyer that provides a schedule for the plant establishment period, the established landscape, and temporarily irrigated areas (if any).
- m. The irrigation system shall be tested and certified by a licensed landscape architect, irrigation designer, contractor or any other person authorized to design and install an irrigation system pursuant to Sections 5500.1, 5616, 5641 et seq, 6704, and 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 Agriculture Code.

4. Multifamily Residential Projects. All new construction and rehabilitated landscaping.

5. Homeowner-Provided Landscaping. New construction or rehabilitated landscaping which are homeowner-installed and/or homeowner-hired in single-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building permit, improvement plan approval, or design review.

3. Graywater. For projects using treated or untreated graywater or rainwater captured on site, any lot or parcel within the project that has less than 2500 sq. ft. of landscape and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with treated or untreated graywater or through stored rainwater captured on site is subject only to Appendix D section (5).

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46. Existing Landscaping. Landscaping constructed prior to the effective date of the ordinance codified in this chapter and not rehabilitated shall only be required to comply with the requirements contained in Section 19.67.130.

57. Cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries shall only be required to comply with the requirements

contained in Sections 19.67.050(B)(2), 19.67.070, and 19.67.080. Existing cemeteries shall comply with the requirements contained in Section 19.67.130.

68. Homeowners Associations and Common Interest Developments. The architectural guidelines (i.e., CC&Rs) of a common interest development, which may include community apartment projects, condominiums, planned developments, stock cooperatives, or single-family subdivisions governed by a homeowners association shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group. Further, said guidelines shall not prohibit the removal of turf, nor restrict or prohibit the reduction of turf in lieu of more water efficient alternatives (Civil Code Section 1353.8).

B. The provisions of this chapter shall 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. Existing pPlant collections, as part of botanical gardens and arboretums open to the public.

(Ord. 5481, 2015; Ord. 5321, 2014; Ord. 5186 § 1, 2013; Ord. 4786 (part), 2009.)

Section 19.67.040 - Definitions

For the purposes of this Chapter, the following definitions shall apply:

“Applied Water” means the portion of water supplied by the irrigation system to the landscape.

“Backflow Prevention Device” means a safety device used to prevent pollution or contamination of the City water supply due to the reverse flow of water from the irrigation system.

“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 system is off.

“Conversion Factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year.

“Certificate of Completion” means the document required under Section 19.67.060.

“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 United States Environmental Protection Agency WaterSense irrigation auditor certification program, licensed landscape architect, and Irrigation Association Certified Landscape Irrigation Auditor program.

“Certified Irrigation Designer” means a person certified to design irrigation systems by an accredited academic institution, or a professional trade organization or other program such as the United States Environmental Protection Agency WaterSense irrigation designer certification program and Irrigation Association Certified Irrigation Designer program.

“Common Interest Developments” means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1353.8

“Compost” means the safe and stable product of controlled biologic decomposition of organic materials that is beneficial to plant growth.

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“Controller” means an automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers are able to self-adjust and schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.

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used to remotely control valves or heads to operate an irrigation system. A weather-based controller is a controller that utilizes evapotranspiration or weather data to make adjustments to irrigation schedules. A self-adjusting irrigation controller is a controller that uses on-site sensor data (e.g., soil moisture) to adjust irrigation schedules.

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“Distribution uniformity” means the measure of the uniformity of irrigation water over a defined area.

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“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, any low volume irrigation system utilizing emission devices with a flow rate equal to or less than two (2) gallons per hour (including micro-spray systems).

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“Ecological Restoration Project” means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

“Effective Precipitation or Usable Rainfall (EPPT)” means the portion of total precipitation that is used by the plants.

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

“Environmental Utilities Department” means the Department within the City of Roseville that is responsible for providing utility service with the City. The Roseville water utility is a division within the Department responsible for providing retail water service.

“Established Landscape” means the point at which plants in the landscape have developed significant roots growth to support themselves. Typically, most plants are established after one (1) or two (2) years of growth.

“Establishment Period of the Plants” means the first year after installing the plant in the landscape, or the first two (2) years if irrigation will be terminated after establishment. Native habitat mitigation areas and trees may need three to five years for establishment.

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“Estimated Total Water Use (ETWU)” means the annual total water used for the landscape as described in Section 19.67.050(B)(2).

“Evapotranspiration (ET)” means the loss of water to the atmosphere by the combined processes of evaporation and transpiration.

“ET Adjustment Factor (ETAF)” means a factor of 0.70-0.55 for residential areas and 0.45 for non-residential areas, 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 ET Adjustment Factor, the average irrigation efficiency is 0.71. Therefore, the ET Adjustment Factor (0.7) = (0.5/0.71). The ETAF for a new

and existing (non-rehabilitated) Special Landscape Area shall not exceed 1.0. The ETAF for existing, non-rehabilitated landscaping is 0.8.

“Evapotranspiration (ET) Rate” means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

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

“Flow sensor” means an inline device installed at the supply point of the irrigation system that produces a repeatable signal proportional to flow rate. Flow sensors must be connected to an automatic irrigation controller, or flow monitor capable of receiving flow signals and operating master valves. This combination flow sensor/controller may also function as a landscape water meter or submeter.

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“Friable” means a soil condition that is easily crumbled or loosely compacted down to a minimum depth per planting material requirements, whereby the root structure of newly planted material will be allowed to spread unimpeded.

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“Fuel Modification Plan Guideline” means guidelines from a local fire authority to assist residents and businesses that are developing land or building structures in a fire hazard severity zone.

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“Graywater” means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. “Graywater” includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers. Health and Safety Code Section 17922.12.

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“Hardscapes” means any durable surface material (pervious and non-pervious).

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“Homeowner-Provided Landscaping” means landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner.

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“Hydrozone” means a portion of the landscaped area having plants with similar water needs and rooting depth. A hydrozone may be irrigated or non-irrigated.

“Infiltration Rate” means the rate of water entry into the soil expressed as a depth of water per unit of time (i.e., inches per hour).

“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 as described in the Food and Agricultural Code, Section 5004. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database. the species of plants that have a tendency to colonize open spaces, riparian corridors, and other sensitive habitats.

“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 run off that causes overland flow, and preparation of an irrigation schedule.

The audit must be conducted in a manner consistent with the Irrigation Association’s Landscape Irrigation Auditor Certification program or other U.S. Environmental Protection Agency “Watersense” labeled auditing program.

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“**Irrigation Efficiency**” 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 Chapter is 0.754 for overhead spray devices and 0.81 for drip systems.

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“**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.

“**Irrigation Water Use Analysis**” means an analysis of water use data based on meter readings and billing data.

“**Landscape Package**” means the documents required under Section 19.67.050.

“**Landscaped Area (LA)**” means all of 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 nondevelopment (e.g., open spaces and existing native vegetation).

“**Landscape Architect**” means a person who holds a license to practice landscape architecture in the state of California (Business & Professions Code Section 5615).

“**Landscape Contractor**” means a person licensed possessing a valid C-27 license by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

“**Landscape Project**” means the total area of landscape in a project as defined in “landscape area,” for the purposes of this Chapter, meeting the requirements under Section 19.67.030.

“**Landscape Water Meter**” means an inline device installed at the irrigation supply point that measures the flow of water into the irrigation system and is connected to a totalizer to record water use.

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“**Lateral Line**” means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve. This pipeline is typically downstream of the zone control valve and non-pressurized when irrigation is not occurring.

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

“**Main Line**” means the pressurized pipeline that delivers water from the water source to the valve or outlet. This pipeline is typically pressurized at all times.

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“**Master Shut-Off Valve**” is an automatic valve installed at the irrigation supply point which controls water flow into the irrigation system. When this valve is closed water will not be supplied to the irrigation system. A master valve will greatly reduce any water loss due to a leaky station valve.

“**Maximum Applied Water Allowance (MAWA)**” means the upper limit of annual applied water for the established landscaped area as specified in Section 19.67.050(B)(2). MAWA is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscaped

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

“Median” is an area between opposing lanes of traffic that may be unplanted or planted with trees, shrubs, perennials, and ornamental grasses.

“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.

“Mulch” means any organic material such as leaves, bark, straw or other 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.

“New Construction” means a new building with a landscape or other new landscape.

“Non-residential Landscape” means landscapes in commercial, institutional, industrial and public settings that may have areas designated for recreation or public assembly. It also includes portions of common areas of common interest developments with designated recreational areas.

“Operating Pressure” means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

“Overhead Sprinkler Irrigation Systems” or Overhead Spray Irrigation Systems” means systems that deliver water through the air (e.g., spray heads and rotors, etc).

“Overspray” means the irrigation water which is delivered beyond the target area.

“Parkway” means the area between a sidewalk and the curb or traffic lane. It may be planted or unplanted, and with or without pedestrian egress.

“Permit” means any authorizing document issued by the City of Roseville for new construction or rehabilitated landscaping.

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

“Plant Factor or Plant Water Use Factor” means a factor, when multiplied by the ET_o, estimates the amount of water needed by plants. For purposes of this Chapter, the plant factor range for very low water use plants is 0 to 0.1, the plant factor range for low water use plants is 0.1 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this Chapter are derived from the Department of Water Resources 2000 publication “Water Use Classification of Landscape Species.” Plant factors may also be obtained from horticultural researchers from academic institutions or professional associations as approved by the California Department of Water Resources (DWR).

“Precipitation Rate” means the rate of application of water measured in inches per hour.

“Project Applicant” means the individual or entity submitting a Landscape Documentation Package required under Section 19.67.050 to request a permit, plan check or design review from the City. A project applicant may be the property owner or his/her designee.

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“**Rain Sensor or Rain Sensing Shutoff Device**” means a component which automatically suspends an irrigation event when it rains.

“**Record Drawing or As-Built**” 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.

“**Recreational Area**” means areas excluding private single family residential areas, dedicated designated for to active play, recreation or public assembly in such as parks, sports fields, picnic grounds, amphitheaters or and golf courses tees, fairways, roughs, surroundings and greens where turf provides a playing surface.

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“**Recycled Water, Reclaimed Water, or Treated Sewage Effluent Water**” means treated or recycled wastewater of a quality suitable for non-potable uses such as landscape irrigation. This water is not intended for human consumption.

“**Reference Evapotranspiration (ETo)**” means a standard measurement of environmental parameters which affect the water use of plants. ETo is given in inches per day, month, or year as represented below, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool season turf that is well watered. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowances so that regional differences in climate can be accommodated. Refer to Section 19.67.050(B)(2)(b) for City of Roseville ETo.

“**Rehabilitated Landscaping**” means any re-landscaping project that requires a building permit, improvement plan approval, or design review and meets the requirements of Section 19.67.030 and the modified landscape area is equal to or greater than 2,500 square feet.

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“**Residential Landscape**” means landscapes surrounding single or multifamily homes.

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“**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 or too great a volume (application rate exceeds infiltration rate) or when there is a slope.

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“**Slope**” means the steepness, incline, gradient, or grade of a straight line. A higher slope value indicates a steeper incline.

“**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.

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“**Soil Texture**” means the classification of soil based on its percentage of sand, silt, and clay in the soil.

“**Special Landscape Area (SLA)**” means an area of the landscape dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a community playing surface.

“**Sprinkler Head or Spray Head**” means a device which delivers overhead watering through a spray nozzle.

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“**Static Water Pressure**” means the pipeline or municipal water supply pressure when water is not flowing.

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

“**Stormwater Quality Design Manual**” means the most recent version of the design manual for the Sacramento and South Placer regions which sets forth the design criteria and operation and maintenance requirements for stormwater control measures.

“**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.

“**Submeter**” means a metering device to measure water applied to the landscape that is installed after the primary utility water meter.

“**Temporarily Irrigated Areas**” means either: (1) Landscaping which is reliant on irrigation for a temporary duration of time to allow plant root establishment; or (2) areas such as unfinished building pads, or other areas approved for future development, in which landscaping is planted on an interim basis.

“**Turf**” means a groundcover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are common cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are common warmseason grasses.

“**Valve**” means a device used to control the flow of water in the irrigation system.

“**Water Conserving Plant Species**” means a plant species identified as having a low plant water use factor.

“**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.

“**Watering Window**” means the time of day irrigation is allowed.

“**WUCOLS**” means Water Use Classification of Landscape Species published by the University of California Cooperative Extension, and the Department of Water Resources, and the Bureau of Reclamation, 201490.

(Ord. 4786 (part), 2009.)

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Section 19.67.050 - Submittal Requirements

- A. Landscape Package Submittal Required.** Prior to issuance of a building permit or improvement plans, the project applicant shall submit a landscape package to the city for review and approval. The landscape package shall contain the information required by subsection B, and shall be incorporated into the improvement plan and/or landscape plan set in a form determined acceptable to the ~~Planning Manager~~Environmental Utilities Director or his Designee.
- B. Elements of the Landscape Package.** The landscape package shall include the following six elements, which shall be incorporated into the landscape plan set in a form determined acceptable to the ~~Planning Manager~~Environmental Utilities Director or his Designee:
- 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 the identity of 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 the following statement: "I agree to comply with the requirements of the Water Efficient Landscaping Ordinance and submit a complete landscape documentation package."
 - 2. Water Efficient Landscape Worksheet.** The worksheet will be a form provided by the City, and shall include information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydrozone. Calculations are then made to show that the evapotranspiration adjustment factor (ETAF) for the landscape project does not exceed a factor of 0.55 for residential areas and 0.45 for non-residential areas, exclusive of Special Landscape Areas. The ETAF for a landscape project is based on the plant factors and irrigation methods selected. The Maximum Applied Water Allowance is calculated based on the maximum ETAF allowed (0.55 for residential areas and 0.45 for non-residential areas) and expressed as annual gallons required. The Estimated Total Water Use (ETWU) is calculated based on the plants used and irrigation method selected for the landscape design. ETWU must be below the MAWA.
 - a. Hydrozone Information Table;**
 - b. Water Budget Calculations for Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use (ETWU).** ~~For the calculation of~~ In calculating the maximum applied water allowance and estimated total water use, a project applicant shall use the following ETo values:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
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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
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i. **Water budget calculations shall adhere to the following requirements:**

- (1) The plant factor used shall be obtained from the most recent Water Use Classification of Landscape Species publication or from horticultural researchers with academic institutions or professional associations as approved by the California Department of Water Resources (DWR). The plant factors ranges shall be calculated as follows:
 - a. 0 to 0.1 for very low water using plants;
 - b. 0 to 0.3 for low water use plants;
 - c. 0.4 to 0.6 for moderate water use plants; and
 - d. 0.7 to 1.0 for high water use plants.
- (2) All water features shall be included in the high water use hydrozone.
- (3) Temporarily irrigated areas shall be designed as low water use hydrozones.
- (4) Special landscape areas shall be clearly identified and their water use calculated as shown in the Water Efficient Landscape Worksheet. Water use for new and existing (non-rehabilitated) special landscape areas shall be calculated with an ETAF not to exceed 1.0.

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ii. **The landscape project's Maximum Applied Water Allowance (MAWA) shall be calculated as follows:**

- (1) **MAWA = (ETo) (0.62) [0.7ETAF x LA + 0.3 x SLA], where**
 - a. **MAWA** = Maximum applied water allowance (gallons per year);
 - b. **ETo** = Reference evapotranspiration (inches per year) (as provided in subsection (B)(2)(b));
 - c. **0.7ETAF** = ET adjustment factor;
 - d. **LA** = Landscaped area includes special landscape area (square feet);
 - e. **0.62** = Conversion factor (to gallons per square foot);
 - f. **SLA** = Portion of the landscape area identified as special landscape area (square feet);
 - g. **0.3** = The additional ET adjustment factor for special landscape area (1.0 - 0.7 = 0.3)

3. **Soil Management Report.** In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant or designee, as follows:

- a. **Submit soil sample(s) to a laboratory for analysis and recommendations.**

- i. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants; and
- ii. The soil analysis mayshall 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 for appropriate amendment.

iii. In projects with multiple landscape installations (i.e. production home developments) a soil sampling rate of 1 in 7 lots or approximately 15% of the landscape area will satisfy this requirement.

- b. The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape and irrigation design plans to make any necessary adjustments.
- c. Any soil management or amendment recommendations shall be included with the design plans for city review.
- d. Upon completion of construction and prior to issuance of an occupancy permit, the project applicant or designee shall submit documentation verifying implementation of soil analysis report recommendations within the landscaped area to the city with the certificate of completion.

4. **Landscape Plan.** Landscape plans, including plant selection, shall be designed consistent with the applicable specific plan or special planning area design guidelines. At a minimum, landscape design plans shall address the following:

a. **Plant Materials.** The estimated total water use for plants selected for the landscaped area shall not exceed the maximum applied water allowance. The landscape plan shall identify landscape materials, trees, shrubs, groundcover, turf, etc. Planting symbols shall be clearly drawn and plants shall be labeled by botanical name, common name, container size, spacing, and quantities or each group of plants indicated. Planting areas dedicated permanently and solely to edible plants should be clearly delineated.

High water use plants, characterized by a plant factor of 0.7 to 1.0, are prohibited in street medians. Methods to achieve water efficiency shall include one or more of the following:

- i. Protection and preservation of native species and natural vegetation;
- ii. Selection of water-conserving plant, tree and turf species, especially local native plants;
- iii. Selection of plants based on local climate suitability, disease and pest resistance;
- iv. Selection of trees based on applicable local tree ordinances or tree shading guidelines, and size at maturity as appropriate for the planting area;
- v. Selection of plants from local and regional landscape program plant lists.
- vi. Selection of plants from local Fuel Modification Plan Guidelines.

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

- i. 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;
- ii. 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]; allow for adequate soil volume for healthy root growth; and
- iii. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

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c. Hydrozone Information. Each hydrozone shall contain plant materials with similar water use needs. Hydrozones shall be designated as low, moderate, high water, or mixed water use and shall be labeled by number, letter, or other method. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation. Areas irrigated with recycled water should be clearly delineated. For hydrozones with plants of mixed water use, refer to subsection (B)(5)(b).

d. Water Features. Water features may be permitted, subject to design review, and the provisions of Chapter 14.09 (Water Conservation).

- i. All water features shall incorporate recirculating water systems.
- ii. Where available, recycled water shall be used as a source for decorative water features.
- iii. The surface area of a water feature shall be indicated on the plans and included in the high water use hydrozone area of the water budget calculation.

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e. Limitations on Turf.

- i. Turf shall not be permitted on slopes greater than 1 foot of vertical elevation change for every 4 feet of horizontal length 4:1.
- ii. Turf shall not comprise greater than 50-25 percent of the front yard planting area of developer-installed single-family landscaping.
- iii. With the exception of special landscape areas, turf shall not comprise greater than 50-25 percent of nonresidential landscaped area.
- iv. Turf shall not be permitted within the protected zone radius of any native oak tree, as defined in Chapter 19.66.

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f. Soil Preperation, Mulch and Amendments.

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

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- ii. A minimum ~~three~~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 where mulch is not advisable. The plans shall identify the type of mulch and application depth. Shredded (i.e., "gorilla") mulch is not acceptable. To provide habitat for beneficial insects and other wildlife, up to 5% of the landscape area may be left without mulch. Designated insect habitat must be included in the landscape design plan as such.
- iii. For landscape installations, compost at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top 6 inches of soil are exempt from adding compost and tilling.
- iv. Organic mulch materials made from recycled or post-consumer shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available. Organic mulches are not required where prohibited by local Fuel Modification Plan Guidelines or other applicable local ordinances.
- ivi. Stabilizing mulching products shall be used on slopes greater than 1 foot of vertical elevation change for every 3 feet of horizontal length 3:1.
- viii. Required soil amendments and quantities shall be clearly denoted on the plans. Soil amendments shall be incorporated based on the recommendations of the soil report and what is appropriate for the plants selected (see subsection (B)(3)).

g. **Other Design Considerations.** The landscape design plan, at a minimum, shall:

- i. Delineate property lines, utilities and utility easements, streets, driveways, walkways, and other paved areas or hardscapes (pervious or impervious);
- ii. Identify buildings and structures including pad elevation(s) if applicable;
- iii. Identify natural features to remain, including rock outcroppings, existing oak and ornamental trees, shrubs, etc.;
- iv. Identify recreational or other special landscape areas, as defined in Section 19.67.040;
- v. Identify the location, and installation details and of any applicable stormwater best management practices. Projects shall refer to the requirements of the city's Stormwater Quality Design Manual;
- vi. Identify any applicable rain harvesting or catchment technologies as discussed in Section 17 and their 24-hour retention or infiltration capacity. (e.g., rain gardens, cisterns, etc.).
- vii. Identify any applicable graywater discharge piping, system components and area(s) of distribution;
- viii. 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. Refer to the local Fuel Modification Plan guidelines.

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

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x. 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.

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h. **Verification.** The landscape plan shall contain the following statement: "I have complied with the criteria of the Water Efficient Landscaping Ordinance and applied such criteria for the efficient use of water in the landscape design plan," which shall be signed by a licensed landscape architect, licensed landscape contractor or any other person authorized to design a landscape plan pursuant to Sections 5500.1, 5615, 5641 et seq., 6701, and 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 Agriculture Code.

5. **Irrigation Plan.** This section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. For the efficient use of water, an automated 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.

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a. **System Requirements.**

i. Dedicated landscape water meters defined as either a dedicated water service meter or private submeter, shall be installed for all non-residential irrigated landscapes of 1,000 sq. ft. but not more than 5,000 sq.ft. (the level at which Water Code 535 applies) and residential irrigated landscapes of 5,000 sq. ft. or greater. A landscape water meter may be either:

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(1) A customer service meter dedicated to landscape use provided by the local water purveyor; or

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(2) A privately owned meter or submeter.

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are required for all nonresidential landscape areas.

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ii. Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems. Weather-based irrigation controllers, soil moisture-based controllers or other self-adjusting irrigation controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change shall be required for irrigation scheduling in all irrigation systems in accordance with the California Green Building Standards Code, as amended. For single family residential properties, controller shall have a minimum of 8 stations or be upgradable to 8 stations or more. An exception for additional stations may be provided for front yard landscapes that will be maintained by a homeowner's association.

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iii. If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required. 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.

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- (A) 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.
- (B) 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.
- (C) Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have a rain sensor input. Irrigation should be avoided during windy or freezing weather or during rain.
- (D) 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.
- (E) Backflow prevention devices shall be provided as required by the environmental utilities department to protect the water supply from contamination by the irrigation system.
- (F) Flow sensors that detect high flow conditions created by system damage or malfunction are required for all on non-residential landscapes and residential landscapes of 5000 sq. ft. or larger.
- (G) Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.
- (HF) 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.
- (JG) The design of the irrigation system shall conform to the hydrozones delineated on the landscape design plan.
- (KH) The irrigation system shall be designed and installed to meet irrigation efficiency criteria as described in subsection (B)(2) regarding the maximum applied water allowance.

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(L) All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers/International Code Council's (ASABE/ICC) 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard. All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.

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(MI) Low volume irrigation shall be used in mulched planting areas to maximize water infiltration into the root zone.

(NJ) Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.

(OK) Sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.

(PL) Swing joints or other riser-protection components shall be provided on all risers subject to damage that are adjacent to hardscapes or in high traffic areas of turf grass.

(MQ) Check valves or anti-drain valves are required for all irrigation systems on all sprinkler heads where low point drainage could occur.

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(NR) Narrow or irregularly shaped areas, including turf landscape areas less than teneight feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation technology or other means that produces no runoff or overspray (including but not limited to multi-system, multi-trajectory rotator sprinklers).

(SO) 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 volume 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 overspray and 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 (including, but not limited to, multi-stream, multi-trajectory rotator sprinklers.), as part of the landscape package, and clearly demonstrates strict adherence to irrigation system design criteria in subsection (B)(5). Prevention of overspray and runoff must be demonstrated and confirmed during the irrigation audit.

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(TP) Slopes greater than 4:1 foot of vertical elevation change for every 4 feet of horizontal length shall not be irrigated with an irrigation system with an application ~~precipitation~~ rate exceeding 0.75 inches per hour. This restriction may be modified if the

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landscape designer specifies an alternative design or technology, as part of the landscape package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be demonstrated and confirmed during the irrigation audit.

- (UQ) Irrigation design plans that incorporate use of recycled water shall comply with the requirements of the city's design standards for on-site recycled water systems.

b. Hydrozone.

- i. Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions and plant materials with similar water use.
- ii. Sprinkler heads and other emission devices shall be selected based on their appropriateness for the plant type within that hydrozone.
- iii. Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.
- iv. Individual hydrozones that mix plants of moderate and low water use or moderate and high water use may be allowed if:
 - (A) The plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
 - (B) The plant factor of the higher water using plant is used for calculations.
- v. Individual hydrozones that mix high and low water use plants shall not be permitted.
- vii. 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 Water Efficient Landscape Worksheet). This table can also assist with the irrigation audit and programming the controller. The areas irrigated by each valve shall be designated, and each valve shall be assigned a number corresponding to the hydrozones identified on the landscape plan. The valve number(s) shall be listed in the hydrozone information table on the plans.

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c. The irrigation plan, at a minimum, shall identify:

- i. Location and size of separate water meters for landscape;
- ii. 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;
- iii. Static water pressure at the point of connection to the public water supply;
- iv. Flow rate (gallons per minute), application rate (inches per hour) and design operating pressure (pressure per square inch) for each station;
- v. Recycled water irrigation systems as specified in Section 19.67.100.

- d. **The irrigation plan shall contain the following statement:** "I have complied with the criteria of the Water Efficient Landscaping Ordinance and applied such criteria for the efficient use of water in the irrigation plan," which shall be signed by a licensed landscape architect, certified irrigation designer, irrigation consultant, licensed landscape contractor or any other person authorized to design an irrigation system pursuant to Sections 5500.1, 5615, 5641 et seq., 6701, and 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 Agriculture Code.

6. **Grading and Drainage Plan.** For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff and water waste. A grading and drainage plan shall be submitted as part of the Landscape Documentation Package. The grading and drainage plan prepared by a civil engineer and submitted for improvement plan review in association with a development project may also satisfy this requirement.

- a. **In addition to other city grading design standards,** the grading plan shall include the following information:

- i. Height of graded slopes;
- ii. Drainage patterns;
- iii. Proposed underground and in-ground drainage improvements;
- iv. Pad elevations; and
- v. Finish grade.

- b. **Stormwater retention or treatment improvements, if applicable.**

- c. **Verification.** The grading and drainage plan shall contain the following statement: "I have complied with the criteria of the Water Efficient Landscaping Ordinance and applied such criteria for the efficient use of water in the grading and drainage plan," which shall be signed by a licensed professional as required by law.

C. **Approval Required.** Upon approval of the landscape package by the city, and provided all other applicable city requirements are met, the project applicant shall:

- 1. Receive from the city a permit or approval and record the date of the permit or approval in the certificate of completion; and
- 2. Submit a copy of the approved landscape package along with the record drawings, and any other information to the property owner or designee.

(Ord. 5481, 2015; Ord. 5321, 2014; Ord. 5186 § 1, 2013; Ord. 4786 (part), 2009; Ord. 5428 (part), 2014)

Section 19.67.060 - Landscape Certificate of Completion

A. Prior to issuance of a certificate of occupancy, a signed landscape certificate of completion shall be submitted to the Planning Division on a form prescribed by the ~~Planning Manager~~Environmental Utilities Director or his Designee that shall include the following information and documentation:

- 1. Date, project name, project address, applicant name, telephone, and mailing address;
- 2. Property owner name, telephone, and mailing address;

3. 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 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;

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

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4. Irrigation audit report (see Section 19.67.080(A)(1));
5. Scheduling parameters used to set the irrigation controller (see Section 19.67.150);
6. Landscape and irrigation maintenance schedule (see Section 19.67.070(A)); and
7. Soil analysis report, if not initially submitted with the landscape package, and documentation verifying implementation of soil management report recommendations.

B. The project applicant shall ensure that copies of the approved landscape certificate of completion are submitted to the property owner or his/her designee.

C. Following receipt and review, the City shall either approve or deny the landscape certificate of completion. If the landscape certificate of completion is denied, the City shall not be obligated to issue an occupancy permit and will provide information to the project applicant regarding necessary corrections, appeal, or other assistance.

(Ord. 4786 (part), 2009; Ord. 5428 (part), 2014)

Section 19.67.070 - Irrigation Scheduling and Maintenance

A. **Irrigation Scheduling.** 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 utilize automatic irrigation systems and evapotranspiration data.
2. Overhead irrigation using potable water shall be scheduled between 8:00 p.m. and 10:00 a.m. unless it is demonstrated that weather conditions are unfavorable or would result in detriment to plant health. Operation of the irrigation system outside the normal watering window is permitted for auditing and system maintenance.
3. The irrigation schedule shall factor 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.
4. Using an appropriate controller, an annual irrigation program with monthly irrigation schedules shall be developed and submitted to the City for each of the following:
 - a. The plant establishment period;
 - b. The established landscape; and
 - c. Temporarily irrigated areas.

5. Irrigation schedules shall consider the following:

- 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 and shade factor setting;
- j. Irrigation uniformity or efficiency setting.

B. Landscape and Irrigation Maintenance

1. Landscaping shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the landscape certificate of completion.
2. A regular maintenance schedule shall include, but is not limited to: routine inspection; auditing; adjustment and repair of the irrigation system and its components; aerating and de-thatching turf areas; top dressing with compost; replenishing mulch; fertilizing; pruning; weeding in all landscaped areas and removing any obstruction to emission devices.
3. Irrigation equipment shall be repaired or replaced with the originally installed components or equivalents or with components with greater efficiency.
4. A project applicant is encouraged to implement established landscape industry sustainable Best Practices for all landscape maintenance activities.

(Ord. 4786 (part), 2009.)

Section 19.67.080 -- Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis and Monitoring

- A. All landscape irrigation audits shall be conducted by a local agency landscape irrigation auditor or a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.
- (B) In large projects or projects with multiple landscape installations (i.e. production home developments) an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.
- (b)(C) For new construction and rehabilitated landscape projects installed after December 1, 2015, as described in Section 22:
- i. The project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency that may include, but is not

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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, including configuring irrigation controllers with application rate, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming;

- ii. The City 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. For new construction and rehabilitated landscape projects installed after January 1, 2010, as described in Section 19.67.030:

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1. The project applicant shall submit an irrigation audit report with the landscape certificate of completion to the City that must include, at a minimum: inspection, system test (including distribution uniformity and verification of minimal overspray or run off that does not cause overland flow), system tune-up, and an irrigation schedule. Required landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

The City shall administer programs that may include, but not be limited to, irrigation water use analysis, mandatory irrigation audits conducted by property owners at owners' expense, and irrigation surveys for compliance with the Maximum Applied Water Allowance.

(Ord. 4786 (part), 2009.)

Section 19.67.090 - Irrigation Efficiency

For the purpose of determining the Estimated Total Water Use maximum applied water allowance, average irrigation efficiency is assumed to be 0.75⁴ for overhead spray devices and 0.81 for drip system devices. Irrigation systems shall be designed, maintained and managed to meet or exceed an average landscape irrigation efficiency of 0.71.

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(Ord. 4786 (part), 2009.)

Section 19.67.100 - Use of Recycled Water for Irrigation

- A. In addition to the requirements contained in this Chapter, landscape and irrigation plans for sites utilizing recycled water shall be designed consistent with the requirements of Chapter 14.17 (Recycled Water Service), and the City's Rules and Regulations for Use of Recycled Water.
- B. Irrigation systems shall be designed and constructed to allow the use of recycled water where such recycled water is available or may become available in the future.
- C. Irrigation systems shall use recycled water, if available, unless a written exemption has been granted by the City stating that recycled water meeting all public health codes and standards is not available and will not be available for the foreseeable future.
- D. Landscaping using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

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(Ord. 4786 (part), 2009.)

Section 14.00.00 – Use of Greywater Systems

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- A. Graywater systems promote the efficient use of water and are encouraged to assist in on-site landscape irrigation. All graywater systems shall conform to the California Plumbing Code (Title 24, Part 5, Chapter 16) and any applicable local ordinance standards. Refer to § 490.1 (d) for the

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applicability of this ordinance to landscape areas less than 2,500 square feet with the Estimated Total Water Use met entirely by graywater.

Section 149.67.110 - Stormwater Management and Rainwater Retention

A. Stormwater management best practices incorporated into the landscape shall comply with the requirements of the City's Stormwater Quality Design Manual.

B. All planted landscape areas are required to have friable soil to maximize water retention and infiltration. Refer to § 492.6(a)(3).

C. It is strongly recommended that landscape areas be designed for capture and infiltration capacity that is sufficient to prevent runoff from impervious surfaces (i.e. roof and paved areas) from either: the one inch, 24-hour rain event or (2) the 85th percentile, 24-hour rain event, and/or additional capacity as required by any applicable local, regional, state or federal regulation.

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

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

(Ord. 4786 (part), 2009.)

Section 19.67.120 - Public Education

A. The City shall make available information regarding the design, installation, management, and maintenance of water efficient landscaping based on a water budget in permitted renovations or new single family residential homes. Said information may be provided in the form of print, electronic, or similar media deemed practical by the City.

B. **Model Homes.** All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscaping described in this Chapter.

1. Signs shall be used to identify the model as an example of a water efficient landscape and featuring elements such as hydrozones, irrigation equipment and others which that contribute to the overall water efficient theme. Signs shall include information about the site water use as designed per the local ordinance; specify who designed and installed the water efficient landscape; and demonstrate low water use approaches to landscaping such as using native plants, graywater systems, and rainwater catchment systems.

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2. Information shall be provided regarding designing, installing, managing, and maintaining water efficient landscaping.
(Ord. 4786 (part), 2009.)

Section 19.67.130 - Provisions for Existing Landscaping installed prior to ~~January December 1, 2010~~2015

A. Irrigation Water Use Analysis and Monitoring

1. For all existing landscaping installed prior to ~~January 1, 2010~~December 1, 2015 with a dedicated or mixed-use water meter that is one acre or more, including golf courses, green belts, common areas, multifamily housing, schools, businesses, parks, cemeteries and publicly owned landscaping, the City shall offer programs that may include, but not be limited to, irrigation water use analyses, and irrigation surveys to verify that landscape water use does not exceed the Maximum Applied Water Allowance for existing landscaping. The City may require mandatory irrigation audits conducted at property owners' expense to demonstrate that existing landscaping comply with the Maximum Applied Water Allowance.
2. For all existing landscaping over one (1) acre in size that do not have a meter, the City shall offer programs that may include irrigation surveys and irrigation audits that verify proper operation of the irrigation system and prevent water waste.

B. Maximum Applied Water Allowance for existing landscaping shall be calculated as: $MAWA = (0.8)(ET_o)(LA)(0.62)$.

C. Required landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

D. ~~Effective Precipitation.~~ The City may consider Effective Precipitation (not to exceed 25% of annual precipitation) in tracking water use and may use the following equation to calculate Maximum Applied Water Allowance for landscaping installed before ~~December 1, 2015~~:
 ~~$MAWA = (ET_o - Eppt) (0.62) [(0.55 \times LA) + (0.45 \times SLA)]$ for residential areas.~~
 ~~$MAWA = (ET_o - EPPT) (0.62) [(0.45 \times LA) + (0.55 \times SLA)]$ for non-residential areas.~~
~~January 1, 2010: $MAWA = (ET_o - Eppt) (0.62) (0.7 \times LA + 0.3 \times (SLA))$.~~

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(Ord. 4786 (part), 2009.)

Section 19.67.140 - Enforcement

A. Enforcement.

1. It shall be the duty of the ~~Planning Manager~~Environmental Utilities Director or his Designee to enforce the provisions of this Chapter. All departments, officials and public employees vested with the duty or authority to issue permits or licenses shall not issue a permit or license for uses, buildings or purposes in conflict with the provisions of this Chapter and any such permit or license issued in conflict with the provisions of this Chapter shall be null and void. The ~~Planning Manager~~Environmental Utilities Director or his Designee may delegate enforcement responsibilities to other City employees.
2. Any landscaping that is installed, constructed, altered, enlarged, converted, moved, or maintained contrary to the provisions of this Chapter, or failure to comply with any of the conditions of a permit or variance granted under this Chapter is declared to be unlawful. The City Attorney may initiate an action or proceeding to enforce the provisions of this Chapter, as appropriate.

(Ord. 4786 (part), 2009; Ord. 5428 (part), 2014)

Section 19.67.150 - Penalties

Any property owner, person, firm, or corporation, whether as principal, agent, employee or otherwise, violating any provision of this Chapter shall be guilty of a misdemeanor, and upon conviction thereof shall be punishable by a fine of not more than \$500.00 or by imprisonment in the County Jail for a term not exceeding six (6) months, or by both. The City Attorney in his or her discretion may reduce any violation of this Chapter to an infraction, punishable by a fine of not more than \$250.00. Any property owner, person, firm, or corporation shall be deemed guilty of a separate offense for each and every day during any portion of which any violation of this Chapter is committed, continued or permitted by such person, firm or corporation, and shall be deemed guilty of a separate offense for each and every day during any portion of which any violation of this Chapter is committed, continued or permitted by such person, firm or corporation, and shall be punishable as provided herein. Penalties under the administrative enforcement provisions of Chapter 2.52 of this code may be imposed in lieu of, but not in addition to, penalties imposed by the court for any single violation.

(Ord. 4786 (part), 2009.)

Section 14.00.00 - Reporting

The City shall report on implementation and enforcement of the WELQ by December 31, 2015. Subsequently, reporting for the City will be done by January 31st of each year. Reports shall be submitted to the Department of Water Resources (DWR) and address the criteria requested by DWR.

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