



1 outdoor water uses by residences and business, including: regulating  
2 outdoor irrigation practices, penalties for violation and a public  
3 communications mechanism to allow customers to report any perceived  
4 water wasting violations; and

5 WHEREAS, the Department of Water Resources (DWR), based on  
6 legislative directives, is requiring cities to adopt a model water  
7 efficient landscape ordinance, or its equivalent, by January 1, 2010,  
8 which allows a city to adopt an ordinance developed by another agency  
9 that has received certification compliance from the DWR; and

10 WHEREAS, if a city opts not to take any action in terms of  
11 developing a water conservation ordinance, the DWR model ordinance  
12 shall be adopted by statute on January 1, 2010; and

13 WHEREAS, Section 4.5 of the Charter of the City of Vernon  
14 provides that regulations pertaining to any subject, model codes, and  
15 codifications of ordinances of other public agencies may be adopted  
16 by reference, in their original form or with amendments, with the  
17 same effect as an ordinance; and

18 WHEREAS, the Director of Community Services & Water has  
19 reviewed the Vernon City Code and has recommended that the City (i)  
20 adopt by reference the Model Water Efficient Landscape Ordinance of  
21 the Department of Water Resources that will become effective  
22 January 1, 2010 by adding a new Section 25.112 to the Vernon City  
23 Code, and (ii) amend Sections 25.100, 25.101, 25.102, 25.103, 25.104,  
24 25.105, 25.106(b) and 25.107(a) of the Vernon City Code in order to  
25 meet the requirements of the MWD and DWR model ordinances; and

26 WHEREAS, the City Council on October 19, 2009, gave a first  
27 reading to this Ordinance and the title of said code and standards,  
28 and gave a second reading on October 26, 2009, for the purpose of

1 considering the adoption of the Model Water Efficient Landscape  
2 Ordinance of the Department of Water Resources in its entirety  
3 effective January 1, 2010; and

4 WHEREAS, the Director of Community Services & Water has  
5 recommended that the City Council make a finding that the adoption of  
6 this ordinance is exempt pursuant to Guideline 15061(b)(3) and  
7 Guideline 15308 from the California Environmental Quality Act because  
8 the adoption of this ordinance will not have a significant effect on  
9 the environment as it has the effect of limiting rather than  
10 authorizing the use of water supplies and resources, and also  
11 constitutes an action by the City to assure the maintenance,  
12 enhancement, and protection of the environment through the  
13 conservation of water resources; and

14 WHEREAS, the City Council finds and determines that it is  
15 in the interests of the public health, safety and welfare of the City  
16 of Vernon, its residents, businesses and employees to implement the  
17 recommendations of the Director of Community Services and Water, as  
18 set forth in this Ordinance.

19 THE CITY COUNCIL OF THE CITY OF VERNON HEREBY ORDAINS:

20 SECTION 1: The City Council of the City of Vernon hereby  
21 finds and determines that the recitals contained hereinabove are true  
22 and correct.

23 SECTION 2: The City Council of the City of Vernon hereby  
24 amends Chapter 25, Water, Article VI, Water Conservation, of the  
25 Vernon City Code, by adding Section 25.112 and amending Sections  
26 25.100 to 25.105, 25.106(b) and 25.107(a) of said Code as set forth  
27 in Exhibit A which is attached hereto and incorporated by reference.

28 SECTION 3: The City Council of the City of Vernon hereby

1 adopts by reference the Model Water Efficient Landscape Ordinance of  
2 the Department of Water Resources (the "Model Ordinance") as set  
3 forth in Exhibit B which is attached hereto and incorporated by  
4 reference. Three (3) copies of the Model Ordinance so adopted shall  
5 be filed and kept on file for use and examination by the public in  
6 the office of the City Clerk.

7           SECTION 4: Pursuant to the California Environmental  
8 Quality Act (Public Resources Code Section 21000 et seq.) ("CEQA")  
9 and the State CEQA Guidelines (California Code of Regulations, Title  
10 14, Section 15000 et seq.), the City Council of the City of Vernon  
11 hereby finds that it can be seen with certainty that there is no  
12 possibility that the adoption of this Ordinance will have a  
13 significant effect on the environment because it has the effect of  
14 limiting rather than authorizing the use of water supplies and  
15 resources, and constitutes an action by the City to assure the  
16 maintenance, enhancement, and protection of the environment through  
17 the conservation of water resources. Therefore, the adoption of this  
18 Ordinance is exempt from CEQA pursuant to State CEQA Guidelines  
19 Sections 15061(b) (3) and 15308.

20           SECTION 5: Any ordinance or parts of ordinances in  
21 conflict with this Ordinance are hereby repealed.

22           SECTION 6: Severability. If any chapter, article,  
23 section, subsection, subdivision, paragraph, sentence, clause,  
24 phrase, or word in this Ordinance or any part thereof is for any  
25 reason held to be unconstitutional or invalid or ineffective by any  
26 court of competent jurisdiction, such decision shall not affect the  
27 validity or effectiveness of the remaining portions of this Ordinance  
28 or any part thereof. The City Council hereby declares that it would



1 STATE OF CALIFORNIA )  
2 ) ss  
3 COUNTY OF LOS ANGELES )

4 I, MANUELA GIRON, City Clerk of the City of Vernon, do hereby  
5 certify that the foregoing Ordinance, being Ordinance No. 1161, was  
6 duly and regularly introduced at a meeting of the City Council of the  
7 City of Vernon, held on Monday, October 19, 2009, and thereafter  
8 adopted at a meeting of said City Council held on Monday, October 26,  
9 2009, by the following vote:

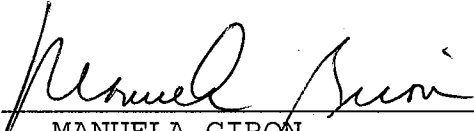
10  
11 AYES: Councilmembers: Mayor Gonzales, McCormick,  
12 Davis, Maisano, Newmire

13 NOES: Councilmembers: None

14 ABSENT: Councilmembers: None

15 And thereafter was duly signed by the Mayor or Mayor Pro-Tem  
16 of the City of Vernon.

17 Executed this 27th day of October, 2009, at Vernon,  
18 California.

19  
20   
21 MANUELA GIRON  
22 City Clerk

23 (SEAL)

24  
25  
26  
27  
28

**EXHIBIT A**





1 by commercial nurseries and commercial growers to sustain plants,  
2 trees, shrubs, crops or other vegetation intended for commercial  
3 sale.

4 This article is intended solely to further the conservation of  
5 water. It is not intended to implement any provision of federal,  
6 state, or local statutes, ordinances, or regulations relating to  
7 protection of water quality or control of drainage or runoff.

8 The following words and phrases whenever used in this article  
9 have the meaning defined in this section:

10 (a) **Billing unit** means the unit of water used to apply water  
11 rates for purposes of calculating water charges for a person's water  
12 usage and equals one hundred cubic feet (Ccf).

13 (b) **Landscape irrigation system** means an irrigation system with  
14 pipes, hoses, spray heads, or sprinkling devices that are operated by  
15 hand or through an automated system.

16 (c) **Person** means any natural person or persons, corporation,  
17 public or private entity, governmental agency or institution,  
18 including all agencies and departments of city, or any other user of  
19 water provided by the city.

20 (d) **Potable water** means water which is suitable for drinking.

21 (e) **Recycled water** means the reclamation and reuse of non-  
22 potable water for beneficial use as defined in Title 22 of the  
23 California Code of Regulations.

24 (f) **Section Headings** means, when contained in this article, that  
25 section headings shall not be deemed to govern, limit, modify, or in  
26 any manner effect the scope, meaning or intent of the provisions of  
27 any section.

28 ///

1 (g) **Single pass cooling systems** means equipment where water is  
2 circulated only once to cool equipment before being disposed.

3 (h) **Tense or Gender** means words used in the present tense  
4 include the future as well as the present. Words used in the  
5 masculine gender include the feminine and neuter. The singular number  
6 includes the plural, and the plural the singular.

7 **Sec. 25.101. General prohibition.**

8 No customer of the City of Vernon shall make, cause, use or  
9 permit the use of city water in a manner contrary to any provision of  
10 this article or in an amount which exceeds that permitted pursuant to  
11 action taken by the city council in accordance with the provisions of  
12 this article.

13 In addition, the following water conservation requirements are  
14 effective at all times and are permanent. Violations of this section  
15 will be considered waste and an unreasonable use of water.

16 (a) **Limits on Watering Hours:** Watering or irrigating of lawn,  
17 landscape or other vegetated area with potable water is prohibited  
18 between the hours of 10:00 a.m. and 5:00 p.m. on any day, except by  
19 use of a hand-held bucket or similar container, a hand-held hose  
20 equipped with a positive self-closing water shut-off nozzle or  
21 device, or for very short periods of time for the express purpose of  
22 adjusting or repairing an irrigation system.

23 (b) **Limit on Watering Duration:** Watering or irrigating of lawn,  
24 landscape or other vegetated area with potable water using a  
25 landscape irrigation system or a watering device that is not  
26 continuously attended is limited to no more than fifteen (15) minutes  
27 watering per day per station. This subsection does not apply to  
28 landscape irrigation systems that exclusively use very low-flow drip

1 type irrigation systems when no emitter produces more than two (2)  
2 gallons of water per hour and weather based controllers or stream  
3 rotor sprinklers that meet a seventy percent (70%) efficiency  
4 standard.

5 **(c) No Excessive Water Flow or Runoff:** Watering or irrigating  
6 of any lawn, landscape or other vegetated area in a manner that  
7 causes or allows excessive water flow or runoff onto an adjoining  
8 sidewalk, driveway, street, alley, gutter or ditch is prohibited.

9 **(d) No Washing Down Hard or Paved Surfaces:** Washing down hard  
10 or exterior paved surfaces, including but not limited to sidewalks,  
11 walkways, driveways, parking areas, patios or alleys, is prohibited  
12 except when necessary to alleviate safety or sanitary hazards, and  
13 then only by use of a hand-held bucket or similar container, a hand-  
14 held hose equipped with a positive self-closing water shut-off  
15 device, a low-volume, high-pressure cleaning machine equipped to  
16 recycle any water used, or a low-volume high-pressure water broom.

17 **(e) Obligation to Fix Leaks, Breaks or Malfunctions:** Excessive  
18 use, loss or escape of water through breaks, leaks or other  
19 malfunctions in the water user's plumbing or distribution system for  
20 any period of time after such escape of water should have reasonably  
21 been discovered is prohibited and shall be repaired as soon as  
22 reasonably practicable.

23 **(f) Re-circulating Water Required for Water Fountains and**  
24 **Decorative Water Features:** Operating a water fountain or other  
25 decorative water feature that does not use re-circulated water is  
26 prohibited.

27 **(g) Limits on Washing Vehicles:** Using water to wash or clean a  
28 vehicle, including but not limited to any automobile, truck, van,

1 bus, motorcycle, boat or trailer, whether motorized or not is  
2 prohibited, except by use of a hand-held bucket or similar container  
3 or a hand-held hose equipped with a positive self-closing water shut-  
4 off nozzle or device. This subsection does not apply to any  
5 commercial vehicle washing facility.

6 **(h) Drinking Water Served Upon Request Only:** Eating or drinking  
7 establishments, including but not limited to a restaurant, hotel,  
8 cafe, cafeteria, bar, or other public place where food or drinks are  
9 sold, served, or offered for sale, are prohibited from providing  
10 drinking water to any person unless expressly requested.

11 **(i) No Installation of Single Pass Cooling Systems:**  
12 Installation of single pass cooling systems is prohibited in  
13 buildings requesting new water service.

14 **(j) Limits on Commercial Car Wash and Laundry Systems:**  
15 Installation of non-re-circulating water systems is prohibited in new  
16 commercial conveyor car wash and new commercial laundry systems.

17 **Sec. 25.102. Determination of Water Supply Shortage.**

18 The City of Vernon, in its sole discretion, may determine that  
19 due to drought or other water supply conditions, a water supply  
20 shortage or threatened shortage exists and a consumer demand  
21 reduction is necessary to make more efficient use of water and  
22 appropriately respond to existing water conditions and that  
23 corrective measures shall be undertaken pursuant to a Phase I, Phase  
24 II or a Phase III Water Supply Shortage. When the City determines a  
25 water supply shortage exists, a notice thereof shall be published in  
26 a newspaper of general circulation and a copy of said notice shall be  
27 sent with each water bill or by any other mailing to the address to  
28 which the City customarily mails the billing statement for fees for

1 water service. Any prohibitions or limitations on the use of water,  
2 beyond those established in Section 25.101, shall become effective  
3 thirty (30) days after such mailing or on such a date as specified in  
4 the notice.

5 **Sec. 25.103. Phase I Water Supply Shortage.**

6 A Phase I water supply shortage may be declared when the City  
7 Council determines it is likely that the City of Vernon will suffer a  
8 shortage in City water supplies up to 20%, but shall become mandatory  
9 when the City Council determines that the City will suffer a water  
10 shortage in excess of 20% of its normal water supplies.

11 In addition to the prohibited uses of water identified in  
12 Section 25.101, the following water conservation requirements apply  
13 during a declared Phase I Water Supply Shortage:

14 (a) **Limits on Watering Days:** Watering or irrigating of lawn,  
15 landscape or other vegetated area with potable water is limited to  
16 three (3) days per week on a schedule established and posted by the  
17 City. Watering or irrigating of lawn, landscape or other vegetated  
18 area with potable water is prohibited between the hours of 6:00 a.m.  
19 and 6:00 p.m. Pacific Standard Time. This provision does not apply  
20 to landscape irrigation zones that exclusively use very low flow drip  
21 type irrigation systems when no emitter produces more than two (2)  
22 gallons of water per hour. This provision also does not apply to  
23 watering or irrigating by use of a hand-held bucket or similar  
24 container, a hand-held hose equipped with a positive self-closing  
25 water shut-off nozzle or device, or for very short periods of time  
26 for the express purpose of adjusting or repairing an irrigation  
27 system.

28

1 (b) **Obligation to Fix Leaks, Breaks or Malfunctions:** All  
2 leaks, breaks, or other malfunctions in the water user's plumbing or  
3 distribution system must be repaired within seventy-two (72) hours of  
4 notification by the city unless other arrangements are made with the  
5 city.

6 **Sec. 25.104. Phase II Water Supply Shortage.**

7 A Phase II Water Supply Shortage exists when the City Council  
8 determines, in its sole discretion, that due to drought or other  
9 water supply conditions, a water supply shortage or threatened  
10 shortage exists and a consumer demand reduction is necessary to make  
11 more efficient use of water and appropriately respond to existing  
12 water conditions, except that a phase II Water Supply Shortage shall  
13 become mandatory when the City Council determines that the City will  
14 suffer a water shortage in excess of 30% of its normal water  
15 supplies. Upon the declaration by the city of a Phase II Water Supply  
16 Shortage condition, the city will implement the mandatory Phase II  
17 conservation measures identified in this section.

18 In addition to the prohibited uses of water identified in  
19 Sections 25.101 and 25.103, the following additional water  
20 conservation requirements apply during a declared Level II Water  
21 Supply Shortage:

22 (a) **Watering Days:** Watering or irrigating of lawn, landscape  
23 or other vegetated area with potable water is limited to two (2) days  
24 per week on a schedule established and posted by the city. During the  
25 months of November through March, watering or irrigating of lawn,  
26 landscape or other vegetated area with potable water is limited to no  
27 more than one (1) day per week on a schedule established and posted  
28 by the city. This provision does not apply to landscape irrigation

1 zones that exclusively use very low flow drip type irrigation systems  
2 when no emitter produces more than two (2) gallons of water per hour.  
3 This provision also does not apply to watering or irrigating by use  
4 of a hand-held bucket or similar container, a hand-held hose equipped  
5 with a positive self-closing water shut-off nozzle or device, or for  
6 very short periods of time for the express purpose of adjusting or  
7 repairing an irrigation system.

8       **(b) Obligation to Fix Leaks, Breaks or Malfunctions:** All leaks,  
9 breaks, or other malfunctions in the water user's plumbing or  
10 distribution system must be repaired within forty-eight (48) hours of  
11 notification by the city unless other arrangements are made with the  
12 city.

13       **(c) Limits on Filling Ornamental Lakes or Ponds:** Filling or re-  
14 filling ornamental lakes or ponds is prohibited, except to the extent  
15 needed to sustain aquatic life, provided that such animals are of  
16 significant value and have been actively managed within the water  
17 feature prior to declaration of a supply shortage level under this  
18 article.

19       **(d) Limits on Washing Vehicles:** Using water to wash or clean a  
20 vehicle, including but not limited to, any automobile, truck, van,  
21 bus, motorcycle, boat or trailer, whether motorized or not, is  
22 prohibited except by use of a hand-held bucket or similar container,  
23 a hand-held hose equipped with a positive self-closing water shut-of  
24 nozzle or device, by high pressure/low volume wash systems, or at a  
25 commercial car washing facility that utilizes a re-circulating water  
26 system to capture or reuse water.

27       **(e) Limits on Filling Residential Swimming Pools & Spas:** Re-  
28 filling of more than one (1) foot and initial filling of residential

1 swimming pools or outdoor spas with potable water is prohibited.

2       **(f) Commercial Nurseries Watering Limitations:** Commercial  
3 Nurseries shall be prohibited from watering lawn, landscaped or other  
4 turf areas more often than every other day and shall be prohibited  
5 from watering between the hours of 10:00 a.m. and 4:00 p.m.

6       **(g) Mandatory Water Restrictions:** No customer shall make,  
7 cause, use or permit the use of city water for any purpose in excess  
8 of eighty-five percent (85%) of the amount used the same  
9 corresponding monthly billing period two (2) years preceding the city  
10 council declaring a Phase I Water Supply Shortage. In the case of a  
11 newly established business, no restriction shall be required until  
12 such time that the business has been established for one (1) year, at  
13 which time the preceding year's corresponding monthly billing shall  
14 be used to determine the businesses monthly water consumption.

15 **Sec. 25.105. Phase III Water Supply Shortage - Emergency Condition.**

16       A Phase III Water Supply Shortage condition is also referred to  
17 as an "Emergency" condition. A Phase III condition exists when the  
18 City of Vernon declares a water shortage emergency or when the City  
19 Council determines that the City will suffer a shortage of more than  
20 50% of its normal water supplies. Upon the declaration of a Phase  
21 III Water Supply Shortage condition, the City shall notify its  
22 residents and businesses that a significant reduction in consumer  
23 demand is necessary to maintain sufficient water supplies for public  
24 health and safety and shall implement the mandatory Phase III  
25 conservation measures identified in this section.

26       In addition to the prohibited uses of water identified in  
27 Sections 25.101, 25.103 and 25.104, the following water conservation  
28 requirements apply during a declared Phase III Water Supply Shortage



1 Emergency:

2 (a) **No Watering or Irrigating:** Watering or irrigating of lawn,  
3 landscape or other vegetated area with potable water is prohibited.  
4 This restriction does not apply to the following categories of use,  
5 unless the city has determined that recycled water is available and  
6 may be applied to the use:

7 (1) Maintenance of vegetation, including trees and shrubs,  
8 that are watered using a hand-held bucket or similar container, hand-  
9 held hose equipped with a positive self-closing water shut-off nozzle  
10 or device;

11 (2) Maintenance of existing landscape necessary for fire  
12 protection;

13 (3) Maintenance of existing landscape for soil erosion  
14 control;

15 (4) Maintenance of plant materials identified to be rare  
16 or essential to the well-being of protected species;

17 (5) Maintenance of landscape within active public playing  
18 fields and school grounds, provided that such irrigation does not  
19 exceed two (2) days per week according to the schedule established in  
20 Section 25.104(a) and the time restrictions as established in section  
21 25.103(a);

22 (6) Actively irrigated environmental mitigation projects.

23 (b) **Obligation to Fix Leaks, Breaks or Malfunctions:** All leaks,  
24 breaks, or other malfunctions in the water user's plumbing or  
25 distribution system must be repaired within twenty four (24) hours of  
26 notification by the city unless other arrangements are made with the  
27 city.

28 (c) **Commercial Nurseries Watering Limitations:** Commercial

1 Nurseries shall be prohibited from watering lawn, landscaped or other  
2 turf areas more often than every third (3<sup>rd</sup>) day and shall be  
3 prohibited from watering between the hours of 6:00 a.m. and 6:00 p.m.

4 **(d) Mandatory Water Restrictions:** No customer shall make,  
5 cause, use or permit the use of city water for any purpose in excess  
6 of seventy-five percent (75%) of the amount used the same  
7 corresponding monthly billing period two (2) years preceding the city  
8 council declaring a Phase I Water Supply Shortage. In the case of a  
9 newly established business, no restriction shall be required until  
10 such time that the business has been established for one (1) year, at  
11 which time the preceding year's corresponding monthly billing period  
12 shall be used to determine the businesses monthly water consumption.

13 **(e) Fire Hydrant Use:** The use of water from a fire hydrant  
14 shall be limited to fire fighting and related activities. Other uses  
15 of city water for municipal purposes shall be limited to activities  
16 necessary to maintain the public health, safety and welfare.

17 **(f) Customer Water Conservation Report:** The city may, by  
18 written request, require all commercial and industrial customers  
19 using 100 acre feet or more per year of potable water to submit a  
20 water conservation plan and quarterly progress reports on such plan.  
21 The conservation plan shall include recommendations for increased  
22 water savings, including increased water recycling based on  
23 feasibility. The quarterly report shall include progress to date on  
24 implementation of such recommendations.

25 **Sec. 25.106. Relief from compliance.**

26 \* \* \*

1 (b) The application for relief may include a request that the  
2 customer be relieved, in whole or in part, from the city water use  
3 curtailment provisions of Sec. 25.104(g) or 25.105(d).

4 \* \* \*

5 **Sec. 25.107. Failure to comply.**

6 (a) For each violation by any customer of the water use  
7 curtailment provision of Sec. 25.104(g), a surcharge shall be imposed  
8 in an amount equal to fifty percent (50%) of the portions of the  
9 water bill that exceeds the respective percentages set in said  
10 section. For each violation by any customer of the water use  
11 curtailment provision of Sec. 25.105(d), a surcharge shall be imposed  
12 in an amount equal to 100 percent (100%) of the portions of the water  
13 bill that exceeds the respective percentages set in said section.

14 \* \* \*

15 **Sec. 25.112. State Model Landscaping Ordinance adopted.**

16 The Department of Water Resources State Model Landscaping  
17 Ordinance as amended from time to time is adopted by reference and is  
18 incorporated as part of this article and shall become effective  
19 January 1, 2010.

20 Three (3) copies of the most current Department of Water  
21 Resources State Model Landscaping Ordinance are on file in the office  
22 of the city clerk.

23  
24  
25  
26  
27  
28

# **EXHIBIT B**

# **Model Water Efficient Landscape Ordinance**

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

**§ 490. Purpose.**

(a) The State Legislature has found:

- (1) that the waters of the state are of limited supply and are subject to ever increasing demands;
- (2) that the continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future uses;
- (3) that it is the policy of the State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource;
- (4) that landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development; and
- (5) that landscape design, installation, maintenance and management can and should be water efficient; and
- (6) that Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use.

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

- (1) promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;
- (2) establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitated projects;
- (3) establish provisions for water management practices and water waste prevention for existing landscapes;
- (4) use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount;
- (5) promote the benefits of consistent landscape ordinances with neighboring local and regional agencies;
- (6) encourage local agencies and water purveyors to use economic incentives that promote the efficient use of water, such as implementing a tiered-rate structure; and
- (7) encourage local agencies to designate the necessary authority that implements and enforces the provisions of the Model Water Efficient Landscape Ordinance or its local landscape ordinance.

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

**§ 490.1 Applicability**

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

- (1) new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review;
- (2) new construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review;
- (3) new construction landscapes which are homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building or landscape permit, plan check or design review;

(4) existing landscapes limited to Sections 493, 493.1 and 493.2; and  
(5) cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 492.4, 492.11 and 492.12; and existing cemeteries are limited to Sections 493, 493.1 and 493.2.

(b) This ordinance does not apply to:

- (1) registered local, state or federal historical sites;
- (2) ecological restoration projects that do not require a permanent irrigation system;
- (3) mined-land reclamation projects that do not require a permanent irrigation system; or
- (4) plant collections, as part of botanical gardens and arboretums open to the public.

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

#### **§ 491. Definitions.**

The terms used in this ordinance have the meaning set forth below:

- (a) “applied water” means the portion of water supplied by the irrigation system to the landscape.
- (b) “automatic irrigation controller” means an automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.
- (c) “backflow prevention device” means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.
- (d) “Certificate of Completion” means the document required under Section 492.9.
- (e) “certified irrigation designer” means a person certified to design irrigation systems by an accredited academic institution a professional trade organization or other program such as the US Environmental Protection Agency’s WaterSense irrigation designer certification program and Irrigation Association’s Certified Irrigation Designer program.
- (f) “certified landscape irrigation auditor” means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency’s WaterSense irrigation auditor certification program and Irrigation Association’s Certified Landscape Irrigation Auditor program.
- (g) “check valve” or “anti-drain valve” means a valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.
- (h) “common interest developments” means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
- (i) “conversion factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year
- (j) “drip irrigation” means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
- (k) “ecological restoration project” means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- (l) “effective precipitation” or “usable rainfall” (Eppt) means the portion of total precipitation which becomes available for plant growth.
- (m) “emitter” means a drip irrigation emission device that delivers water slowly from the system to the soil.
- (n) “established landscape” means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.
- (o) “establishment period of the plants” means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.

(p) "Estimated Total Water Use" (ETWU) means the total water used for the landscape as described in Section 492.4.

(q) "ET adjustment factor" (ETAF) means a factor of 0.7, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape.

A combined plant mix with a site-wide average of 0.5 is the basis of the plant factor portion of this calculation. For purposes of the ETAF, the average irrigation efficiency is 0.71. Therefore, the ET Adjustment Factor is  $(0.7) = (0.5/0.71)$ . ETAF for a Special Landscape Area shall not exceed 1.0. ETAF for existing non-rehabilitated landscapes is 0.8.

(r) "evapotranspiration rate" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

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

(t) "hardscapes" means any durable material (pervious and non-pervious).

(u) "homeowner-provided landscaping" means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who occupies the dwelling he or she owns. This excludes speculative homes, which are not owner-occupied dwellings.

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

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

(x) "invasive plant species" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. "Noxious weeds" means any weed designated by the Weed Control Regulations in the Weed Control Act and identified on a Regional District noxious weed control list. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.

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

(z) "irrigation efficiency" (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this ordinance is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.

(aa) "irrigation survey" means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test, and written recommendations to improve performance of the irrigation system.

(bb) "irrigation water use analysis" means an analysis of water use data based on meter readings and billing data.

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

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



- (ee) "landscape contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
- (ff) "Landscape Documentation Package" means the documents required under Section 492.3.
- (gg) "landscape project" means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 490.1.
- (hh) "lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
- (ii) "local agency" means a city or county, including a charter city or charter county, that is responsible for adopting and implementing the ordinance. The local agency is also responsible for the enforcement of this ordinance, including but not limited to, approval of a permit and plan check or design review of a project.
- (jj) "local water purveyor" means any entity, including a public agency, city, county, or private water company that provides retail water service.
- (kk) "low volume irrigation" means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
- (ll) "main line" means the pressurized pipeline that delivers water from the water source to the valve or outlet.
- (mm) "Maximum Applied Water Allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 492.4. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.
- (nn) "microclimate" means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.
- (oo) "mined-land reclamation projects" means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.
- (pp) "mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.
- (qq) "new construction" means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.
- (rr) "operating pressure" means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.
- (ss) "overhead sprinkler irrigation systems" means systems that deliver water through the air (e.g., spray heads and rotors).
- (tt) "overspray" means the irrigation water which is delivered beyond the target area.
- (uu) "permit" means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.
- (vv) "pervious" means any surface or material that allows the passage of water through the material and into the underlying soil.
- (ww) "plant factor" or "plant water use factor" is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor range for low water use plants is 0 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant

factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this ordinance are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species".

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

(yy) "project applicant" means the individual or entity submitting a Landscape Documentation Package required under Section 492.3, to request a permit, plan check, or design review from the local agency. A project applicant may be the property owner or his or her designee.

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

(aaa) "record drawing" or "as-builts" means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.

(bbb) "recreational area" means areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.

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

(ddd) "reference evapotranspiration" or "ET<sub>o</sub>" means a standard measurement of environmental parameters which affect the water use of plants. ET<sub>o</sub> is expressed in inches per day, month, or year as represented in Section 495.1, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowance so that regional differences in climate can be accommodated.

(eee) "rehabilitated landscape" means any re-landscaping project that requires a permit, plan check, or design review, meets the requirements of Section 490.1, and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.

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

(ggg) "soil moisture sensing device" or "soil moisture sensor" means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.

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

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

(jjj) "sprinkler head" means a device which delivers water through a nozzle.

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

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

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

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

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

(ppp) "water conserving plant species" means a plant species identified as having a low plant factor.

(qqq) "water feature" means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in

the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.

(rrr) "watering window" means the time of day irrigation is allowed.

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

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

#### **§ 492. Provisions for New Construction or Rehabilitated Landscapes.**

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

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

#### **§ 492.1 Compliance with Landscape Documentation Package.**

(a) Prior to construction, the local agency shall:

- (1) provide the project applicant with the ordinance and procedures for permits, plan checks, or design reviews;
- (2) review the Landscape Documentation Package submitted by the project applicant;
- (3) approve or deny the Landscape Documentation Package;
- (4) issue a permit or approve the plan check or design review for the project applicant; and
- (5) upon approval of the Landscape Documentation Package, submit a copy of the Water Efficient Landscape Worksheet to the local water purveyor.

(b) Prior to construction, the project applicant shall:

- (1) submit a Landscape Documentation Package to the local agency.

(c) Upon approval of the Landscape Documentation Package by the local agency, the project applicant shall:

- (1) receive a permit or approval of the plan check or design review and record the date of the permit in the Certificate of Completion;
- (2) submit a copy of the approved Landscape Documentation Package along with the record drawings, and any other information to the property owner or his/her designee; and
- (3) submit a copy of the Water Efficient Landscape Worksheet to the local water purveyor.

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

#### **§ 492.2 Penalties.**

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

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

**§ 492.3 Elements of the Landscape Documentation Package.**

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

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

**§ 492.4 Water Efficient Landscape Worksheet.**

- (a) A project applicant shall complete the Water Efficient Landscape Worksheet which contains two sections (see sample worksheet in Appendix B):
- (1) a hydrozone information table (see Appendix B, Section A) for the landscape project; and
  - (2) a water budget calculation (see Appendix B, Section B) for the landscape project. For the calculation of the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use the ETo values from the Reference Evapotranspiration Table in Appendix A. For geographic areas not covered in Appendix A, use data from other cities located nearby in the same reference evapotranspiration zone, as found in the CIMIS Reference Evapotranspiration Zones Map, Department of Water Resources, 1999.
- (b) Water budget calculations shall adhere to the following requirements:
- (1) The plant factor used shall be from WUCOLS. The plant factor ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
  - (2) All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.
  - (3) All Special Landscape Areas shall be identified and their water use calculated as described below.
  - (4) ETAF for Special Landscape Areas shall not exceed 1.0.
- (c) Maximum Applied Water Allowance  
The Maximum Applied Water Allowance shall be calculated using the equation:

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

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, 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<sub>o</sub> = 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 ETo value of 51.1 inches and a total landscape area of 50,000 square feet. Within the 50,000 square foot project, there is now a 2,000 square foot area planted with edible plants. This 2,000 square foot area is considered to be a Special Landscape Area.

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

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

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

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

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

(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<sub>o</sub> = Reference Evapotranspiration (inches)

PF = Plant Factor from WUCOLS (see Section 491)

HA = Hydrozone Area [high, medium, and low water use areas] (square feet)

SLA = Special Landscape Area (square feet)

0.62 = Conversion Factor

IE = Irrigation Efficiency (minimum 0.71)

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

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

\*Plant Factor from WUCOLS

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

= 1,102,116 gallons per year

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

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

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

\*Plant Factor from WUCOLS

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

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

= 1,111,936 gallons per year

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

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

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

#### **§ 492.5 Soil Management Report.**

(a) In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, or his/her designee, as follows:

(1) Submit soil samples to a laboratory for analysis and recommendations.

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

(B) The soil analysis may include:

1. soil texture;
2. infiltration rate determined by laboratory test or soil texture infiltration rate table;
3. pH;
4. total soluble salts;
5. sodium;
6. percent organic matter; and
7. recommendations.

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

(A) If significant mass grading is not planned, the soil analysis report shall be submitted to the local agency as part of the Landscape Documentation Package; or

(B) If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.

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

(4) The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with Certificate of Completion.

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

#### **§ 492.6 Landscape Design Plan.**

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

(1) Plant Material

(A) Any plant may be selected for the landscape, providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance. To encourage the efficient use of water, the following is highly recommended:

1. protection and preservation of native species and natural vegetation;
2. selection of water-conserving plant and turf species;

3. selection of plants based on disease and pest resistance;
4. selection of trees based on applicable local tree ordinances or tree shading guidelines; and
5. selection of plants from local and regional landscape program plant lists.

(B) Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use, as specified in Section 492.7(a)(2)(D).

(C) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:

1. use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;
2. recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure [e.g., buildings, sidewalks, power lines]; and
3. consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

(D) Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).

(E) A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.

(F) The use of invasive and/or noxious plant species is strongly discouraged.

(G) The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

#### (2) Water Features

(A) Recirculating water systems shall be used for water features.

(B) Where available, recycled water shall be used as a source for decorative water features.

(C) Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.

(D) Pool and spa covers are highly recommended.

#### (3) Mulch and Amendments

(A) A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.

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

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

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

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

- (1) delineate and label each hydrozone by number, letter, or other method;
- (2) identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
- (3) identify recreational areas;
- (4) identify areas permanently and solely dedicated to edible plants;
- (5) identify areas irrigated with recycled water;
- (6) identify type of mulch and application depth;
- (7) identify soil amendments, type, and quantity;
- (8) identify type and surface area of water features;
- (9) identify hardscapes (pervious and non-pervious);



- (10) identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:
- (A) infiltration beds, swales, and basins that allow water to collect and soak into the ground;
  - (B) constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and
  - (C) pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.
- (11) identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.);
- (12) contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan"; and
- (13) bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of 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) For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

##### **(1) System**

(A) Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.

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

(C) The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

1. If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system.

2. Static water pressure, dynamic or operating pressure, and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation.

(D) Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.

(E) Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.

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

(G) High flow sensors that detect and report high flow conditions created by system damage or malfunction are recommended.

(H) The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

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

(J) The design of the irrigation system shall conform to the hydrozones of the landscape design plan.

(K) The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 492.4 regarding the Maximum Applied Water Allowance.

(L) It is highly recommended that the project applicant or local agency inquire with the local water purveyor about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.

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

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

(O) Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.

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

(Q) Check valves or anti-drain valves are required for all irrigation systems.

(R) Narrow or irregularly shaped areas, including turf, less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system.

(S) Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:

1. the landscape area is adjacent to permeable surfacing and no runoff occurs; or
2. the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
3. the irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package and clearly demonstrates strict adherence to irrigation system design criteria in Section 492.7 (a)(1)(H). Prevention of overspray and runoff must be confirmed during the irrigation audit.

(T) Slopes greater than 25% shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

## (2) Hydrozone

(A) Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.

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

(C) Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf.

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

1. plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or

2. the plant factor of the higher water using plant is used for calculations.

(E) Individual hydrozones that mix high and low water use plants shall not be permitted.

(F) On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table (see Appendix B Section A). This table can also assist with the irrigation audit and programming the controller.

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

(1) location and size of separate water meters for landscape;

(2) location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices;

(3) static water pressure at the point of connection to the public water supply;

(4) flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;

(5) recycled water irrigation systems as specified in Section 492.14;

(6) the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan"; and

(7) the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code.)

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

#### **§ 492.8 Grading Design Plan.**

(a) For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading plan shall be submitted as part of the Landscape Documentation Package. A comprehensive grading plan prepared by a civil engineer for other local agency permits satisfies this requirement.

(1) The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including:

(A) height of graded slopes;

(B) drainage patterns;

(C) pad elevations;

(D) finish grade; and

(E) stormwater retention improvements, if applicable.

(2) To prevent excessive erosion and runoff, it is highly recommended that project applicants:

(A) grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;

(B) avoid disruption of natural drainage patterns and undisturbed soil; and

(C) avoid soil compaction in landscape areas.

(3) The grading design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan" and shall bear the signature of a licensed professional as authorized by law.

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

**§ 492.9 Certificate of Completion.**

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

(1) project information sheet that contains:

- (A) date;
- (B) project name;
- (C) project applicant name, telephone, and mailing address;
- (D) project address and location; and
- (E) property owner name, telephone, and mailing address;

(2) certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed landscape contractor that the landscape project has been installed per the approved Landscape Documentation Package;

(A) where there have been significant changes made in the field during construction, these “as-built” or record drawings shall be included with the certification;

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

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

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

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

(b) The project applicant shall:

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

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

(c) The local agency shall:

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

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

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

**§ 492.10 Irrigation Scheduling.**

(a) For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:

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

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

(3) For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.

(4) Parameters used to set the automatic controller shall be developed and submitted for each of the following:

(A) the plant establishment period;

- (B) the established landscape; and
- (C) temporarily irrigated areas.
- (5) Each irrigation schedule shall consider for each station all of the following that apply:
  - (A) irrigation interval (days between irrigation);
  - (B) irrigation run times (hours or minutes per irrigation event to avoid runoff);
  - (C) number of cycle starts required for each irrigation event to avoid runoff;
  - (D) amount of applied water scheduled to be applied on a monthly basis;
  - (E) application rate setting;
  - (F) root depth setting;
  - (G) plant type setting;
  - (H) soil type;
  - (I) slope factor setting;
  - (J) shade factor setting; and
  - (K) irrigation uniformity or efficiency setting.

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

**§ 492.11 Landscape and Irrigation Maintenance Schedule.**

- (a) Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.
- (b) A regular maintenance schedule shall include, but not be limited to, routine inspection; adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing and obstruction to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
- (c) Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.
- (d) A project applicant is encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.

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

**§ 492.12 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.**

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

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

**§ 492.13 Irrigation Efficiency.**

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

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

**§ 492.14 Recycled Water.**

(a) The installation of recycled water irrigation systems shall allow for the current and future use of recycled water, unless a written exemption has been granted as described in Section 492.14(b).

(b) Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the local water purveyor stating that recycled water meeting all public health codes and standards is not available and will not be available for the foreseeable future.

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

(d) Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for Special Landscape Areas shall not exceed 1.0.

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

**§ 492.15 Stormwater Management.**

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

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

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

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

**§ 492.16 Public Education.**

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

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

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

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

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

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

**§ 492.17 Environmental Review.**

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

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

**§ 493. Provisions for Existing Landscapes.**

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

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

**§ 493.1 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.**

(a) This section, 493.1, shall apply to all existing landscapes that were installed before January 1, 2010 and are over one acre in size.

(1) For all landscapes in 493.1(a) that have a water meter, the local agency shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys, and irrigation audits to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the Maximum Applied Water Allowance for existing landscapes. The Maximum Applied Water Allowance for existing landscapes shall be calculated as:  $MAWA = (0.8)(ET_o)(LA)(0.62)$ .

(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.

**§ 493.2 Water Waste Prevention.**

(a) Local agencies shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff from leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures. Penalties for violation of these prohibitions shall be established locally.

(b) Restrictions regarding overspray and runoff may be modified if:

(1) the landscape area is adjacent to permeable surfacing and no runoff occurs; or

(2) the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.

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

**§ 494. Effective Precipitation.**

(a) A local agency may consider Effective Precipitation (25% of annual precipitation) in tracking water use and may use the following equation to calculate Maximum Applied Water Allowance:

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

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

**Appendices.**

**Appendix A. Reference Evapotranspiration (ET<sub>o</sub>) Table.**



<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>ALAMEDA</b>													
Fremont	1.5	1.9	3.4	4.7	5.4	6.3	6.7	6.0	4.5	3.4	1.8	1.5	47.0
Livermore	1.2	1.5	2.9	4.4	5.9	6.6	7.4	6.4	5.3	3.2	1.5	0.9	47.2
Oakland	1.5	1.5	2.8	3.9	5.1	5.3	6.0	5.5	4.8	3.1	1.4	0.9	41.8
Oakland Foothills	1.1	1.4	2.7	3.7	5.1	6.4	5.8	4.9	3.6	2.6	1.4	1.0	39.6
Pleasanton	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
Union City	1.4	1.8	3.1	4.2	5.4	5.9	6.4	5.7	4.4	3.1	1.5	1.2	44.2
<b>ALPINE</b>													
Markleeville	0.7	0.9	2.0	3.5	5.0	6.1	7.3	6.4	4.4	2.6	1.2	0.5	40.6
<b>AMADOR</b>													
Jackson	1.2	1.5	2.8	4.4	6.0	7.2	7.9	7.2	5.3	3.2	1.4	0.9	48.9
Shanandoah Valley	1.0	1.7	2.9	4.4	5.6	6.8	7.9	7.1	5.2	3.6	1.7	1.0	48.8
<b>BUTTE</b>													
Chico	1.2	1.8	2.9	4.7	6.1	7.4	8.5	7.3	5.4	3.7	1.7	1.0	51.7
Durham	1.1	1.8	3.2	5.0	6.5	7.4	7.8	6.9	5.3	3.6	1.7	1.0	51.1
Gridley	1.2	1.8	3.0	4.7	6.1	7.7	8.5	7.1	5.4	3.7	1.7	1.0	51.9
Oroville	1.2	1.7	2.8	4.7	6.1	7.6	8.5	7.3	5.3	3.7	1.7	1.0	51.5
<b>CALAVERAS</b>													
San Andreas	1.2	1.5	2.8	4.4	6.0	7.3	7.9	7.0	5.3	3.2	1.4	0.7	48.8
<b>COLUSA</b>													
Colusa	1.0	1.7	3.4	5.0	6.4	7.6	8.3	7.2	5.4	3.8	1.8	1.1	52.8
Williams	1.2	1.7	2.9	4.5	6.1	7.2	8.5	7.3	5.3	3.4	1.6	1.0	50.8
<b>CONTRA COSTA</b>													
Benicia	1.3	1.4	2.7	3.8	4.9	5.0	6.4	5.5	4.4	2.9	1.2	0.7	40.3
Brentwood	1.0	1.5	2.9	4.5	6.1	7.1	7.9	6.7	5.2	3.2	1.4	0.7	48.3
Concord	1.1	1.4	2.4	4.0	5.5	5.9	7.0	6.0	4.8	3.2	1.3	0.7	43.4
Courtland	0.9	1.5	2.9	4.4	6.1	6.9	7.9	6.7	5.3	3.2	1.4	0.7	48.0
Martinez	1.2	1.4	2.4	3.9	5.3	5.6	6.7	5.6	4.7	3.1	1.2	0.7	41.8
Moraga	1.2	1.5	3.4	4.2	5.5	6.1	6.7	5.9	4.6	3.2	1.6	1.0	44.9
Pittsburg	1.0	1.5	2.8	4.1	5.6	6.4	7.4	6.4	5.0	3.2	1.3	0.7	45.4
Walnut Creek	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
<b>DEL NORTE</b>													
Crescent City	0.5	0.9	2.0	3.0	3.7	3.5	4.3	3.7	3.0	2.0	0.9	0.5	27.7
<b>EL DORADO</b>													
Camino	0.9	1.7	2.5	3.9	5.9	7.2	7.8	6.8	5.1	3.1	1.5	0.9	47.3
<b>FRESNO</b>													
Clovis	1.0	1.5	3.2	4.8	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Coalinga	1.2	1.7	3.1	4.6	6.2	7.2	8.5	7.3	5.3	3.4	1.6	0.7	50.9
Firebaugh	1.0	1.8	3.7	5.7	7.3	8.1	8.2	7.2	5.5	3.9	2.0	1.1	55.4
FivePoints	1.3	2.0	4.0	6.1	7.7	8.5	8.7	8.0	6.2	4.5	2.4	1.2	60.4
<b>FRESNO</b>													
Fresno	0.9	1.7	3.3	4.8	6.7	7.8	8.4	7.1	5.2	3.2	1.4	0.6	51.1
Fresno State	0.9	1.6	3.2	5.2	7.0	8.0	8.7	7.6	5.4	3.6	1.7	0.9	53.7
Friant	1.2	1.5	3.1	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Kerman	0.9	1.5	3.2	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.2
Kingsburg	1.0	1.5	3.4	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.6
Mendota	1.5	2.5	4.6	6.2	7.9	8.6	8.8	7.5	5.9	4.5	2.4	1.5	61.7
Orange Cove	1.2	1.9	3.5	4.7	7.4	8.5	8.9	7.9	5.9	3.7	1.8	1.2	56.7
Panoche	1.1	2.0	4.0	5.6	7.8	8.5	8.3	7.3	5.6	3.9	1.8	1.2	57.2
Parlier	1.0	1.9	3.6	5.2	6.8	7.6	8.1	7.0	5.1	3.4	1.7	0.9	52.0
Reedley	1.1	1.5	3.2	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Westlands	0.9	1.7	3.8	6.3	8.0	8.6	8.6	7.8	5.9	4.3	2.1	1.1	58.8

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>GLENN</b>													
Orland	1.1	1.8	3.4	5.0	6.4	7.5	7.9	6.7	5.3	3.9	1.8	1.4	52.1
Willows	1.2	1.7	2.9	4.7	6.1	7.2	8.5	7.3	5.3	3.6	1.7	1.0	51.3
<b>HUMBOLDT</b>													
Eureka	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Ferndale	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Garberville	0.6	1.2	2.2	3.1	4.5	5.0	5.5	4.9	3.8	2.4	1.0	0.7	34.9
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
<b>IMPERIAL</b>													
Brawley	2.8	3.8	5.9	8.0	10.4	11.5	11.7	10.0	8.4	6.2	3.5	2.1	84.2
Calipatria/Mulberry	2.4	3.2	5.1	6.8	8.6	9.2	9.2	8.6	7.0	5.2	3.1	2.3	70.7
El Centro	2.7	3.5	5.6	7.9	10.1	11.1	11.6	9.5	8.3	6.1	3.3	2.0	81.7
Holtville	2.8	3.8	5.9	7.9	10.4	11.6	12.0	10.0	8.6	6.2	3.5	2.1	84.7
Meloland	2.5	3.2	5.5	7.5	8.9	9.2	9.0	8.5	6.8	5.3	3.1	2.2	71.6
Palo Verde II	2.5	3.3	5.7	6.9	8.5	8.9	8.6	7.9	6.2	4.5	2.9	2.3	68.2
Seeley	2.7	3.5	5.9	7.7	9.7	10.1	9.3	8.3	6.9	5.5	3.4	2.2	75.4
Westmoreland	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Yuma	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
<b>INYO</b>													
Bishop	1.7	2.7	4.8	6.7	8.2	10.9	7.4	9.6	7.4	4.8	2.5	1.6	68.3
Death Valley Jct	2.2	3.3	5.4	7.7	9.8	11.1	11.4	10.1	8.3	5.4	2.9	1.7	79.1
Independence	1.7	2.7	3.4	6.6	8.5	9.5	9.8	8.5	7.1	3.9	2.0	1.5	65.2
Lower Haiwee Res.	1.8	2.7	4.4	7.1	8.5	9.5	9.8	8.5	7.1	4.2	2.6	1.5	67.6
Oasis	2.7	2.8	5.9	8.0	10.4	11.7	11.6	10.0	8.4	6.2	3.4	2.1	83.1
<b>KERN</b>													
Arvin	1.2	1.8	3.5	4.7	6.6	7.4	8.1	7.3	5.3	3.4	1.7	1.0	51.9
Bakersfield	1.0	1.8	3.5	4.7	6.6	7.7	8.5	7.3	5.3	3.5	1.6	0.9	52.4
Bakersfield/Bonanza	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
Bakersfield/Greenlee	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
<b>KERN</b>													
Belridge	1.4	2.2	4.1	5.5	7.7	8.5	8.6	7.8	6.0	3.8	2.0	1.5	59.2
Blackwells Corner	1.4	2.1	3.8	5.4	7.0	7.8	8.5	7.7	5.8	3.9	1.9	1.2	56.6
Buttonwillow	1.0	1.8	3.2	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.5	0.9	52.0
China Lake	2.1	3.2	5.3	7.7	9.2	10.0	11.0	9.8	7.3	4.9	2.7	1.7	74.8
Delano	0.9	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.4	0.7	52.0
Famoso	1.3	1.9	3.5	4.8	6.7	7.6	8.0	7.3	5.5	3.5	1.7	1.3	53.1
Grapevine	1.3	1.8	3.1	4.4	5.6	6.8	7.6	6.8	5.9	3.4	1.9	1.0	49.5
Inyokern	2.0	3.1	4.9	7.3	8.5	9.7	11.0	9.4	7.1	5.1	2.6	1.7	72.4
Isabella Dam	1.2	1.4	2.8	4.4	5.8	7.3	7.9	7.0	5.0	3.2	1.7	0.9	48.4
Lamont	1.3	2.4	4.4	4.6	6.5	7.0	8.8	7.6	5.7	3.7	1.6	0.8	54.4
Lost Hills	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
McFarland/Kern	1.2	2.1	3.7	5.6	7.3	8.0	8.3	7.4	5.6	4.1	2.0	1.2	56.5
Shafter	1.0	1.7	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.5	0.9	52.1
Taft	1.3	1.8	3.1	4.3	6.2	7.3	8.5	7.3	5.4	3.4	1.7	1.0	51.2
Tehachapi	1.4	1.8	3.2	5.0	6.1	7.7	7.9	7.3	5.9	3.4	2.1	1.2	52.9
<b>KINGS</b>													
Caruthers	1.6	2.5	4.0	5.7	7.8	8.7	9.3	8.4	6.3	4.4	2.4	1.6	62.7
Corcoran	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Hanford	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.2	5.4	3.4	1.4	0.7	51.5
Kettleman	1.1	2.0	4.0	6.0	7.5	8.5	9.1	8.2	6.1	4.5	2.2	1.1	60.2
Lemoore	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.4	0.7	51.7
Stratford	0.9	1.9	3.9	6.1	7.8	8.6	8.8	7.7	5.9	4.1	2.1	1.0	58.7

<b>Appendix A - Reference Evapotranspiration (ET<sub>o</sub>) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ET<sub>o</sub></b>
<b>LAKE</b>													
Lakeport	1.1	1.3	2.6	3.5	5.1	6.0	7.3	6.1	4.7	2.9	1.2	0.9	42.8
Lower Lake	1.2	1.4	2.7	4.5	5.3	6.3	7.4	6.4	5.0	3.1	1.3	0.9	45.4
<b>LASSEN</b>													
Buntingville	1.0	1.7	3.5	4.9	6.2	7.3	8.4	7.5	5.4	3.4	1.5	0.9	51.8
Ravendale	0.6	1.1	2.3	4.1	5.6	6.7	7.9	7.3	4.7	2.8	1.2	0.5	44.9
Susanville	0.7	1.0	2.2	4.1	5.6	6.5	7.8	7.0	4.6	2.8	1.2	0.5	44.0
<b>LOS ANGELES</b>													
Burbank	2.1	2.8	3.7	4.7	5.1	6.0	6.6	6.7	5.4	4.0	2.6	2.0	51.7
Claremont	2.0	2.3	3.4	4.6	5.0	6.0	7.0	7.0	5.3	4.0	2.7	2.1	51.3
El Dorado	1.7	2.2	3.6	4.8	5.1	5.7	5.9	5.9	4.4	3.2	2.2	1.7	46.3
Glendale	2.0	2.2	3.3	3.8	4.7	4.8	5.7	5.6	4.3	3.3	2.2	1.8	43.7
Glendora	2.0	2.5	3.6	4.9	5.4	6.1	7.3	6.8	5.7	4.2	2.6	2.0	53.1
Gorman	1.6	2.2	3.4	4.6	5.5	7.4	7.7	7.1	5.9	3.6	2.4	1.1	52.4
Hollywood Hills	2.1	2.2	3.8	5.4	6.0	6.5	6.7	6.4	5.2	3.7	2.8	2.1	52.8
Lancaster	2.1	3.0	4.6	5.9	8.5	9.7	11.0	9.8	7.3	4.6	2.8	1.7	71.1
Long Beach	1.8	2.1	3.3	3.9	4.5	4.3	5.3	4.7	3.7	2.8	1.8	1.5	39.7
Los Angeles	2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	50.1
<b>LOS ANGELES</b>													
Monrovia	2.2	2.3	3.8	4.3	5.5	5.9	6.9	6.4	5.1	3.2	2.5	2.0	50.2
Palmdale	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
Pasadena	2.1	2.7	3.7	4.7	5.1	6.0	7.1	6.7	5.6	4.2	2.6	2.0	52.3
Pearblossom	1.7	2.4	3.7	4.7	7.3	7.7	9.9	7.9	6.4	4.0	2.6	1.6	59.9
Pomona	1.7	2.0	3.4	4.5	5.0	5.8	6.5	6.4	4.7	3.5	2.3	1.7	47.5
Redondo Beach	2.2	2.4	3.3	3.8	4.5	4.7	5.4	4.8	4.4	2.8	2.4	2.0	42.6
San Fernando	2.0	2.7	3.5	4.6	5.5	5.9	7.3	6.7	5.3	3.9	2.6	2.0	52.0
Santa Clarita	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Santa Monica	1.8	2.1	3.3	4.5	4.7	5.0	5.4	5.4	3.9	3.4	2.4	2.2	44.2
<b>MADERA</b>													
Chowchilla	1.0	1.4	3.2	4.7	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Madera	0.9	1.4	3.2	4.8	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.5
Raymond	1.2	1.5	3.0	4.6	6.1	7.6	8.4	7.3	5.2	3.4	1.4	0.7	50.5
<b>MARIN</b>													
Black Point	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
Novato	1.3	1.5	2.4	3.5	4.4	6.0	5.9	5.4	4.4	2.8	1.4	0.7	39.8
Point San Pedro	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
San Rafael	1.2	1.3	2.4	3.3	4.0	4.8	4.8	4.9	4.3	2.7	1.3	0.7	35.8
<b>MARIPOSA</b>													
Coulterville	1.1	1.5	2.8	4.4	5.9	7.3	8.1	7.0	5.3	3.4	1.4	0.7	48.8
Mariposa	1.1	1.5	2.8	4.4	5.9	7.4	8.2	7.1	5.0	3.4	1.4	0.7	49.0
Yosemite Village	0.7	1.0	2.3	3.7	5.1	6.5	7.1	6.1	4.4	2.9	1.1	0.6	41.4
<b>MENDOCINO</b>													
Fort Bragg	0.9	1.3	2.2	3.0	3.7	3.5	3.7	3.7	3.0	2.3	1.2	0.7	29.0
Hopland	1.1	1.3	2.6	3.4	5.0	5.9	6.5	5.7	4.5	2.8	1.3	0.7	40.9
Point Arena	1.0	1.3	2.3	3.0	3.7	3.9	3.7	3.7	3.0	2.3	1.2	0.7	29.6
Sanel Valley	1.0	1.6	3.0	4.6	6.0	7.0	8.0	7.0	5.2	3.4	1.4	0.9	49.1
Ukiah	1.0	1.3	2.6	3.3	5.0	5.8	6.7	5.9	4.5	2.8	1.3	0.7	40.9
<b>MERCED</b>													
Kesterson	0.9	1.7	3.4	5.5	7.3	8.2	8.6	7.4	5.5	3.8	1.8	0.9	55.1
Los Banos	1.0	1.5	3.2	4.7	6.1	7.4	8.2	7.0	5.3	3.4	1.4	0.7	50.0
Merced	1.0	1.5	3.2	4.7	6.6	7.9	8.5	7.2	5.3	3.4	1.4	0.7	51.5

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>MODOC</b>													
Modoc/Alturas	0.9	1.4	2.8	3.7	5.1	6.2	7.5	6.6	4.6	2.8	1.2	0.7	43.2
<b>MONO</b>													
Bridgeport	0.7	0.9	2.2	3.8	5.5	6.6	7.4	6.7	4.7	2.7	1.2	0.5	43.0
<b>MONTEREY</b>													
Arroyo Seco	1.5	2.0	3.7	5.4	6.3	7.3	7.2	6.7	5.0	3.9	2.0	1.6	52.6
Castroville	1.4	1.7	3.0	4.2	4.6	4.8	4.0	3.8	3.0	2.6	1.6	1.4	36.2
Gonzales	1.3	1.7	3.4	4.7	5.4	6.3	6.3	5.9	4.4	3.4	1.9	1.3	45.7
<b>MONTEREY</b>													
Greenfield	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
King City	1.7	2.0	3.4	4.4	4.4	5.6	6.1	6.7	6.5	5.2	2.2	1.3	49.6
King City-Oasis Rd.	1.4	1.9	3.6	5.3	6.5	7.3	7.4	6.8	5.1	4.0	2.0	1.5	52.7
Long Valley	1.5	1.9	3.2	4.1	5.8	6.5	7.3	6.7	5.3	3.6	2.0	1.2	49.1
Monterey	1.7	1.8	2.7	3.5	4.0	4.1	4.3	4.2	3.5	2.8	1.9	1.5	36.0
Pajaro	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.1
Salinas	1.6	1.9	2.7	3.8	4.8	4.7	5.0	4.5	4.0	2.9	1.9	1.3	39.1
Salinas North	1.2	1.5	2.9	4.1	4.6	5.2	4.5	4.3	3.2	2.8	1.5	1.2	36.9
San Ardo	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
San Juan	1.8	2.1	3.4	4.6	5.3	5.7	5.5	4.9	3.8	3.2	2.2	1.9	44.2
Soledad	1.7	2.0	3.4	4.4	5.5	5.4	6.5	6.2	5.2	3.7	2.2	1.5	47.7
<b>NAPA</b>													
Angwin	1.8	1.9	3.2	4.7	5.8	7.3	8.1	7.1	5.5	4.5	2.9	2.1	54.9
Carneros	0.8	1.5	3.1	4.6	5.5	6.6	6.9	6.2	4.7	3.5	1.4	1.0	45.8
Oakville	1.0	1.5	2.9	4.7	5.8	6.9	7.2	6.4	4.9	3.5	1.6	1.2	47.7
St Helena	1.2	1.5	2.8	3.9	5.1	6.1	7.0	6.2	4.8	3.1	1.4	0.9	44.1
Yountville	1.3	1.7	2.8	3.9	5.1	6.0	7.1	6.1	4.8	3.1	1.5	0.9	44.3
<b>NEVADA</b>													
Grass Valley	1.1	1.5	2.6	4.0	5.7	7.1	7.9	7.1	5.3	3.2	1.5	0.9	48.0
Nevada City	1.1	1.5	2.6	3.9	5.8	6.9	7.9	7.0	5.3	3.2	1.4	0.9	47.4
<b>ORANGE</b>													
Irvine	2.2	2.5	3.7	4.7	5.2	5.9	6.3	6.2	4.6	3.7	2.6	2.3	49.6
Laguna Beach	2.2	2.7	3.4	3.8	4.6	4.6	4.9	4.9	4.4	3.4	2.4	2.0	43.2
Santa Ana	2.2	2.7	3.7	4.5	4.6	5.4	6.2	6.1	4.7	3.7	2.5	2.0	48.2
<b>PLACER</b>													
Auburn	1.2	1.7	2.8	4.4	6.1	7.4	8.3	7.3	5.4	3.4	1.6	1.0	50.6
Blue Canyon	0.7	1.1	2.1	3.4	4.8	6.0	7.2	6.1	4.6	2.9	0.9	0.6	40.5
Colfax	1.1	1.5	2.6	4.0	5.8	7.1	7.9	7.0	5.3	3.2	1.4	0.9	47.9
Roseville	1.1	1.7	3.1	4.7	6.2	7.7	8.5	7.3	5.6	3.7	1.7	1.0	52.2
Soda Springs	0.7	0.7	1.8	3.0	4.3	5.3	6.2	5.5	4.1	2.5	0.7	0.7	35.4
Tahoe City	0.7	0.7	1.7	3.0	4.3	5.4	6.1	5.6	4.1	2.4	0.8	0.6	35.5
Truckee	0.7	0.7	1.7	3.2	4.4	5.4	6.4	5.7	4.1	2.4	0.8	0.6	36.2
<b>PLUMAS</b>													
Portola	0.7	0.9	1.9	3.5	4.9	5.9	7.3	5.9	4.3	2.7	0.9	0.5	39.4
Quincy	0.7	0.9	2.2	3.5	4.9	5.9	7.3	5.9	4.4	2.8	1.2	0.5	40.2
<b>RIVERSIDE</b>													
Beaumont	2.0	2.3	3.4	4.4	6.1	7.1	7.6	7.9	6.0	3.9	2.6	1.7	55.0
Blythe	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Cathedral City	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Coachella	2.9	4.4	6.2	8.4	10.5	11.9	12.3	10.1	8.9	6.2	3.8	2.4	88.1

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>RIVERSIDE</b>													
Desert Center	2.9	4.1	6.4	8.5	11.0	12.1	12.2	11.1	9.0	6.4	3.9	2.6	90.0
Elsinore	2.1	2.8	3.9	4.4	5.9	7.1	7.6	7.0	5.8	3.9	2.6	1.9	55.0
Indio	3.1	3.6	6.5	8.3	10.5	11.0	10.8	9.7	8.3	5.9	3.7	2.7	83.9
La Quinta	2.4	2.8	5.2	6.5	8.3	8.7	8.5	7.9	6.5	4.5	2.7	2.2	66.2
Mecca	2.6	3.3	5.7	7.2	8.6	9.0	8.8	8.2	6.8	5.0	3.2	2.4	70.8
Oasis	2.9	3.3	5.3	6.1	8.5	8.9	8.7	7.9	6.9	4.8	2.9	2.3	68.4
Palm Deser	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
Palm Springs	2.0	2.9	4.9	7.2	8.3	8.5	11.6	8.3	7.2	5.9	2.7	1.7	71.1
Rancho California	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
Rancho Mirage	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Ripley	2.7	3.3	5.6	7.2	8.7	8.7	8.4	7.6	6.2	4.6	2.8	2.2	67.8
Salton Sea North	2.5	3.3	5.5	7.2	8.8	9.3	9.2	8.5	6.8	5.2	3.1	2.3	71.7
Temecula East II	2.3	2.4	4.1	4.9	6.4	7.0	7.8	7.4	5.7	4.1	2.6	2.2	56.7
Thermal	2.4	3.3	5.5	7.6	9.1	9.6	9.3	8.6	7.1	5.2	3.1	2.1	72.8
Riverside UC	2.5	2.9	4.2	5.3	5.9	6.6	7.2	6.9	5.4	4.1	2.9	2.6	56.4
Winchester	2.3	2.4	4.1	4.9	6.4	6.9	7.7	7.5	6.0	3.9	2.6	2.1	56.8
<b>SACRAMENTO</b>													
Fair Oaks	1.0	1.6	3.4	4.1	6.5	7.5	8.1	7.1	5.2	3.4	1.5	1.0	50.5
Sacramento	1.0	1.8	3.2	4.7	6.4	7.7	8.4	7.2	5.4	3.7	1.7	0.9	51.9
Twitchell Island	1.2	1.8	3.9	5.3	7.4	8.8	9.1	7.8	5.9	3.8	1.7	1.2	57.9
<b>SAN BENITO</b>													
Hollister	1.5	1.8	3.1	4.3	5.5	5.7	6.4	5.9	5.0	3.5	1.7	1.1	45.1
San Benito	1.2	1.6	3.1	4.6	5.6	6.4	6.9	6.5	4.8	3.7	1.7	1.2	47.2
San Juan Valley	1.4	1.8	3.4	4.5	6.0	6.7	7.1	6.4	5.0	3.5	1.8	1.4	49.1
<b>SAN BERNARDINO</b>													
Baker	2.7	3.9	6.1	8.3	10.4	11.8	12.2	11.0	8.9	6.1	3.3	2.1	86.6
Barstow NE	2.2	2.9	5.3	6.9	9.0	10.1	9.9	8.9	6.8	4.8	2.7	2.1	71.7
Big Bear Lake	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Chino	2.1	2.9	3.9	4.5	5.7	6.5	7.3	7.1	5.9	4.2	2.6	2.0	54.6
Crestline	1.5	1.9	3.3	4.4	5.5	6.6	7.8	7.1	5.4	3.5	2.2	1.6	50.8
Lake Arrowhead	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Lucerne Valley	2.2	2.9	5.1	6.5	9.1	11.0	11.4	9.9	7.4	5.0	3.0	1.8	75.3
Needles	3.2	4.2	6.6	8.9	11.0	12.4	12.8	11.0	8.9	6.6	4.0	2.7	92.1
Newberry Springs	2.1	2.9	5.3	8.4	9.8	10.9	11.1	9.9	7.6	5.2	3.1	2.0	78.2
San Bernardino	2.0	2.7	3.8	4.6	5.7	6.9	7.9	7.4	5.9	4.2	2.6	2.0	55.6
Twentynine Palms	2.6	3.6	5.9	7.9	10.1	11.2	11.2	10.3	8.6	5.9	3.4	2.2	82.9
Victorville	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
<b>SAN DIEGO</b>													
Chula Vista	2.2	2.7	3.4	3.8	4.9	4.7	5.5	4.9	4.5	3.4	2.4	2.0	44.2
Escondido SPV	2.4	2.6	3.9	4.7	5.9	6.5	7.1	6.7	5.3	3.9	2.8	2.3	54.2
<b>SAN DIEGO</b>													
Miramar	2.3	2.5	3.7	4.1	5.1	5.4	6.1	5.8	4.5	3.3	2.4	2.1	47.1
Oceanside	2.2	2.7	3.4	3.7	4.9	4.6	4.6	5.1	4.1	3.3	2.4	2.0	42.9
Otay Lake	2.3	2.7	3.9	4.6	5.6	5.9	6.2	6.1	4.8	3.7	2.6	2.2	50.4
Pine Valley	1.5	2.4	3.8	5.1	6.0	7.0	7.8	7.3	6.0	4.0	2.2	1.7	54.8
Ramona	2.1	2.1	3.4	4.6	5.2	6.3	6.7	6.8	5.3	4.1	2.8	2.1	51.6
San Diego	2.1	2.4	3.4	4.6	5.1	5.3	5.7	5.6	4.3	3.6	2.4	2.0	46.5
Santee	2.1	2.7	3.7	4.5	5.5	6.1	6.6	6.2	5.4	3.8	2.6	2.0	51.1
Torrey Pines	2.2	2.3	3.4	3.9	4.0	4.1	4.6	4.7	3.8	2.8	2.0	2.0	39.8
Warner Springs	1.6	2.7	3.7	4.7	5.7	7.6	8.3	7.7	6.3	4.0	2.5	1.3	56.0

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>SAN FRANCISCO</b>													
San Francisco	1.5	1.3	2.4	3.0	3.7	4.6	4.9	4.8	4.1	2.8	1.3	0.7	35.1
<b>SAN JOAQUIN</b>													
Farmington	1.5	1.5	2.9	4.7	6.2	7.6	8.1	6.8	5.3	3.3	1.4	0.7	50.0
Lodi West	1.0	1.6	3.3	4.3	6.3	6.9	7.3	6.4	4.5	3.0	1.4	0.8	46.7
Manteca	0.9	1.7	3.4	5.0	6.5	7.5	8.0	7.1	5.2	3.3	1.6	0.9	51.2
Stockton	0.8	1.5	2.9	4.7	6.2	7.4	8.1	6.8	5.3	3.2	1.4	0.6	49.1
Tracy	1.0	1.5	2.9	4.5	6.1	7.3	7.9	6.7	5.3	3.2	1.3	0.7	48.5
<b>SAN LUIS OBISPO</b>													
Arroyo Grande	2.0	2.2	3.2	3.8	4.3	4.7	4.3	4.6	3.8	3.2	2.4	1.7	40.0
Atascadero	1.2	1.5	2.8	3.9	4.5	6.0	6.7	6.2	5.0	3.2	1.7	1.0	43.7
Morro Bay	2.0	2.2	3.1	3.5	4.3	4.5	4.6	4.6	3.8	3.5	2.1	1.7	39.9
Nipomo	2.2	2.5	3.8	5.1	5.7	6.2	6.4	6.1	4.9	4.1	2.9	2.3	52.1
Paso Robles	1.6	2.0	3.2	4.3	5.5	6.3	7.3	6.7	5.1	3.7	2.1	1.4	49.0
San Luis Obispo	2.0	2.2	3.2	4.1	4.9	5.3	4.6	5.5	4.4	3.5	2.4	1.7	43.8
San Miguel	1.6	2.0	3.2	4.3	5.0	6.4	7.4	6.8	5.1	3.7	2.1	1.4	49.0
San Simeon	2.0	2.0	2.9	3.5	4.2	4.4	4.6	4.3	3.5	3.1	2.0	1.7	38.1
<b>SAN MATEO</b>													
Hal Moon Bay	1.5	1.7	2.4	3.0	3.9	4.3	4.3	4.2	3.5	2.8	1.3	1.0	33.7
Redwood City	1.5	1.8	2.9	3.8	5.2	5.3	6.2	5.6	4.8	3.1	1.7	1.0	42.8
Woodside	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
<b>SANTA BARBARA</b>													
Betteravia	2.1	2.6	4.0	5.2	6.0	5.9	5.8	5.4	4.1	3.3	2.7	2.1	49.1
Carpenteria	2.0	2.4	3.2	3.9	4.8	5.2	5.5	5.7	4.5	3.4	2.4	2.0	44.9
Cuyama	2.1	2.4	3.8	5.4	6.9	7.9	8.5	7.7	5.9	4.5	2.6	2.0	59.7
Goleta	2.1	2.5	3.9	5.1	5.7	5.7	5.4	5.4	4.2	3.2	2.8	2.2	48.1
Goleta Foothills	2.3	2.6	3.7	5.4	5.3	5.6	5.5	5.7	4.5	3.9	2.8	2.3	49.6
Guadalupe	2.0	2.2	3.2	3.7	4.9	4.6	4.5	4.6	4.1	3.3	2.4	1.7	41.1
Lompoc	2.0	2.2	3.2	3.7	4.8	4.6	4.9	4.8	3.9	3.2	2.4	1.7	41.1
Los Alamos	1.8	2.0	3.2	4.1	4.9	5.3	5.7	5.5	4.4	3.7	2.4	1.6	44.6
Santa Barbara	2.0	2.5	3.2	3.8	4.6	5.1	5.5	4.5	3.4	2.4	1.8	1.8	40.6
<b>SANTA BARBARA</b>													
Santa Maria	1.8	2.3	3.7	5.1	5.7	5.8	5.6	5.3	4.2	3.5	2.4	1.9	47.4
Santa Ynez	1.7	2.2	3.5	5.0	5.8	6.2	6.4	6.0	4.5	3.6	2.2	1.7	48.7
Sisquoc	2.1	2.5	3.8	4.1	6.1	6.3	6.4	5.8	4.7	3.4	2.3	1.8	49.2
Solvang	2.0	2.0	3.3	4.3	5.0	5.6	6.1	5.6	4.4	3.7	2.2	1.6	45.6
<b>SANTA CLARA</b>													
Gilroy	1.3	1.8	3.1	4.1	5.3	5.6	6.1	5.5	4.7	3.4	1.7	1.1	43.6
Los Gatos	1.5	1.8	2.8	3.9	5.0	5.6	6.2	5.5	4.7	3.2	1.7	1.1	42.9
Morgan Hill	1.5	1.8	3.4	4.2	6.3	7.0	7.1	6.0	5.1	3.7	1.9	1.4	49.5
Palo Alto	1.5	1.8	2.8	3.8	5.2	5.3	6.2	5.6	5.0	3.2	1.7	1.0	43.0
San Jose	1.5	1.8	3.1	4.1	5.5	5.8	6.5	5.9	5.2	3.3	1.8	1.0	45.3
<b>SANTA CRUZ</b>													
De Laveaga	1.4	1.9	3.3	4.7	4.9	5.3	5.0	4.8	3.6	3.0	1.6	1.3	40.8
Green Valley Rd	1.2	1.8	3.2	4.5	4.6	5.4	5.2	5.0	3.7	3.1	1.6	1.3	40.6
Santa Cruz	1.5	1.8	2.6	3.5	4.3	4.4	4.8	4.4	3.8	2.8	1.7	1.2	36.6
Watsonville	1.5	1.8	2.7	3.7	4.6	4.5	4.9	4.2	4.0	2.9	1.8	1.2	37.7
Webb	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.2

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>SHASTA</b>													
Burney	0.7	1.0	2.1	3.5	4.9	5.9	7.4	6.4	4.4	2.9	0.9	0.6	40.9
Fall River Mills	0.6	1.0	2.1	3.7	5.0	6.1	7.8	6.7	4.6	2.8	0.9	0.5	41.8
Glenburn	0.6	1.0	2.1	3.7	5.0	6.3	7.8	6.7	4.7	2.8	0.9	0.6	42.1
McArthur	0.7	1.4	2.9	4.2	5.6	6.9	8.2	7.2	5.0	3.0	1.1	0.6	46.8
Redding	1.2	1.4	2.6	4.1	5.6	7.1	8.5	7.3	5.3	3.2	1.4	0.9	48.8
<b>SIERRA</b>													
Downieville	0.7	1.0	2.3	3.5	5.0	6.0	7.4	6.2	4.7	2.8	0.9	0.6	41.3
Sierraville	0.7	1.1	2.2	3.2	4.5	5.9	7.3	6.4	4.3	2.6	0.9	0.5	39.6
<b>SISKIYOU</b>													
Happy Camp	0.5	0.9	2.0	3.0	4.3	5.2	6.1	5.3	4.1	2.4	0.9	0.5	35.1
MacDoel	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
Mt Shasta	0.5	0.9	2.0	3.0	4.5	5.3	6.7	5.7	4.0	2.2	0.7	0.5	36.0
Tule lake FS	0.7	1.3	2.7	4.0	5.4	6.3	7.1	6.4	4.7	2.8	1.0	0.6	42.9
Weed	0.5	0.9	2.0	2.5	4.5	5.3	6.7	5.5	3.7	2.0	0.9	0.5	34.9
Yreka	0.6	0.9	2.1	3.0	4.9	5.8	7.3	6.5	4.3	2.5	0.9	0.5	39.2
<b>SOLANO</b>													
Dixon	0.7	1.4	3.2	5.2	6.3	7.6	8.2	7.2	5.5	4.3	1.6	1.1	52.1
Fairfield	1.1	1.7	2.8	4.0	5.5	6.1	7.8	6.0	4.8	3.1	1.4	0.9	45.2
Hastings Tract	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Putah Creek	1.0	1.6	3.2	4.9	6.1	7.3	7.9	7.0	5.3	3.8	1.8	1.2	51.0
Rio Vista	0.9	1.7	2.8	4.4	5.9	6.7	7.9	6.5	5.1	3.2	1.3	0.7	47.0
Suisun Valley	0.6	1.3	3.0	4.7	5.8	7.0	7.7	6.8	5.3	3.8	1.4	0.9	48.3
Winters	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
<b>SONOMA</b>													
Bennett Valley	1.1	1.7	3.2	4.1	5.5	6.5	6.6	5.7	4.5	3.1	1.5	0.9	44.4
Cloverdale	1.1	1.4	2.6	3.4	5.0	5.9	6.2	5.6	4.5	2.8	1.4	0.7	40.7
Fort Ross	1.2	1.4	2.2	3.0	3.7	4.5	4.2	4.3	3.4	2.4	1.2	0.5	31.9
Healdsburg	1.2	1.5	2.4	3.5	5.0	5.9	6.1	5.6	4.5	2.8	1.4	0.7	40.8
Lincoln	1.2	1.7	2.8	4.7	6.1	7.4	8.4	7.3	5.4	3.7	1.9	1.2	51.9
Petaluma	1.2	1.5	2.8	3.7	4.6	5.6	4.6	5.7	4.5	2.9	1.4	0.9	39.6
Santa Rosa	1.2	1.7	2.8	3.7	5.0	6.0	6.1	5.9	4.5	2.9	1.5	0.7	42.0
Valley of the Moon	1.0	1.6	3.0	4.5	5.6	6.6	7.1	6.3	4.7	3.3	1.5	1.0	46.1
Windsor	0.9	1.6	3.0	4.5	5.5	6.5	6.5	5.9	4.4	3.2	1.4	1.0	44.2
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
<b>STANISLAUS</b>													
Oakdale	1.2	1.5	3.2	4.7	6.2	7.7	8.1	7.1	5.1	3.4	1.4	0.7	50.3
Patterson	1.3	2.1	4.2	5.4	7.9	8.6	8.2	6.6	5.8	4.0	1.9	1.3	57.3
Turlock	0.9	1.5	3.2	4.7	6.5	7.7	8.2	7.0	5.1	3.4	1.4	0.7	50.2
<b>SUTTER</b>													
Nicolaus	0.9	1.6	3.2	4.9	6.3	7.5	8.0	6.9	5.2	3.4	1.5	0.9	50.2
Yuba City	1.3	2.1	2.8	4.4	5.7	7.2	7.1	6.1	4.7	3.2	1.2	0.9	46.7
<b>TEHAMA</b>													
Corning	1.2	1.8	2.9	4.5	6.1	7.3	8.1	7.2	5.3	3.7	1.7	1.1	50.7
Gerber	1.0	1.8	3.5	5.0	6.6	7.9	8.7	7.4	5.8	4.1	1.8	1.1	54.7
Gerber Dryland	0.9	1.6	3.2	4.7	6.7	8.4	9.0	7.9	6.0	4.2	2.0	1.0	55.5
Red Bluff	1.2	1.8	2.9	4.4	5.9	7.4	8.5	7.3	5.4	3.5	1.7	1.0	51.1

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>TRINITY</b>													
Hay Fork	0.5	1.1	2.3	3.5	4.9	5.9	7.0	6.0	4.5	2.8	0.9	0.7	40.1
Weaverville	0.6	1.1	2.2	3.3	4.9	5.9	7.3	6.0	4.4	2.7	0.9	0.7	40.0
<b>TULARE</b>													
Alpaugh	0.9	1.7	3.4	4.8	6.6	7.7	8.2	7.3	5.4	3.4	1.4	0.7	51.6
Badger	1.0	1.3	2.7	4.1	6.0	7.3	7.7	7.0	4.8	3.3	1.4	0.7	47.3
Delano	1.1	1.9	4.0	4.9	7.2	7.9	8.1	7.3	5.4	3.2	1.5	1.2	53.6
Dinuba	1.1	1.5	3.2	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Lindcove	0.9	1.6	3.0	4.8	6.5	7.6	8.1	7.2	5.2	3.4	1.6	0.9	50.6
Porterville	1.2	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.3	3.4	1.4	0.7	52.1
Visalia	0.9	1.7	3.3	5.1	6.8	7.7	7.9	6.9	4.9	3.2	1.5	0.8	50.7
<b>TUOLUMNE</b>													
Groveland	1.1	1.5	2.8	4.1	5.7	7.2	7.9	6.6	5.1	3.3	1.4	0.7	47.5
Sonora	1.1	1.5	2.8	4.1	5.8	7.2	7.9	6.7	5.1	3.2	1.4	0.7	47.6
<b>VENTURA</b>													
Camarillo	2.2	2.5	3.7	4.3	5.0	5.2	5.9	5.4	4.2	3.0	2.5	2.1	46.1
Oxnard	2.2	2.5	3.2	3.7	4.4	4.6	5.4	4.8	4.0	3.3	2.4	2.0	42.3
Piru	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Port Hueneme	2.0	2.3	3.3	4.6	4.9	4.9	4.9	5.0	3.7	3.2	2.5	2.2	43.5
Thousand Oaks	2.2	2.6	3.4	4.5	5.4	5.9	6.7	6.4	5.4	3.9	2.6	2.0	51.0
Ventura	2.2	2.6	3.2	3.8	4.6	4.7	5.5	4.9	4.1	3.4	2.5	2.0	43.5
<b>YOLO</b>													
Bryte	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
Davis	1.0	1.9	3.3	5.0	6.4	7.6	8.2	7.1	5.4	4.0	1.8	1.0	52.5
Esparto	1.0	1.7	3.4	5.5	6.9	8.1	8.5	7.5	5.8	4.2	2.0	1.2	55.8
Winters	1.7	1.7	2.9	4.4	5.8	7.1	7.9	6.7	5.3	3.3	1.6	1.0	49.4
Woodland	1.0	1.8	3.2	4.7	6.1	7.7	8.2	7.2	5.4	3.7	1.7	1.0	51.6
Zamora	1.1	1.9	3.5	5.2	6.4	7.4	7.8	7.0	5.5	4.0	1.9	1.2	52.8
<b>YUBA</b>													
Browns Valley	1.0	1.7	3.1	4.7	6.1	7.5	8.5	7.6	5.7	4.1	2.0	1.1	52.9
Brownsville	1.1	1.4	2.6	4.0	5.7	6.8	7.9	6.8	5.3	3.4	1.5	0.9	47.4
* The values in this table were derived from:													
1) California Irrigation Management Information System (CIMIS);													
2) Reference EvapoTranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept of Water Resources 1999; and													
3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426													





## 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:

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

where:

- MAWA = Maximum Applied Water Allowance (gallons per year)
- ET<sub>o</sub> = 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:

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

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

Show calculations.

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

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

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

where:

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

**Hydrozone Table for Calculating ETWU**

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

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

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

Show calculations.

**Appendix 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.

**Giron, Nelly**

---

**From:** Diana H. Varat [DVarat@rwglaw.com]  
**Sent:** Tuesday, October 20, 2009 10:42 AM  
**To:** Muro, Evangelina  
**Cc:** Gena Stinnett; Giron, Nelly  
**Subject:** RE: Ordinance No. 1161

Eva,

I just confirmed with Larry. It is our opinion that the Code does not require publication of a summary in this instance. Therefore, the Council may move forward with the second reading and adoption of the ordinance at the coming week's meeting. This means that the dates may remain as they are.

Please let me know if you have questions.

Thanks,  
Diana

-----Original Message-----

**From:** Muro, Evangelina [mailto:emuro@ci.vernon.ca.us]  
**Sent:** Tuesday, October 20, 2009 10:38 AM  
**To:** Diana H. Varat  
**Cc:** Gena Stinnett; Giron, Nelly  
**Subject:** Ordinance No. 1161

Good Morning Diana,

Were you able to speak to Larry regarding this matter? Nelly needs to publish the first summary today.

Thank you.

---

**From:** Muro, Evangelina  
**Sent:** Monday, October 19, 2009 3:32 PM  
**To:** 'Gena Stinnett'  
**Cc:** 'Diana H. Varat'; Giron, Nelly  
**Subject:** FW: Ordinance No. 1161

Gena,

10/20/2009

I need some assistance on the first summary for the Ordinance Nelly needs to post tomorrow. Attached is what I have started but not sure what should follow; could you please help?

Also, there was a mistake on the actual Ordinance. The second reading should be for November 2<sup>nd</sup> not October 26<sup>th</sup>. Should I change the dates and replace the pages (pages 2, 5 and 6)? What do you suggest?

Thank you.

*Eva Muro*

*City Attorney Dept., City of Vernon*

*4305 Santa Fe Avenue*

*Vernon, CA 90058*

*Work: (323) 583-8811 x 273*

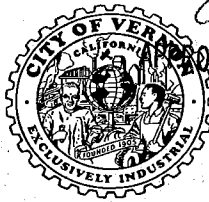
*Fax: (323) 826-1438*

NOTICE: This communication may contain privileged or other confidential information. If you are not the intended recipient of this communication, or an employee or agent responsible for delivering this communication to the intended recipient, please advise the sender by reply email and immediately delete the message and any attachments without copying or disclosing the contents. Thank you.

RECEIVED

SEP 09 2009

CITY CLERK'S OFFICE



Ord 1161  
APPROVED OCT 19 '09 CITY COUNCIL  
10/5/09 ✓  
C. J. Judy

Per Kevin remove from  
draft agenda for  
10/5/09

1st reading 10/19/09

# STAFF REPORT

## COMMUNITY SERVICES & WATER DEPARTMENT

**DATE:** August 31, 2009

**TO:** Honorable Mayor and City Council

**FROM:** Samuel Kevin Wilson, Director of Community Services and Water

**RE:** Water Conservation Ordinance No. 1161

9/9/09

2nd reading 10/26/09

The State of California has experienced below average rainfall for the past two years. The low rainfall levels coupled with reductions in State Water Project Water due to environmental restrictions have greatly impacted the State's ability to meet surface water supply demands. In order to address the dwindling water supply, Governor Arnold Schwarzenegger proclaimed a statewide drought issuing Executive Order S-06-08 on June 4, 2008. The Executive Order directs local water agencies and districts to support and facilitate water conservations measures. Agencies and districts alike are encouraged to work collectively at the regional and state level to take drastic and immediate action to reduce water consumption. To meet this challenge, the Metropolitan Water District (MWD) has developed a Model Conservation Ordinance (Model Ordinance) to address the State's dwindling water supplies and to assist water purveyors with structuring a conservation ordinance that will serve to reduce water wasting activities and at the same time free up precious water supplies for human consumption.

The MWD has officially adopted a policy directing cities to have a Water Conservation Ordinance. Cities are not required by law to have a Model Ordinance in place; however, the Model Ordinance is a prerequisite for future state and federal funding opportunities that could be of significant benefit to the City in the future. In addition, surface water supplies in California have been drastically reduced due to recent Court rulings that require the State Water Project distribution pumps to be shutdown in the event environmental groups have determined through quantitative analysis that Delta Smelt colonies have been adversely impacted by water intake pumps. The recent Court ruling along with persistent drought conditions in the state make the availability of surface water supplies in the future uncertain. The City may have to rely solely on its groundwater supplies to meet future water demand requirements making conservation of paramount importance.

The Water Department (Department) performed a comprehensive review of the MWD Model Ordinance and found that the City's existing Conservation Ordinance No. 995 met most of the requirements reflected in the above-mentioned Model Ordinance. The Department has incorporated the amendments and additions to Ordinance No. 995. It should be noted that the Ordinance will require mandatory restrictions that must be adhered to even when no water supply shortage has been officially declared. These restrictions include limits on watering hours, limits on watering duration, no excessive water flow or runoff; no washing down hard or paved surfaces; an obligation to fix leaks, breaks or malfunctions; water required for water fountains and decorative water features must function on a recirculation system; limits on washing vehicles; drinking water shall only be served at restaurants upon request; no installation of single pass cooling systems; and the installation of non-circulating water systems is prohibited in new commercial conveyor car wash systems and new commercial laundry systems.



If water shortage conditions exist requiring a curtailment in water use the City Council may impose a Phase I, II, or III water shortage declaration which will impose further conservation measures. Phase I restrictions place limits on watering days and specify times in which customers have to repair leaks. No mandatory water usage limits are required under a Phase I Water Supply Shortage. Phase II restrictions place limitations on watering days, leak repairs, filling of ornamental lakes or ponds, washing vehicles, filling swimming pools, and irrigation of commercial nurseries. In addition, no customers shall make, cause, use of permit the use of City water for any purpose in excess of eighty-five percent (85%) of the amount used in the same corresponding monthly billing period two (2) years preceding the City Council declaring a Phase I Water Supply Shortage. In the case of a newly established business, no restriction shall be required until such time that the business has been established for one (1) year, at which time the preceding year's corresponding monthly billing period preceding the City Council declaring a Phase I Water Supply Shortage shall be used to determine the businesses monthly water consumption. Phase III restrictions include those identified in Phase II with more stringent requirements reflected in each of the above-mentioned categories. In terms of water usage restrictions, no customers shall make, cause, use of permit the use of City water for any purpose in excess of seventy-five percent (75%) of the amount used in the same corresponding monthly billing period two (2) years preceding the City Council declaring a Phase I Water Supply Shortage. In the case of a newly established business, no restriction shall be required until such time that the business has been established for one (1) year, at which time the preceding year's corresponding monthly billing period preceding the City Council declaring a Phase I Water Supply Shortage shall be used to determine the businesses monthly water consumption. The penalties for failure to comply with any provisions of the Ordinance in terms of consumption are as follows:

1. For each violation by any customer of the water use curtailment provision of Section No. 25.104, Phase II, a surcharge shall be imposed in an amount equal to fifty percent (50%) of the portions of the water bill that exceeds the respective percentages set in the said section.
2. For each violation by any customer of the water use curtailment provision of section No. 25.105, Phase III, a surcharge shall be imposed in an amount equal to one hundred percent (100%) of the portions of the water bill that exceeds the respective percentages set in the said section.

Violation by any customer of any of any other water use prohibitions of the Ordinance shall be penalized as follows:

1. First violation: A written notice of the first violation shall be issued to the customer.
2. Second Violation: For a second violation the City shall impose a surcharge in an amount equal to ten percent (10%) of the customer's water bill.
3. Third and subsequent violations: For a third and each subsequent violation, the City may impose an additional surcharge of ten percent (10%) for each violation and the City may install a flow restricting device on the service of the customer at the premises at which the violation occurred for a period determined by the Director of Community Services.

Additionally, the Department of Water Resources (DWR), based on provisions of Assembly Bill 1881, is requiring cities to adopt a Model Efficient Landscape Ordinance (Model Ordinance), or its equivalent, by January 1, 2010. The Model Ordinance, like the MWD Model Ordinance, gives the cities the option to adopt a ordinance developed by another city that has received official compliance certification from the DWR. If a city opts not to take any action with respect to developing a Model Ordinance, the DWR Model Ordinance will be adopted by statute on January 1, 2010. Staff is recommending that the Model Ordinance be adopted by reference.

Staff has recommended that the City's Water Conservation Ordinance No. 995, Sections: 25.100, 25.101, 25.102, 25.103, 25.104, 25.105, 25.106, and 25.107 be amended as illustrated on the attached report in order to meet the requirements of the MWD Model Ordinance. Moreover, included in the above-mentioned report is a recommendation that the City incorporate Section 25.112, adopting by reference, the DWR State Model Landscaping Ordinance that shall become effective January 1, 2010.

Finally, it is recommended that the City Council find that the Adoption of the Ordinance is exempt from the California Environmental Quality Act per sections 15061 (b) (3) and 15308 due to the fact that it will not have a significant effect on the environment as the Ordinance will have a limiting effect rather than authorize the use of water and constitutes an action by the City to assure the maintenance enhancement and protection of the environment through the conservation of water resources.

It is then my recommendation that the City Council approve the amendments to the City's Water Conservation Ordinance No. 995 and the addition of Section 25.112.



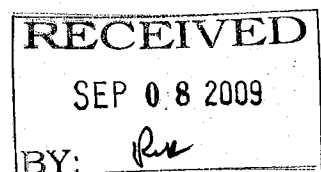
**COMMUNITY SERVICES & WATER DEPARTMENT  
OFFICE MEMORANDUM**

**TO:** Donal O'Callaghan, City Administrator *PO 9/1/09*  
**FROM:** Samuel Kevin Wilson, Director of Community Services and Water  
**DATE:** August 31, 2009  
**SUBJECT:** Water Conservation Ordinance No. 1161

The State of California has experienced below average rainfall for the past two years. The low rainfall levels coupled with reductions in State Water Project Water due to environmental restrictions have greatly impacted the State's ability to meet surface water supply demands. In order to address the dwindling water supply, Governor Arnold Schwarzenegger proclaimed a statewide drought issuing Executive Order S-06-08 on June 4, 2008. The Executive Order directs local water agencies and districts to support and facilitate water conservations measures. Agencies and districts alike are encouraged to work collectively at the regional and state level to take drastic and immediate action to reduce water consumption. To meet this challenge, the Metropolitan Water District (MWD) has developed a Model Conservation Ordinance (Model Ordinance) to address the State's dwindling water supplies and to assist water purveyors with structuring a conservation ordinance that will serve to reduce water wasting activities and at the same time free up precious water supplies for human consumption.

The MWD has officially adopted a policy directing cities to have a Water Conservation Ordinance. Cities are not required by law to have a Model Ordinance in place; however, the Model Ordinance is a prerequisite for future state and federal funding opportunities that could be of significant benefit to the City in the future. In addition, surface water supplies in California have been drastically reduced due to recent Court rulings that require the State Water Project distribution pumps to be shutdown in the event environmental groups have determined through quantitative analysis that Delta Smelt colonies have been adversely impacted by water intake pumps. The recent Court ruling along with persistent drought conditions in the state make the availability of surface water supplies in the future uncertain. The City may have to rely solely on its groundwater supplies to meet future water demand requirements making conservation of paramount importance.

The Water Department (Department) performed a comprehensive review of the MWD Model Ordinance and found that the City's existing Conservation Ordinance No. 995 met most of the requirements reflected in the above-mentioned Model Ordinance. The Department has incorporated the amendments and additions to Ordinance No. 995, per the attached staff report. Staff is recommending that permanent mandatory restrictions be established that must be adhered to even when no water supply shortage has been officially



declared. In addition, if the City Council were to determine that a Water Supply Shortage Phases I, II, and III was necessary, additional restrictions and the penalties associated with each Phase would be implemented.

The Department of Water Resources (DWR), based on provisions of Assembly Bill 1881, is requiring cities to adopt a Model Efficient Landscape Ordinance (Model Ordinance), or its equivalent, by January 1, 2010. The Model Ordinance, like the MWD Model Ordinance, gives the cities the option to adopt an ordinance developed by another city that has received official compliance certification from the DWR. If a city opts not to take any action with respect to developing a Model Ordinance, the DWR Model Ordinance will be adopted by statute on January 1, 2010. Staff is recommending that the Model Ordinance be adopted by reference.

Staff has recommended that the City's Water Conservation Ordinance No. 995, Sections: 25.100, 25.101, 25.102, 25.103, 25.104, 25.105, 25.106, and 25.107 be amended as illustrated on the attached report in order to meet the requirements of the MWD Model Ordinance. Moreover, included in the above-mentioned report is a recommendation that the City incorporate Section 25.112, adopting by reference, the DWR State Model Landscaping Ordinance that shall become effective January 1, 2010. In addition, it is recommended that the City Council find that the Adoption of the Ordinance is exempt from the California Environmental Quality Act due to the fact that it will not have a significant effect on the environment as the Ordinance will have a limiting effect rather than authorize the use of water.

It is then my recommendation that the first reading to consider adoption of the amendments to Chapter 25 Article VI Water Conservation of the City Code be held at the October 5, 2009 City Council meeting in order to allow sufficient time to publish an overview of the proposed amendments in the Vernon Gazette.

SKW/sr  
Enclosures

**RECEIVED**


OCT 08 2009

**CITY CLERK'S OFFICE**



**COMMUNITY SERVICES & WATER DEPARTMENT  
OFFICE MEMORANDUM**

---

**TO:** Donal O'Callaghan, City Administrator  10/7/09

**FROM:** Samuel Kevin Wilson, <sup>SKW</sup> Director of Community Services & Water

**DATE:** October 6, 2009

**SUBJECT:** WATER CONSERVATION ORDINANCE NO. 1161

---

The Water Department has previously submitted Ordinance No. 1161 regarding amending the City's water conservation requirements for consideration by City Council. In consultation with our consultant preparing the City's Urban Water Management Plan he suggested that language be added to the ordinance establishing when each phase of the water supply shortage requirements should be implemented.

One sentence was added to Sections 25.103, 25.104, and 25.105 to establish this threshold for each phase. The City Attorney's office has reviewed and approved the added language. The Staff Report previously submitted continues to be valid.

Please place Ordinance No. 1161 on the October 19, 2009 agenda for City Council consideration.

SKW/ca  
Enclosures

**RECEIVED**  
OCT 07 2009  
BY: KRISTEN 12:00

## Wilson, Kevin

---

**From:** Christopher J. Diaz [CDiaz@rwglaw.com]  
**Sent:** Monday, October 05, 2009 12:09 PM  
**To:** Wilson, Kevin  
**Cc:** Laurence S. Wiener; Gena Stinnett; O'Callaghan, Donal; Giron, Nelly; Lehr, Judy  
**Subject:** RE: Water Conservation ordinance

Kevin -

Thanks for your telephone call this morning regarding the email you received from the City's consultant regarding the applicability of Water Code Section 10632. I have reviewed that section of the Water Code and your proposed revisions to the Water Conservation Ordinance, and these revisions are approved as to form by the City Attorney's Office.

Please do not hesitate to contact me if you have any questions.

Thanks Kevin.

Christopher J. Diaz  
Richards, Watson & Gershon  
355 South Grand Avenue, 40th Floor  
Los Angeles, CA 90071-3101  
T 213.626.8484  
F 213.626.0078  
[cdiaz@rwglaw.com](mailto:cdiaz@rwglaw.com)

-----Original Message-----

**From:** Christopher J. Diaz  
**Sent:** Thursday, October 01, 2009 5:26 PM  
**To:** Kevin Wilson (E-mail)  
**Cc:** Laurence S. Wiener; Gena Stinnett; Donal O'Callaghan (E-mail); Nelly Giron (E-mail); Judy Lehr (E-mail)  
**Subject:** RE: Water Conservation ordinance

Kevin -

I have reviewed your proposed changes to the Water Conservation Ordinance. I have also reviewed the State Water Code with regard to Urban Water Management Plans (Water Code Section 10610 et seq.) and did not see any recent modifications detailing the consultant's concerns. Without reviewing the additional requirements mentioned by the consultant I cannot make a legal determination as to these additions. However, if you have something in writing you would like for me to review, or if you would like me to speak with the consultant, I am more than happy to do so.

Also, I re-reviewed the Ordinance for any necessary changes in regards to the additional information you provided by telephone in regards to the fact that the City only provides water service for certain areas in the City, with other entities providing water service for the remaining areas. The Ordinance captures this concern with the language in Section 25.100 where it states, "[t]he provisions of this article apply to any person in the

use of any potable water provided by the City." Additionally, various sections in the Ordinance specify "customer of the City of Vernon" for clarity purposes.

Please contact me if you have any questions regarding these comments.

Kind regards,

Christopher J. Diaz  
Richards, Watson & Gershon  
355 South Grand Avenue, 40th Floor  
Los Angeles, CA 90071-3101  
T 213.626.8484  
F 213.626.0078  
[cdiaz@rwglaw.com](mailto:cdiaz@rwglaw.com)

-----Original Message-----

**From:** Gena Stinnett  
**Sent:** Wednesday, September 30, 2009 5:17 PM  
**To:** Kevin Wilson (E-mail)  
**Cc:** Laurence S. Wiener; Donal O'Callaghan (E-mail); Christopher J. Diaz; Nelly Giron (E-mail); Judy Lehr (E-mail)  
**Subject:** FW: Water Conservation ordinance

Hi Kevin,

By way of this email, I'm forwarding it to Chris Diaz, who preformed the original review. He can review the modifications you made to the ordinance.

FYI - Oct. 12 is Columbus Day, and I'm told there is no City Council meeting that day. The next meeting date after that is October 19th. Staff reports are due October 14th, and we should target for that date.

Best regards,

Gena M. Stinnett  
Richards Watson & Gershon  
355 South Grand Avenue, 40th Floor  
Los Angeles, CA 90071-3101  
Voice: 213.253.0240  
Facsimile: 213.626.0078

-----Original Message-----

**From:** Wilson, Kevin [<mailto:KWilson@ci.vernon.ca.us>]  
**Sent:** Wednesday, September 30, 2009 5:05 PM  
**To:** Gena Stinnett  
**Cc:** O'Callaghan, Donal  
**Subject:** Water Conservation ordinance

I have requested that the water conservation ordinance be removed from the October 5, 2009 agenda and hopefully we can place it on our October 12, 2009 agenda. We are currently working with a consultant to update our urban water management plan. This plan is mandated by the State of California and has to be updated every 5 years. Our consultant has just advised us that the State of California is now mandating

thresholds be set when conservation measures must be taken. The way our current ordinance is written leaves the determination of a water shortage up to the City Councils discretion. While we would like to leave some discretion for the council we must establish a threshold when the water conservation requirements will be mandatory. I have amended the water conservation ordinance to establish these thresholds. Can you have the revised ordinance language reviewed.

Thanks for your assistance.

NOTICE: This communication may contain privileged or other confidential information. If you are not the intended recipient of this communication, or an employee or agent responsible for delivering this communication to the intended recipient, please advise the sender by reply email and immediately delete the message and any attachments without copying or disclosing the contents. Thank you.




CITY CLERK'S OFFICE

INTEROFFICE MEMORANDUM

---

DATE: October 28, 2009

TO: Kevin Wilson, Director of Community Services & Water

FROM:  Nelly Giron, City Clerk

RE: ORDINANCE NO. 1161 – AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF VERNON AMENDING THE CODE OF THE CITY OF VERNON, CALIFORNIA, 1959 BY AMENDING SECTIONS 25.100, 25.101, 25.102, 25.103, 25.104, 25.105, 25.106(b), 25.107(a); ADDING A NEW SECTION 25.112; ADOPTING BY REFERENCE THE DEPARTMENT OF WATER RESOURCES STATE MODEL LANDSCAPING ORDINANCE; AND REPEALING ALL ORDINANCES OR PARTS OF ORDINANCES IN CONFLICT THEREWITH

Transmitted herewith is a copy of Ordinance No. 1161 referenced above, which was approved by City Council on October 26, 2009.

Thank you.

NG:dj

c: Ordinance No. 1161