

CALIFORNIA PUBLIC UTILITIES COMMISSION

Water Division

INSTRUCTIONS FOR WATER CONSERVATION, RATIONING AND SERVICE CONNECTION MORATORIA

Standard Practice U-40-W

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SAN FRANCISCO, CALIFORNIA

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INSTRUCTIONS FOR WATER CONSERVATION, RATIONING AND SERVICE CONNECTION MORATORIA

A—PURPOSE AND SCOPE

1. The purpose of this standard practice is to provide guidance to Water Division staff, to the public and to utilities as to steps to be taken when the utility suffers from a water shortage. The three levels of action are voluntary rationing, mandatory rationing and a service connection moratorium.

B—BACKGROUND

2. General Order 103, Chart 1, and Standard Practice U-22-W, Determination of Water Supply Requirements of Water Systems, address water supply requirements, but supply can be affected temporarily due to drought or decreased production of a utility's wells. When this happens, utilities may have to resort to mandatory conservation or may have to institute a service connection moratorium.

3. Parties may also protest service area extensions (see Standard Practice U-14-W) over concern that the available supplies may be inadequate to serve the new customers, which would be the equivalent of a service connection moratorium (see Section F)¹.

4. The position of the Commission in overall water supply planning was set forth in Decision 99-04-061, April 22, 1999 (see Appendix A to this Standard Practice).

C—DEVELOPMENT OF CONSERVATION AND RATIONING

5. In mid-1976, due to a drought, the Commission opened an Order Instituting Investigation (OII, Case No. 10114, June 8, 1976) to determine what actions to take. In early 1977, the Commission issued an emergency decision that allowed water utilities to distribute water conservation kits and to implement cost effective water conservation programs.

6. The Commission was once again faced with drought conditions in mid-1988. The Commission opened OII 89-03-005 that allowed all classes of water utilities to file a water conservation and rationing plan consisting of two distinct parts: Rule 14.1 (a "voluntary conservation" program) and Schedule 14.1 (the mandatory rationing and penalty part). This plan was based primarily upon the Department of Water Resources and Metropolitan Water District's model plans, but also

¹ In Resolution No. 4154, August 5, 1999, the Sierra Club protested Valencia Water Company's Advice Letters 84 and 85 for service area extension. The Commission found in the favor of Valencia, that it had adequate supplies, but ordered the utility to file its Water Management Program by application so the long-term water availability issues could be heard.

incorporated aspects of the North Marin Water District, East Bay Municipal Utility District, and California Water Service Company's existing conservation and rationing plans. The main objective of Rule 14.1 and Schedule 14.1 was to have a plan readily available for any utility that needed conservation and/or rationing methods. This plan allowed regulated utilities to achieve conservation of 17.5% to 26%.

7. The drought was officially declared over in February 1993 and the OII was closed. Because history shows that drought occurs in California about once every ten years, Rule 14.1 has remained in place. When conditions become severe, the utility may file an advice letter to institute Schedule 14.1. The Commission must approve implementation of this schedule by resolution.

D—VOLUNTARY RATIONING

8. Voluntary rationing consists of the steps described in Rule 14.1 (Appendix B). This Tariff Rule should be in the tariff book of every utility that might suffer from a water shortage.

E—MANDATORY RATIONING

9. Mandatory rationing consists of the steps described in Schedule 14.1. The utility adds schedule 14.1 to its tariff book by filing an advice letter with full justification. Staff will prepare a resolution for consideration by the Commission. The Commission must approve the imposition of mandatory conservation.

10. Schedule 14.1 may be modified to fit the needs of the utility and its particular water shortage situation. The following provisions are examples of what might be included in a typical Schedule 14.1:

- A. Prohibit nonessential and unauthorized water use, including:
 - i. use for more than minimal landscaping in connection with new construction;
 - ii. use through any meter when the company has notified the customer in writing to repair a broken or defective plumbing, sprinkler, watering or irrigation system and the customer has failed to effect such repairs within five days;
 - iii. use of water which results in flooding or runoff in gutters or streets;
 - iv. use of water through a hose for washing cars, buses, boats, trailers or other vehicles without a positive automatic shut-off valve on the outlet end of the hose;
 - v. use of water through a hose for washing buildings, structures, sidewalks, walkways, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas;
 - vi. use of water to clean, fill or maintain levels in decorative fountains;

- vii. use of water for construction purposes unless no other source of water or other method can be used;
 - viii. service of water by any restaurant except upon the request of a patron; and
 - ix. use of water to flush hydrants, except where required for public health or safety.
- B. Establish customer water allocations at a percentage of historical usage with the corresponding billing periods of a non-drought year being the base.
 - C. Establish an allocation of a percentage of historical usage with the corresponding billing periods of a non-drought year being the base for consumption for users of process water (water used to manufacture, alter, convert, clean, grow, heat or cool a product, including water used in laundries and car wash facilities that recycle the water used).
 - D. Establish a minimum allocation of a number of Ccf per month (one Ccf is one hundred cubic feet) for any customer regardless of historical usage.
 - E. Establish an exceptions procedure for customers with no prior billing period record or where unusual circumstances dictate a change in allocation.
 - F. Establish a penalty ("conservation fee") of \$2.00 per Ccf for usage over allocated amounts, provided, however, that banking of underusage from month to month is allowed.
 - G. Provide that penalty funds are not to be accounted for as income, but are to be kept in a separate reserve account for disposition as directed by the Commission.
 - H. Provide that, after written warning for nonessential or unauthorized water use, for subsequent violations the utility may install a flow restrictor to be left in a minimum of three days. The second time a flow restrictor is installed it may be left in until rationing ends.
 - I. Establish charges of \$25, \$50, or actual cost depending on meter size for removing restrictors, and provide that continuing nonessential or unauthorized use may result in disconnection.
 - J. Establish an appeal procedure first through the utility, then to the Commission staff through the Executive Director, then to the Commission via a formal complaint.

F—SERVICE CONNECTION MORATORIUM

11. A service connection moratorium is sometimes imposed by the California Department of Health Services. The California Water Code, Section 350 et seq.,

provides that any public water supplier may, after public notice and hearing, declare a water shortage emergency within its service area whenever it determines that the ordinary demands and requirements of its consumers cannot be satisfied without depleting the water supply to the extent that there would be insufficient water for human consumption, sanitation, and fire protection. After it has declared a water shortage emergency, it must adopt such regulations and restrictions on water delivery and consumption as it finds will conserve its water supply for the greatest public benefit. Section 357 requires that suppliers which are subject to regulation by the CPUC shall secure its approval before making such regulations and restrictions effective.

12. Section 2708 of the Public Utilities Code states:

2708. Whenever the commission, after a hearing had upon its own motion or upon complaint, finds that any water company which is a public utility operating within this State has reached the limit of its capacity to supply water and that no further consumers of water can be supplied from the system of such utility without injuriously withdrawing the supply wholly or in part from those who have theretofore been supplied by the corporation, the commission may order and require that no such corporation shall furnish water to any new or additional consumers until the order is vacated or modified by the commission. The commission, after hearing upon its own motion or upon complaint, may also require any such water company to allow additional consumers to be served when it appears that service to additional consumers will not injuriously withdraw the supply wholly or in part from those who theretofore had been supplied by such public utility.

13. To establish a service connection moratorium the utility must:

- a. Hold a public meeting under Section 350 and 351 of the Water Code
- b. Add the following language to each service schedule:

“MORATORIUM

No service shall be provided to any premises not previously served within the _____ Service Area as defined on the Service Area Map filed as a part of these tariffs.”

G—EXEMPTIONS

14. Some decisions to impose a moratorium contain exceptions. For example in Citizen’s Utilities (CUCC) Montara District:

“The moratorium shall not apply to owners of real property who are customers of CUCC on or before the date of this order, or their successors in interest, if any change in the use of their property

will not increase their demand upon the system.” (D.86-05-078, Ordering Paragraph 3.)

15. D.86-05-078 also provided that prospective customers could seek an exemption from the moratorium by filing an application with the Commission showing that extraordinary circumstances required an exemption.

16. In D.00-06-020, June 8, 2000 the Commission granted an application and authorized Citizens Utilities to install a water service connection to applicant’s property at APN 037-278-090 following cessation of service at applicant’s property at 888 Ocean Boulevard in Montara. Costs were to be borne by applicant. The order made it clear that water service could not be reinstated at 888 Ocean Boulevard absent a lifting or easing of the moratorium. Such determinations were also delegated to staff².

² D.86-05-078, May 28, 1986, Ordering Paragraph 4.

The Commission's Role in Water Planning

The two state agencies primarily responsible for overseeing water planning are the California Department of Water Resources, which manages the State Water Project and produces the California Water Plan, and the State Water Quality Control Board and Regional Water Quality Control Boards which have authority over water allocation and water quality protection.

In addition to the state agencies which have broad planning and management powers, local government also has a part in water use decisions. For example, county boards of supervisors, county water agencies, land use planning agencies, city governments, municipal water districts and many special districts all have a role in the use of water in California.

In this context, the Commission has recognized the futility of one party taking unilateral action to protect a groundwater basin:

Rehabilitation of the Santa Maria Groundwater Basin is not the responsibility of, and is beyond the physical and financial resources of any single individual, company, or agency. Even if [Southern California Water Company] were to stop drawing from the basin entirely and injected into the basin the entire 7,900 AFY it desires to obtain from the [Central Coast Water Authority], the basin's fundamental problems of declining quantity and water quality would not be solved. Most simply put, the basin's salvation as a water resource requires the immediate, undivided, sincere and selfless attention of all its users.

(Re Southern California Water Company, 48 CPUC2d 511, 519 (D.93-03-066)(emphasis in original).)

The Commission's role is limited to ensuring that each jurisdictional water utility provides its customers with "just and reasonable service, . . . and facilities as are necessary to promote the safety, health, comfort and convenience of its patrons, employees, and the public." (§ 451.) The Commission has further delineated the service standard in its General Order 103 where it proscribes Standards of Service

including water quality, water supply, and water pressure, as well as many other details of service.

The Commission has not, however, dictated to investor-owned utilities what method of obtaining water must be used to meet its present and future responsibility of providing safe and adequate supply of water at reasonable rates. (Southern California Water, 48 CPUC2d at 517.)

Which is not to suggest that the Commission ignores issues of water availability in its regulation of water utilities. The Commission requires that all water utilities prepare, file, and update a water management plan which includes identification of water sources as well as consumption projections over 15 years. These plans are updated by the utility as part of its general rate case.

RULE NO. 14.1
WATER CONSERVATION AND RATIONING PLAN

GENERAL INFORMATION

If water supplies are projected to be insufficient to meet normal customer demand, and are beyond the control of the utility, the utility may elect to implement voluntary conservation using the portion of this plan set forth in Section A of this Rule after notifying the Commission's Water Division of its intent. If, in the opinion of the utility, more stringent water measures are required, the utility shall request Commission authorization to implement the mandatory conservation and rationing measures set forth in Section B.

The Commission shall authorize mandatory conservation and rationing by approving Schedule No. 14.1, Mandatory Water Conservation and Rationing. When Schedule No. 14.1 has expired, or is not in effect, mandatory conservation and rationing measures will not be in force. Schedule No. 14.1 will set forth water use violation fines, charges for removal of flow restrictors, and the period during which mandatory conservation and rationing measures will be in effect.

When Schedule No. 14.1 is in effect and the utility determines that water supplies are again sufficient to meet normal demands, and mandatory conservation and rationing measures are no longer necessary, the utility shall seek Commission approval to rescind Schedule No. 14.1 to discontinue rationing.

In the event of a water supply shortage requiring a voluntary or mandatory program, the utility shall make available to its customers water conservation kits as required by Rule 20. The utility shall notify all customers of the availability of conservation kits.

(continued)

RULE NO. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

A. CONSERVATION - NON-ESSENTIAL OR UNAUTHORIZED WATER USE

No customer shall use utility-supplied water for non-essential or unauthorized uses as defined below:

1. Use of water through any connection when the utility has notified the customer in writing to repair a broken or defective plumbing, sprinkler, watering or irrigation system and the customer has failed to make such repairs within 5 days after receipt of such notice.
2. Use of water which results in flooding or run-off in gutters, waterways, patios, driveway, or streets.
3. Use of water for washing aircraft, cars, buses, boats, trailers or other vehicles without a positive shut-off nozzle on the outlet end of the hose. Exceptions include washing vehicles at commercial or fleet vehicle washing facilities operated at fixed locations where equipment using water is properly maintained to avoid wasteful use.
4. Use of water through a hose for washing buildings, structures, sidewalks, walkways, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas in a manner which results in excessive run-off or waste.
5. Use of water for watering streets with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public.
6. Use of water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.
7. Use of water for more than minimal landscaping in connection with any new construction.

(continued)

RULE NO. 14.1

(continued)

WATER CONSERVATION AND RATIONING PLAN

A. CONSERVATION – NON-ESSENTIAL OR UNAUTHORIZED WATER USE (CONT.)

8. Use of water for outside plants, lawn, landscape, and turf areas more often than every other day, with even numbered addresses watering on even numbered days of the month and odd numbered addresses watering on the odd numbered days of the month, except that this provision shall not apply to commercial nurseries, golf courses and other water-dependent industries.
9. Use of water for watering outside plants, lawn, landscape and turf areas during certain hours if and when specified in Schedule No. 14.1 when the schedule is in effect.
10. Use of water for watering outside plants and turf areas using a hand-held hose without a positive shut-off valve.
11. Use of water for decorative fountains or the filling or topping off of decorative lakes or ponds. Exceptions are made for those decorative fountains, lakes, or ponds which utilize recycled water.
12. Use of water for the filling or refilling of swimming pools.
13. Service of water by any restaurant except upon the request of the patron.

B. RATIONING OF WATER USAGE

In the event the conservation measures required by Section A are insufficient to control the water shortage, the utility shall, upon Commission approval, impose mandatory conservation and rationing. Rationing shall be in accordance with the conditions set forth in Schedule No. 14.1 as filed at the time such rationing is approved by the Commission.

Before mandatory conservation and rationing is authorized by the Commission, the utility shall hold public meetings and take all other applicable steps required by Sections 350 through 358 of the California Water Code.

(continued)

RULE NO. 14.1

(continued)

WATER CONSERVATION AND RATIONING PLAN

C. ENFORCEMENT OF MANDATORY CONSERVATION AND RATIONING

1. The water use restrictions of the conservation program, in Section A of this rule, become mandatory when the rationing program goes into effect. In the event a customer is observed to be using water for any nonessential or unauthorized use as defined in Section A of this rule, the utility may charge a water use violation fine in accordance with Schedule No. 14.1.
2. The utility may, after one verbal and one written warning, install a flow-restricting device on the service line of any customer observed by utility personnel to be using water for any non-essential or unauthorized use as defined in Section A above.
3. A flow restrictor shall not restrict water delivery by greater than 50% of normal flow and shall provide the premise with a minimum of 6 Ccf/month. The restricting device may be removed only by the utility, only after a three-day period has elapsed, and only upon payment of the appropriate removal charge as set forth in Schedule No. 14.1.
4. After the removal of the restricting device, if any non-essential or unauthorized use of water shall continue, the utility may install another flow-restricting device. This device shall remain in place until water supply conditions warrant its removal and until the appropriate charge for removal has been paid to the utility.
5. If, despite installation of such flow-restricting device pursuant to the provisions of the previous enforcement conditions, any such non-essential or unauthorized use of water shall continue, then the utility may discontinue water service to such customer. In such latter event, a charge as provided in Rule No. 11 shall be paid to the utility as a condition to restoration of service.
6. Any monies collected by the utility through water use violation fines shall not be accounted for as income, but shall be accumulated by the utility in a separate account for disposition as directed or authorized from time to time by the Commission.
7. The charge for removal of a flow-restricting device shall be in accordance with Schedule No. 14.1.

(continued)

RULE NO. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

D. APPEAL PROCEDURE

Any customer who seeks a variance from any of the provisions of this water conservation and rationing plan shall notify the utility in writing, explaining in detail the reason for such a variation. The utility shall respond to each such request.

Any customer not satisfied with the utility's response may file an appeal with the staff of the Commission. The customer and the utility will be notified of the disposition of such appeal by letter from the Executive Director of the Commission.

If the customer disagrees with such disposition, the customer shall have the right to file a formal complaint with the Commission. Except as set forth in this Section, no person shall have any right or claim in law or in equity, against the utility because of, or as a result of, any matter or thing done or threatened to be done pursuant to the provisions of this water conservation and rationing plan.

E. PUBLICITY

In the event the utility finds it necessary to implement this plan, it shall notify customers and hold public hearings concerning the water supply situation, in accordance with Chapter 3, Water Shortage Emergencies, Sections 350 to 358, of the California Water Code. The utility shall also provide each customer with a copy of this plan by means of billing inserts or special mailings; notification shall take place prior to imposing any fines associated with this plan. In addition, the utility shall provide customers with periodic updates regarding its water supply status and the results of customers' conservation efforts. Updates may be by bill insert, special mailing, poster, flyer, newspaper, television or radio spot/advertisement, community bulletin board, or other appropriate methods.

SCHEDULE NO. 14.1
MANDATORY WATER CONSERVATION AND RATIONING

APPLICABILITY

This schedule applies to all water customers served under all tariff rates schedules authorized by the Commission. It is only effective in times of rationing, as required by Rule No. 14.1, and only for the period noted in the Special Conditions section below.

TERRITORY

This schedule is applicable within the entire territory served by the utility.

WATER USE VIOLATION FINE

When this schedule is in effect, the water use restrictions of the conservation program, in Section A of Rule 14.1, become mandatory. If a customer is seen violating the water usage restrictions, as outlined in Rule No. 14.1 and the Special Conditions below, the customer will be subject to the following fine structure:

First offense - written warning	
Second offense -	\$25
(of the same restriction)	
Third offense -	\$50
(of the same restriction)	
Each additional offense -	\$25 more than the previous
	fine imposed.
(of the same restriction)	

Offenses for separate water use restrictions will each start at the warning stage.

The water use violation fine is in addition to the regular rate schedule charges.

(continued)

SCHEDULE NO. 14.1
MANDATORY WATER CONSERVATION AND RATIONING (CONT.)

FLOW RESTRICTOR REMOVAL CHARGE

The charge for removal of a flow-restricting device shall be:

<u>Connection Size</u>	<u>Removal Charges</u>
5/8" to 1"	\$25.00
1-1/2" to 2"	\$50.00
3" and larger	Actual cost

SPECIAL CONDITIONS

1. This tariff schedule shall remain in effect for period of six (6) months from the effective date set forth below.
2. There shall be no use of utility-supplied water for outside plants, lawn, landscape, and turf areas between the hours of 3:00 a.m. to 8:00 p.m., regardless of address or day of the month.
3. Water use violation fines may be applied to violations of Section A of Rule No. 14.1, which prohibits non-essential and unauthorized uses of water.
4. Water use violation fines must be separately identified on each bill.
5. All bills are subject to the reimbursement fee set forth on Schedule No. UF.

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King City Municipal Code

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15.50.010 Purpose.

(a) The State Legislature has found:

- (1) That the limited supply of state waters are subject to ever increasing demands;
- (2) That California's economic prosperity depends on adequate supplies of water;
- (3) That state policy promotes conservation and efficient use of water;
- (4) That landscapes provide recreation areas, clean the air and water, prevent erosion, offer fire protection and replace ecosystems displaced by development; and

(5) That landscape design, installation and maintenance can and should be water efficient.

(b) Consistent with the 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 designing, installing and maintaining water efficient landscapes in new projects; and

(3) Establish provisions for water management practices and water waste prevention for established landscapes. (Ord. 559 § 1(Exh. A) (part), 1993)

15.50.020 Definitions.

The words used in this chapter have the meaning set forth below:

“Anti-drain valve” or “check valve” means a valve located under a sprinkler head to hold water in the system so it minimizes drainage from the lower elevation sprinkler heads.

“Application rate” means the depth of water applied to a given area, usually measured in inches per hour.

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

“Automatic controller” means a mechanical or solid state timer, capable of operating valve stations to set the days and length of time of a water application.

“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.

“Conversion factor (0.62)” means a number that converts the maximum applied water allowance from acre-inches per acre per year to gallons per square foot per year. The conversion factor is calculated as follows:

$$(325,851 \text{ gallons}/43,560 \text{ square feet})/12 \text{ inches} = (0.62)$$

$$325,851 \text{ gallons} = \text{one acre foot}$$

$$43,560 \text{ square feet} = \text{one acre}$$

$$12 \text{ inches} = \text{one foot}$$

To convert gallons per year to 100-cubic-feet per year, another common billing unit for water, divide gallons per year by 748.

(748 gallons = 100 cubic feet)

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

“Effective precipitation” or “usable rainfall” means the portion of total precipitation that is used by the plants. Precipitation is not a reliable source of water, but can contribute to some degree toward the water needs of the landscape.

“Emitter” means drip irrigation fittings that deliver water slowly from the system to the soil.

“Established landscape” means the point at which plants in the landscape have developed roots into the soil adjacent to the root ball.

“Establishment period” means the first year after installing the plant in the landscape.

“Estimated applied water use” means the portion of the estimated total water use that is derived from applied water. The estimated applied water use shall not exceed the maximum applied water allowance. The estimated applied water use may be the sum of the water recommended through the irrigation schedule, as referenced in Section 15.50.030(c)(3).

“Estimated total water use” means the annual total amount of water estimated to be needed to keep the plants in the landscaped area healthy. It is based upon such factors as the local evapotranspiration rate, the size of the landscaped area, the types of plants, and the efficiency of the irrigation system, as described in Section 15.50.030(c)(4).

“ET adjustment factor” means a factor of 0.8, 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. The irrigation efficiency for purposes of the ET adjustment factor is 0.625. Therefore, the ET adjustment factor $(0.8) = (0.5/0.625)$.

“Evapotranspiration” means the quantity of water evaporated from adjacent soil surfaces and transpired by plants during a specific time.

“Flow rate” means the rate at which water flows through pipes and valves (gallons per minute or cubic feet per second).

“Hydrozone” means a portion of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule. A hydrozone may be irrigated or nonirrigated. For example, a naturalized area planted with native vegetation that will not need supplemental irrigation once established is a nonirrigated hydrozone.

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

“Irrigation efficiency” means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum irrigation efficiency for purposes of this ordinance is 0.625. Greater irrigation efficiency can be expected from well designed and maintained systems.

“Landscaped area” means the entire parcel less the building footprint, driveways, nonirrigated portions of parking hardscapes, such as decks and patios, and other nonporous areas. Water features are included in the

calculation of the landscaped area. Areas dedicated to edible plants, such as orchards or vegetable gardens are not included.

“Landscape irrigation audit” means a process to perform site inspections, evaluate irrigation systems and develop efficient irrigation schedules.

“Lateral line” means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.

“Main line” means the pressurized pipeline that delivers water from the water source to the valve or outlet.

“Maximum applied water allowance” means, for design purposes, the upper limit of annual applied water for the established landscaped area as specified in Section 15.50.030(c)(2). It is based upon the area’s reference evapotranspiration, the ET adjustment factor and the size of the landscaped area. The estimated applied water use shall not exceed the maximum applied water allowance.

“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.

“Mulch” means any material such as leaves, bark, straw or other materials left loose and applied to the soil surface for the beneficial purpose of reducing evaporation.

“Operating pressure” means the pressure at which a system of sprinklers is designed to operate, usually indicated at the base of a sprinkler.

“Overhead sprinkler irrigation systems” means those with high flow rates (pop-ups, impulse sprinklers, rotors, etc.)

“Overspray” means the water which is delivered beyond the landscaped area, wetting pavements, walks, structures, or other nonlandscaped areas.

“Plant factor” means a factor that when multiplied by reference evapotranspiration, estimates the amount of water used by plants. For purposes of this chapter, the average plant factor of low water using plants ranges from 0 to 0.3, for average water using plants the range is 0.4 to 0.6, and for high water using plants the range is 0.7 to 1.0.

“Rain sensing device” means a system which automatically shuts off the irrigation system when it rains.

“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.

“Recreational area” means areas of active play or recreation such as sports fields, school yards, picnic grounds, or other areas with intense foot traffic.

“Recycled water,” “reclaimed water,” or “treated sewage effluent water” means treated or recycled waste water of a quality suitable for nonpotable uses such as landscape irrigation; not intended for human consumption.

“Reference evapotranspiration” or “ET_o” means a standard measurement of environmental parameters which affect the water use of plants. ET_o is given in inches per day, month, or year as represented in Section 15.50.050, and is an estimate of the evapotranspiration of a large field of four to seven-inch tall, cool-season grass that is well watered. Reference evapotranspiration is used as the basis of determining the maximum applied water allowances so that regional differences in climate can be accommodated.

“Rehabilitated landscape” means any relandscaping project that requires a permit.

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

“Soil moisture sensing device” means a device that measures the amount of water in the soil.

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

“Sprinkler head” means a device which sprays water through a nozzle.

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

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

“Turf” means a surface layer of earth containing mowed grass with its roots. 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.

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

“Water conservation concept statement” means a one page checklist and a narrative summary of the project as shown in Section 15.50.030(c)(1). (Ord. 559 § 1(Exh. A) (part), 1993)

15.50.030 Provisions for new or rehabilitated landscapes.

(a) Applicability.

(1) Except as provided in subsection (a)(3) of this section, this section shall apply to:

(A) All new and rehabilitated landscaping for public agency projects and private development projects that require a permit; and

(B) Developer-installed landscaping in single-family and multi-family projects.

(2) Projects subject to this section shall conform to the provisions of this section.

(3) This section shall not apply to:

(A) Homeowner-provided landscaping at single-family and multifamily projects;

(B) Cemeteries;

(C) Registered historical sites;

(D) Ecological restoration projects that do not require a permanent irrigation system;

(E) Mined-land reclamation projects that do not require a permanent irrigation system; or

(F) Any project with a landscaped area less than two thousand five hundred square feet.

(b) Landscape Documentation Package.

(1) A copy of the landscape documentation package conforming to this chapter shall be submitted to the city. No permit shall be issued until the city reviews and approves the landscape documentation package.

(2) A copy of the approved landscape documentation package shall be provided to the property owner or site manager along with the record drawings and any other information normally forwarded to the power owner or site manager.

(3) A copy of the water conservation concept statement and the certificate of substantial completion shall be sent by the project manager to the local retail water purveyor.

(4) Each landscape documentation package shall include the following elements, which are described in subsection (c) of this section:

(A) Water conservation concept statement;

(B) Calculation of the maximum applied water allowance;

(C) Calculation of the estimated applied water use;

(D) Calculation of the estimated total water use;

- (E) Landscape design plan;
- (F) Irrigation design plan;
- (G) Irrigation schedules;
- (H) Maintenance schedule;
- (I) Landscape irrigation audit schedule;
- (J) Grading design plan;
- (K) Soil analysis;
- (L) Certificate of substantial completion (to be submitted after installation of the project).

(5) If effective precipitation is included in the calculation of the estimated total water use, then an effective precipitation disclosure statement from the landscape professional and the property owner shall be submitted with the landscape documentation package.

(c) Elements of Landscape Documentation Package.

(1) Water Conservation Concept Statement. Each landscape documentation package shall include a cover sheet, referred to as the water conservation concept statement. An example of said statement is on file in the offices of the City Clerk, City of King, 212 South Vanderhurst Avenue, King City, California 93930, and is open to inspection by the public during regular business hours. It serves as a checklist to verify that the elements of the landscape documentation package have been completed and has a narrative summary of the project.

(2) The Maximum Applied Water Allowance.

(A) The formula for calculating the maximum applied water allowance and examples of calculations are on file in the offices of the City Clerk, City of King, 212 South Vanderhurst Avenue, King City, California 93930, and are open to inspection by the public during regular business hours.

(B) Portions of landscaped areas in public and private projects such as parks, playgrounds, sports fields, golf courses, or school yards where turf provides a playing surface or serves other recreational purposes are considered recreational areas and may require water in addition to the maximum applied water allowance. A statement shall be included with the landscape design plan designating recreational areas to be used for such purposes and specifying any needed amount of additional water above the maximum applied water allowance.

(3) Estimated Applied Water Use.

(A) The estimated applied water use shall not exceed the maximum applied water allowance.

(B) A calculation of the estimated applied water use shall be submitted with the landscape documentation package. It may be calculated by summing the amount of water recommended in the irrigation schedule.

(4) Estimated Total Water Use.

(A) A calculation of the estimated total water use shall be submitted with the landscape documentation package. The estimated total water use may be calculated by summing the amount of water recommended in the irrigation schedule and adding any amount of water expected from effective precipitation (not to exceed twenty-five percent of the local annual mean precipitation) or may be calculated from a formula such as the following:

The estimated total water use for the entire landscaped area equals the sum of the estimated water use of all hydrozones in that landscaped area.

$$EWU \text{ (hydrozone)} = \frac{(ET_o) (PF) (HA) (.62)}{(IE)}$$

EWU (hydrozone) = Estimated water use (gallons per year)

ET_o = Reference evapotranspiration (inches per year)

PF = Plant factor

HA = Hydrozone area (square feet)

(.62) = Conversion factor

IE = Irrigation efficiency

(B) If the estimated total water use is greater than the estimated applied water use due to precipitation being included as a source of water, an effective precipitation disclosure statement such as the one in Section 15.50.040 shall be included in the landscape documentation package.

(5) Landscape Design Plan. A landscape design plan meeting the following requirements shall be submitted as part of the landscape documentation package.

(A) Plant Selection and Grouping.

(i) Any plants may be used in the landscape, providing the estimated applied water use recommended does not exceed the maximum applied water allowance and that the plants meet the specifications set forth in subsection (c)(5)(A)(ii)—(iv) of this section.

(ii) Plants having similar water use shall be grouped together in distinct hydrozones.

(iii) Plants shall be selected appropriately based upon their adaptability to the climatic, geologic and topographical conditions of the site. Protection and preservation of native species and natural areas is encouraged. The planting of trees is encouraged wherever it is consistent with the other provisions of this chapter.

(iv) Fire prevention needs shall be addressed in areas that are fire prone. Information about fire prone areas and appropriate landscaping for fire safety is available from local fire departments or the California Department of Forestry.

(B) Water Features.

(i) Recirculating water shall be used for decorative water features.

(ii) Pool and spa covers are encouraged.

(C) Landscape Design Plan Specifications. The landscape design plan shall be drawn on project base sheets at a scale that accurately and clearly identifies:

(i) Designation of hydrozones;

(ii) Landscape materials, trees, shrubs, groundcover, turf and other vegetation. Planting symbols shall be clearly drawn and plants labeled by botanical name, common name, container size, spacing and quantities of each group of plants indicated;

(iii) Property lines and street names;

(iv) Streets, driveways, walkways and other paved areas;

(v) Pools, ponds, water features, fences and retaining walls;

(vi) Existing and proposed buildings and structures, including elevation, if applicable;

(vii) Natural features including, but not limited to, rock outcroppings, existing trees, shrubs that will remain;

(viii) Tree staking, plant installation, soil preparation details and any other applicable planting and installation details;

(ix) A calculation of the total landscaped area;

(x) Designation of recreational areas.

(6) Irrigation Design Plan. An irrigation design plan meeting the following conditions shall be submitted as part of the landscape documentation package.

(A) Irrigation Design Criteria.

(i) Runoff and Overspray. Soil types and infiltration rate shall be considered when designing irrigation systems. All irrigation systems shall be designed to avoid runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways, or structures. Proper irrigation equipment and schedules, including features such as repeat cycles, shall be used to closely match application rates to infiltration rates therefore minimizing runoff.

Special attention shall be given to avoid runoff on slopes and to avoid overspray in planting areas with a width less than ten feet, and in median strips.

No overhead sprinkler irrigation systems shall be installed in median strips less than ten feet wide.

(ii) Irrigation Efficiency. For the purpose of determining the maximum applied water allowance, irrigation efficiency is assumed to be 0.625. Irrigation systems shall be designed, maintained and managed to meet or exceed 0.625 efficiency.

(iii) Equipment.

1. Water Meters. Separate landscape water meters shall be installed for all projects except for single-family homes or any project with a landscaped area of less than five thousand square feet.

2. Controllers. Automatic control systems shall be required for all irrigation systems and must be able to accommodate all aspects of the design.

3. Valves. Plants which require different amounts of water shall be irrigated by separate valves. If one valve is used for a given area, only plants with similar water use shall be used in that area. Anti-drain (check) valves shall be installed in strategic points to minimize or prevent lowhead drainage.

4. Sprinkler Heads. Heads and emitters shall have consistent application rates within each control valve circuit. Sprinkler heads shall be selected for proper area coverage, application rate, operating pressure, adjustment capability and ease of maintenance.

5. Rain Sensing Override Devices. Rain sensing override devices shall be required on all irrigation systems.

6. Soil Moisture Sensing Devices. It is recommended that soil moisture sensing devices be considered where appropriate.

(B) Recycled Water.

(i) The installation of recycled water irrigation systems (dual distribution systems) shall be required to allow for the current and future use of recycled water, unless a written exemption has been granted as described in the following paragraph (B)(ii) of this subdivision.

(ii) Irrigation systems shall make use of recycled water unless a written exemption has been granted by the local water agency, stating that recycled water meeting all health standards is not available and will not be available in the foreseeable future.

(iii) The recycled water irrigation systems shall be designed and operated in accordance with all local and state codes.

(C) Irrigation Design Plan Specifications. Irrigation systems shall be designed to be consistent with hydrozones.

The irrigation design plan shall be drawn on project base sheets. It shall be separate from, but use the same format as, the landscape design plan. The scale shall be the same as that used for the landscape design plan described in subsection (c)(5)(C) of this section.

The irrigation design plan shall accurately and clearly identify:

- (i) Location and size of separate water meters for the landscape;
- (ii) Location, type and size of all components of the irrigation system, including automatic controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers and backflow prevention devices;
- (iii) Static water pressure at the point of connection to the public water supply;
- (iv) Flow rate (gallons per minute), application rate (inches per hour) and design operating pressure (psi) for each station;
- (v) Recycled water irrigation systems as specified in subsection (c)(6)(B) of this section.

(7) Irrigation Schedules. Irrigation schedules satisfying the following conditions shall be submitted as part of the landscape documentation package.

(A) An annual irrigation program with monthly irrigation schedules shall be required for the plant establishment period, for the established landscape and for any temporarily irrigated areas.

(B) The irrigation schedule shall:

- (i) Include run time (in minutes per cycle), suggested number of cycles per day and frequency of irrigation for each station; and
- (ii) Provide the amount of applied water (in hundred cubic feet, gallons, or in whatever billing units the local water supplier uses) recommended on a monthly and annual basis.

(C) The total amount of water for the project shall include water designated in the estimated total water use calculation plus water needed for any water features, which shall be considered as a high water using hydrozone.

(D) Recreational areas designated in the landscape design plan shall be highlighted and the irrigation schedule shall indicate if any additional water is needed above the maximum applied water allowance because of high plant factors (but not due to irrigation inefficiency).

(E) Whenever possible, irrigation scheduling shall incorporate the use of evapotranspiration data such as those from the California Irrigation Management Information System (CIMIS) weather stations to apply the appropriate levels of water for different climates.

(F) Whenever possible, landscape irrigation shall be scheduled between two a.m. and ten a.m. to avoid irrigating during times of high wind or high temperature.

(8) Maintenance Schedules. A regular maintenance schedule satisfying the following conditions shall be submitted as part of the landscape documentation package:

(A) Landscapes shall be maintained to ensure water efficiency. A regular maintenance schedule shall include, but, not be limited to, checking, adjusting and repairing irrigation equipment; resetting the automatic controller; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning and weeding in all landscaped areas.

(B) Whenever possible, repair of irrigation equipment shall be done with the originally specified materials or their equivalents.

(9) Landscape Irrigation Audit Schedules. A schedule of landscape irrigation audits, for all but single-family residences, satisfying the following conditions shall be submitted to the city or county as part of the landscape documentation package.

(A) At a minimum, audits shall be in accordance with the State of California Landscape Water Management Program as described in the Landscape Irrigation Auditor Handbook, the entire document, which is hereby incorporated by reference. (See Landscape Irrigation Auditor Handbook (June, 1990) Version 5.5 [formerly Master Auditor Training]).

(B) The schedule shall provide for landscape irrigation audits to be conducted by certified landscape irrigation auditors at least once every five years.

(10) Grading Design Plan. Grading design plans satisfying the following conditions shall be submitted as part of the landscape documentation package.

(A) A grading design plan shall be drawn on project base sheets. It shall be separate from, but use the same format as, the landscape design plan.

(B) The grading design plan shall indicate finished configurations and elevations of the landscaped area, including the height of graded slopes, drainage patterns, pad elevations and finish grade.

(11) Soils.

(A) A soil analysis satisfying the following conditions shall be submitted as part of the landscape documentation package.

(i) Determination of soil texture, indicating the percentage of organic matter;

(ii) An approximate soil infiltration rate (either measured or derived from soil texture/infiltration rate tables). A range of infiltration rates shall be noted where appropriate;

(iii) Measure of pH, and total soluble salts.

(B) A mulch of at least three inches shall be applied to all planting areas except turf.

(12) Certification.

(A) Upon completing the installation of the landscaping and the irrigation system, an irrigation audit shall be conducted by a certified landscape irrigation auditor prior to the final field observation. (See Landscape Irrigation Auditor Handbook as referenced in subsection (c)(9)(A) of this section).

(B) A licensed landscape architect or contractor, certified irrigation designer, or other licensed or certified professional in a related field shall conduct a final field observation and shall provide a certificate of substantial completion to the city. The certificate shall specifically indicate that plants were installed as specified, that the irrigation system was installed as designed, and that an irrigation audit has been performed, along with a list of any observed deficiencies.

(C) Certification shall be accomplished by completing a certificate of substantial completion and delivering it to the city, to the retail water supplier, and to the owner of record. A sample of such a form is on file in the offices of the City Clerk, City of King, 212 South Vanderhurst Avenue, King City, California 93930, and is open to inspection by the public during regular business hours.

(d) Public Education.

(1) Publications.

(A) Local agencies shall provide information to owners of all new, single-family residential homes regarding the design, installation and maintenance of water efficient landscapes.

(B) Information about the efficient use of landscape water shall be provided to water users throughout the community.

(2) Model Homes. At least one model home that is landscaped in each project consisting of eight or more homes shall demonstrate via signs and information the principles of water efficient landscapes described in this chapter.

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

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

559 § 1(Exh. A) (part), 1993)

15.50.040 Provisions for existing landscapes.

(a) Water Management. All existing landscaped areas to which the city or county provides water that are one acre or more, including golf courses, green belts, common areas, multifamily housing, schools, businesses, parks, cemeteries, and publicly owned landscapes shall have a landscape irrigation audit at least every five years. At a minimum, the audit shall be in accordance with the California Landscape Water Management Program as described in the Landscape Irrigation Auditor Handbook, the entire document which is hereby incorporated by reference. (See Landscape Irrigation Audit Handbook, as referenced in Section 15.50.030(c)(9)(A)).

(1) If the project's water bills indicate that they are using less than or equal to the maximum applied water allowance for that project site, an audit shall not be required.

(2) Recognition of projects that stay within the maximum applied water allowance is encouraged.

(b) Water Waste Prevention. Cities shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways, or structures. Penalties for violation of these prohibitions shall be established locally. (Ord. 559 § 1(Exh. A) (part), 1993)

15.50.050 Effective precipitation.

If effective precipitation is included in the calculation of the estimated total water use, an effective precipitation disclosure statement shall be completed, signed and submitted with the landscape documentation package. No more than twenty-five percent of the local annual mean precipitation shall be considered effective precipitation in the calculation of the estimated total water use. A sample of the precipitation disclosure statement is on file in the offices of the City Clerk, City of King, 212 South Vanderhurst Avenue, King City, California 93930, and is open to inspection by the public during regular business hours. (Ord. 559 § 1(Exh. A) (part), 1993)

15.50.060 Reference evapotranspiration.

The schedule showing the evapotranspiration for the counties situated in the state of California is on file in the offices of the City Clerk, City of King, 212 South Vanderhurst Avenue, King City, California 93930, and is open to inspection by the public during regular business hours. (Ord. 559 § 1(Exh. A) (part), 1993)