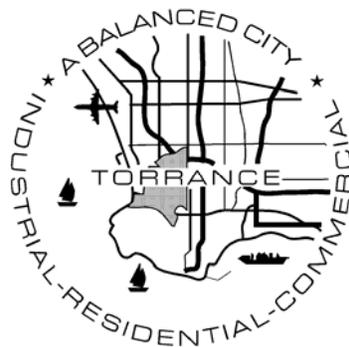


**LANDSCAPE
DOCUMENTATION
PACKAGE**

CITY OF TORRANCE

**WATER EFFICIENT
LANDSCAPE ORDINANCE**



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Community Development Director
January 2010

**WATER EFFICIENT LANDSCAPE ORDINANCE
LANDSCAPE DOCUMENTATION PACKAGE**

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WATER EFFICIENT LANDSCAPE ORDINANCE

Water Conservation in Landscaping Act of 2006 (Assembly Bill 1881)

The Water Conservation in Landscaping Act of 2006 (Assembly Bill 1881) requires cities, counties, and charter cities and charter counties to adopt and implement a landscape water conservation ordinance by January 1, 2010. The State of California Department of Water Resources has prepared a Model Water Efficient Landscape Ordinance (Model Ordinance) for use by local agencies. The City of Torrance has adopted the State's Model Ordinance.

Purpose of the Model Ordinance

Purpose of the Model Water Efficient Landscape Ordinance

- To establish a structure for designing, installing, maintaining and managing water efficient landscapes in new and rehabilitated projects.
- Reduce water use to the lowest practical amount and set an upper limit that shall not be exceeded.
- To establish provisions for water management practices and water waste prevention for established landscapes.
- Promote the values and benefits of landscapes while recognizing the need to use water and other resources efficiently.

Applicability

- Applies to new construction and rehabilitated landscape for public agency projects and private development projects with a landscape area, including pools or other water features, equal to or greater than 2,500 square feet, and which are otherwise subject to a requirement for a building or landscape permit, plan check or design review;
- Applies to new construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects with a landscape area, including pools or other water features, equal to or greater than 2,500 square feet, and which are otherwise subject to a requirement for a building or landscape permit, plan check, or design review;
- Applies to 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, including pools or other water features, equal to or greater than 5,000 square feet, and which are otherwise subject to a requirement for a building or landscape permit, plan check or design review external to the buildings;
- This ordinance does not apply to:
 - Registered local, state or federal historic sites;
 - Ecological restoration projects that do not require a permanent irrigation system;
 - Mined-land reclamation projects that do not require a permanent irrigation system; or
 - Plant collections, as part of botanical gardens and arboretums open to the public.

ELEMENTS OF THE LANDSCAPE DOCUMENTATION PACKAGE

Prior to construction, the project applicant shall submit a Landscape Documentation Package. Below are elements of the Landscape Documentation Package:

- Project Information
- Water Efficient Landscape Worksheet
- Soil Management Report
- Landscape Design Plan
- Irrigation Design Plan
- Grading Design Plan

Below are details for each of the elements of the Landscape Documentation Package:

Project Information. A project applicant shall complete the Submittal Requirements Form that is included in this Landscape Documentation Package.

Water Efficient Landscape Worksheet. A project applicant shall complete the Water Efficient Landscape Worksheet which contains two sections: (1) Hydrozone information table; and (2) Water budget calculations.

For the calculation of the Maximum Applied Water Allowance and Estimated Total Water Use, the project applicant shall use the following Eto values [derived from California Irrigation Management Information System (CIMIS)].

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Annual Eto</u>
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

Water budget calculations shall adhere to the following requirements:

- The plant factor used shall be from Water Use Classification of Landscape Species (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.
- 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.
- All Special Landscape Areas shall not exceed 1.0.

Maximum Applied Water Allowance (MAWA). The Maximum Applied Water Allowance shall be calculated using the equation:

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

where:

MAWA = Maximum Applied Water Allowance (gallons per year)

ETo = Reference Evaporation 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)

Example MAWA calculation

A hypothetical landscape project in Torrance 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 Torrance is 42.6 inches as listed in the table on the previous page [derived from California Irrigation Management Information System (CIMIS)].

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

MAWA = (42.6) (0.62) [(0.7 x 50,000 square feet) + (0.3 x 0)] = 924,420 gallons per year.

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

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

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)

Example ETWU calculation

Landscape area is 50,000 square feet; plant water use type, plant factor and hydrozone area shown in the table below. The Eto value is 42.6 inches per year. There are no Special Landscape Areas 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

$$\text{ETWU} = (42.6) (0.62) \left(\frac{24,700}{0.71} + 0 \right) = 918,840 \text{ gallons per year}$$

Compare ETWU with MAWA: For this MAWA = 924,420 gallons per year. The ETWU (918,840) is less than MAWA. In this example, the water budget complies with the MAWA.

Soil Management Report. The purpose of a Soil Management Report is to reduce runoff and encourage healthy plant growth.

The project applicant or designee shall submit soil samples to a laboratory for analysis and recommendations. The soil analysis may include: soil texture; infiltration rate determined by laboratory test or soil infiltration rate table; pH; total soluble salts; sodium; percent organic matter; and recommendations.

Depending on the proposed project, one of the following shall apply: (1) 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 (2) If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.

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 necessary adjustments to the design plans. The project applicant or designee shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with Certificate of Completion.

Landscape Design Plan. For the efficient use of water, a landscape shall be carefully designed and planned. A landscape design plan shall include the following:

- 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. It is highly recommended that: (1) protection and preservation of native species and natural vegetation; and (2) selection of water-conserving plant and turf species.
- Each hydrozone shall have plant materials with similar water use.

- 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).
- Only recirculating water systems shall be used for water features.
- Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.
- Pool and spa covers are highly recommended.
- Mulch and Amendments. 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 groundcover, or direct seeding applications where mulch is contraindicated. Stabilizing mulching products shall be used on slopes. The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement. Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected.

The landscape design plan, at a minimum, shall identify:

- Each hydrozone (with dimensions);
- Each hydrozone as low, moderate, high water, or mixed water use;
- Recreational areas;
- Areas permanently and solely dedicated to edible plants;
- Areas irrigated with recycled water;
- Type of mulch and application depth;
- Soil amendments, type, and quantity;
- Type and surface area of water features;
- Hardscapes (pervious and non-pervious);
- Location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater;
- Any applicable rain harvesting or catchment technologies;
- 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
- Bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape.

Irrigation Design Plan. For the efficient use of water, an irrigation system shall meet all the requirements listed:

- Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.
- Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data shall be required for irrigation scheduling in all irrigation systems.
- 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.
- 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.
- 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.

- In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
- Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.
- Check valves or anti-drain valves are required for all irrigation systems.
- 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.
- 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.

Grading Design Plan. For the efficient use of water, grading of a project shall be designed to minimize runoff and water waste. A grading plan, at a minimum shall include:

- Height of graded slopes;
- Drainage patterns;
- Pad elevations;
- Finish grade;
- Stormwater retention (if applicable); and
- 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 bear the signature of a licensed professional.



City of Torrance

Community Development Department Jeffery W. Gibson, Director
 3031 Torrance Blvd., Torrance, CA 90503 (310) 618-5990 Fax: (310) 618-5829

Water Efficient Landscape Ordinance - Application

Please print or type

NAME OF REPRESENTATIVE (UNLESS OWNER INSTALLED)	ADDRESS	ZIP CODE
STREET ADDRESS OR LOCATION OF PROPERTY		ASSESSOR'S PARCEL #(s)
CASE #(s) FOR ANY RELATED BUILDING PERMITS		RELATED LAND USE ENTITLEMENTS

OWNER	REPRESENTATIVE (UNLESS OWNER INSTALLED)
PRINT NAME OF PROPERTY OWNER	PRINT NAME OF REPRESENTATIVE
ADDRESS (PLEASE INCLUDE ZIP CODE)	ADDRESS (PLEASE INCLUDE ZIP CODE)
PHONE/E-MAIL	PHONE/E-MAIL
SIGNATURE OF PROPERTY OWNER	SIGNATURE OF APPLICANT/REPRESENTATIVE

PROJECT INFORMATION (ANSWER EACH QUESTION):

USE: Single Family Multiple Family Commercial Industrial Institutional (H/R/S) Public Mixed-Use
 PROJECT: Demo/New Major Remodel Irrigation **PURVEYOR:** Torrance CalWater WestBasin
 WATER SUPPLY: Potable Recycled Greywater Private Well Cistern Other:

LOT SIZE: _____ sq.ft. LANDSCAPE AREA: _____ sq.ft.
 HILLSIDE OVERLAY DISTRICT: _____ (Y/N) POOL: _____ (Y/N) POOL SIZE: _____ Surface Area sq.ft.
 MAXIMUM APPLIED WATER ALLOWANCE: _____ gal/yr ESTIMATED TOTAL WATER USE: _____ gal/yr

TWO SETS OF THE FOLLOWING ITEMS SUBMITTED BY APPLICANT:

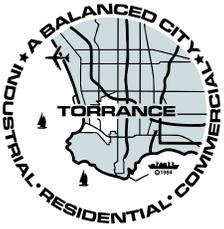
<input type="checkbox"/> Water Efficient Worksheet	<input type="checkbox"/> Soil Management Report	<input type="checkbox"/> Grading Plan	<input type="checkbox"/> Landscape Design	<input type="checkbox"/> Irrigation Plan
<input type="checkbox"/> I, the Owner of the Subject Property, understand that all permits associated with this project may not receive Final Clearance until the "Certificate of Completion" has been completed to the satisfaction of the Community Development Director.		Signature: _____ Date: _____		

COMMUNITY DEVELOPMENT DEPARTMENT USE

DATE _____ RECEIVED BY _____

LPR CASE #(S) _____ ALL LANDSCAPE PACKAGE FORMS SUBMITTED: _____

NOTES:



City of Torrance

Community Development Department Jeffery W. Gibson, Director
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Water Efficient Landscape Worksheet

SECTION B. WATER BUDGET CALCULATIONS

Section B1. Maximum Applied Water Allowance (MAWA)

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

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

MAWA = Maximum Applied Water Allowance (gallons per year)

ETo = Reference Evaporation from Appendix A (inches per year)

0.7 = ET Adjustment Factor (ETAF)

LA = Landscaped Area includes Special Landscape Area (square feet)

0.62 = Conversion factor (to gallons per square foot)

SLA = Portion of the landscape area identified as Special Landscape Area (square feet)

0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 – 0.7 = 0.3)

Maximum Applied Water Allowance = _____ gallons per year

Show Calculations

Effective Precipitation (Eppt)

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

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

Maximum Applied Water Allowance = _____ gallons per year

Show Calculations

Section B2. Estimated Total Water Use (ETWU)

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

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

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)

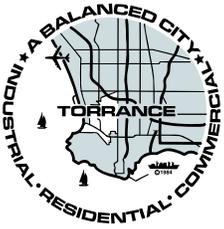
Hydrozone Table for Calculating ETWU

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

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

Estimated Total Water Use = _____ gallons

Show Calculations



City of Torrance

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Certificate of Completion

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.
Title		Fax No.
Company		Email Address
City		Street Address
		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 ordinance and that the landscape planting and irrigation 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

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:

- Irrigation scheduling shall be regulated by automatic irrigation controllers.
- 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 irrigation system outside the normal watering window is allowed for auditing and system maintenance.
- 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.
- Parameters used to set the automatic controller shall be developed and submitted for each of the following:
 - The plant establishment period;
 - The established landscape; and
 - Temporary irrigated areas.
- Each irrigation schedule shall consider for each station all of the following that apply:
 - Irrigation interval (days between irrigation);
 - Irrigation run times (hours or minutes per irrigation event to avoid runoff);
 - Number of cycle starts required for each irrigation event to avoid runoff;
 - Amount of applied water scheduled to be applied on a monthly basis;

- Application rate setting;
- Root depth setting;
- Plant type setting;
- Soil type;
- Slope factor setting;
- Shade factor setting; and
- Irrigation uniformity or efficiency setting.

PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

- Landscapes shall be maintained to ensure water use efficiency.
- A regular maintenance schedule shall be submitted with the Certificate of Completion.
- 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.
- Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.
- A project applicant is encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.

PART 5. LANDSCAPE IRRIGATION AUDIT REPORT

The project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency that may include, but not limited to: inspection; system tune-up system test with distribution uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule. All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

PART 6. SOIL MANAGEMENT REPORT

The purpose of a Soil Management Report is to reduce runoff and encourage healthy plant growth.

The project applicant or designee shall submit soil samples to a laboratory for analysis and recommendations. The soil analysis may include: soil texture; infiltration rate determined by laboratory test or soil infiltration rate table; pH; total soluble salts; sodium; percent organic matter; and recommendations.

Depending on the proposed project, one of the following shall apply: (1) 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 (2) If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.

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 necessary adjustments to the design plans. The project applicant or designee shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with Certificate of Completion.

DEFINITIONS

applied water	Portion of water supplied by the irrigation system to the landscape.
automatic irrigation controller	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.
backflow prevention device	Safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.
Certificate of Completion	Document required under this Ordinance.
certified irrigation designer	Person certified to design irrigation systems by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's WaterSense irrigation designer certification program and Irrigation Association's Certified Irrigation Designer program.
certified landscape irrigation auditor	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.
check valve or anti-drain valve	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.
common interest developments	Community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
conversion factor (0.62)	Number that converts acre-inches per acre per year to gallons per square foot per year.
drip irrigation	Any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
ecological restoration project	Project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
effective precipitation (Eppt) or usable rainfall	The portion of total precipitation which becomes available for plant growth.

emitter	Drip irrigation emission device that delivers water slowly from the system to the soil.
established landscape	The point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.
establishment period of the plants	The first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.
Estimated Total Water Use (ETWU)	The total water used for the landscape.
ET adjustment factor	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.
evapotranspiration rate	Quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.
flow rate	Rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.
hardscapes	Any durable material (pervious and non-pervious).
homeowner-provided landscaping	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.
hydrozone	A portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.
infiltration rate	Rate of water entry into the soil expressed as a depth of water per unit of time (e.g. inches per hour).
invasive plant species	Species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. "Noxious weeds" means any weed designated by the Weed Control Regulations in the Weed Control Act and identified on a Regional Inventory and USDA invasive and noxious weeds database.
irrigation audit	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.

irrigation efficiency (IE)	The measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this ordinance is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.
irrigation survey	An evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test, and written recommendations to improve performance of the irrigation system.
landscape architect	A person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.
landscape area	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 structure, 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).
landscape contractor	A person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
Landscape Documentation Package	Documents required under this ordinance.
landscape project	Total area of landscape in a project as defined in "landscape area".
local agency	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.
local water purveyor	Any entity, including a public agency, city, county, or private water company that provides retail water service.
low volume irrigation	The application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
main line	The pressurized pipeline that delivers water from the water source to the valve or outlet.

Maximum Applied Water Allowance (MAWA)	The upper limit of annual applied water for the established landscaped area. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, 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 as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.
Microclimate	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.
mined-land reclamation projects	Any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.
mulch	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, soil temperature, and preventing soil erosion.
new construction	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.
operating pressure	The pressure at which the parts of an irrigation system are designed by the manufacturer to operate.
overhead sprinkler irrigation systems	System that deliver water through the air (e.g. spray heads and rotors).
overspray	The irrigation water which is delivered beyond the target area.
permit	An authorizing document issued by local agencies for new construction or rehabilitated landscapes.
pervious	Any surface or material that allows the passage of water through the material and into the underlying soil.
plant factor or plant water use factor	A factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor 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 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".
precipitation rate	Rate of application of water measured in inches per hour.

project applicant	The individual or entity submitting a Landscape Documentation Package, 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.
rain sensor or rain sensing shutoff device	A component which automatically suspends an irrigation event when it rains.
record drawing or as-builts	A set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.
recreational area	Areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.
recycled water, reclaimed water or treated sewage effluent water	Treated or recycled waster water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.
reference evapotranspiration or ETo	A standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month, or year 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.
rehabilitated landscape	Any re-landscaped project that requires a permit, plan check, or design review 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.
runoff	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.
soil moisture sensing device or soil moisture sensor	A device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.
soil texture	The classification of soil based on its percentage of sand, silt, and clay.
Special Landscape Area (SLA)	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.
sprinkler head	A device which delivers water through a nozzle.

static water pressure	The pipeline or municipal water supply pressure when water is not flowing.
station	An area served by one valve or by a set of valves that operate simultaneously.
swing joint	An irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.
turf	A ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermuda grass, Kikuya grass, Seashore Paspalum, St. Augustine grass, Zoysia grass, and Buffalo grass are warm-season grasses.
valve	Device used to control the flow of water in the irrigation system.
water conserving plant species	Plant species identified as having a low plant factor.
water feature	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 high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.
watering window	Time of day irrigation is allowed.
WUCOLS	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.