City of Temecula

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February 3, 2010

Mr. Simon Eching
California Department of Water Resources
Water Use and Efficiency Branch
PO Box 94236
Sacramento, CA 94236-0001

SUBJECT: Notification of Adopted Water Efficient Landscape Ordinance

Dear Mr. Eching:

The City of Temecula first adopted a Water Efficient Landscape Design Ordinance in 1994, updated it in July 2008, and then again in January 2010. The City's Water Efficient Landscape Design Standards Ordinance is consistent with the requirements of AB1881 by incorporating the following minimum standards as outlined in the State's Model Water Efficient Landscape Ordinance:

- Applies to all new residential landscape areas equal or greater than 5,000 square feet when a discretionary permit is required.
- Applies to all new commercial landscape areas equal or than 2,500 square feet when a discretionary permit is required.
- The reference evapotranspiration rate ETo is 0.70.
- Water features are included in the water budget calculation.
- Overhead irrigation is not permitted within 24 inches of non-permeable surfaces
- All new landscapes will be inspected by a certified irrigation auditor.

Should you have any questions, please contact Dale West, Associate Planner at (951) 693-3918.

Sincerely,

Patrick Richardson
Director of Planning and Redevelopment

cc: Dale West, Associate Planner
File

Attachment

ORDINANCE NO. 09-08

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF TEMECULA AMENDING CHAPTER 17.32 OF THE TEMECULA MUNICIPAL CODE TO UPDATE THE WATER EFFICIENT LANDSCAPE DESIGN STANDARDS

THE CITY COUNCIL OF THE CITY OF TEMECULA DOES HEREBY ORDAIN AS FOLLOWS:

Section 1. Procedural Findings. The City Council of the City of Temecula does hereby find, determine and declare that:

A. The Planning Commission of the City of Temecula held a duly noticed public hearing on November 4, 2009 to consider the proposed changes to the Temecula Municipal Code, at which time the City staff and interested persons had an opportunity to, and did testify either in support or opposition to this matter.

B. Following consideration of the entire record of information received at the public hearings and due consideration of the proposed Ordinance, the Planning Commission adopted Resolution No. 09-24, recommending that the City Council approve this Ordinance providing for an amendment to Chapter 17.32 of the Temecula Municipal Code to update the Water Efficient Landscape Design standards.

C. The City Council of the City of Temecula held a duly noticed public hearing on December 8, 2009 to consider the proposed changes to the Temecula Municipal Code and this Ordinance, at which time the City staff and interested persons had an opportunity to, and did testify either in support or opposition to this matter.

B. Following the public hearing, the City Council considered the entire record of information received at the public hearings before the Planning Commission and City Council.

Section 2. Environmental Findings. The City Council hereby makes the following environmental findings and determinations in connection with the approval of the Chapter 17.32 of the Temecula Municipal Code:

A. The City Council hereby finds that this Ordinance is exempt from the requirements of the California Environmental Quality Act ("CEQA") pursuant to Title 14 of the California Code of Regulations, Section 15308, Class 8 Actions by a Regulatory Agencies for Protection of the Environment. The proposed Code amendment improves the conservation of water resources by establishing more stringent drought tolerant and irrigation landscape standards.

Section 3. Chapter 17.32 (Water Efficient Landscape Design) of Title 17 (Zoning) is hereby repealed in its entirety.

Section 4. A new Chapter 17.32 entitled Water Efficient Landscape Design is hereby added to Title 17 (Zoning) of the Temecula Municipal Code to read as follows:

"WATER EFFICIENT LANDSCAPE DESIGN

SECTIONS:

17.32.010	**Purpose.**
17.32.020	**Definitions.**
17.32.030	**Applicability.**
17.32.040	**General provisions.**
17.32.050	**Procedures.**
17.32.060	**Landscape requirements.**
17.32.070	**Irrigation system design requirement.**
17.32.080	**Grading Plan Requirements.**
17.32.090	**Residential requirements.**
17.32.100	**Commercial, office, industrial, public institutional requirements.**
17.32.110	**Open space/recreation/conservation zoning district requirements.**
17.32.120	**Maintenance and enforcement.**

Appendix A to Chapter 17.32 – Water Budget Formula
Appendix B to Chapter 17.32 – City of Temecula Plant List

17.32.010 PURPOSE

The following Water Efficient Landscape Standards are designed to assist landscape architects, irrigation designers, contractors, planners and the public in the selection of plant materials and irrigation methods that result in more water efficient and water conscious landscaping throughout the City. The purpose of this chapter is:

A. To promote high quality, water efficient landscaping, water use management and water conservation through the use of water efficient landscaping, wise use of turf areas and appropriate use of irrigation technology and management;

B. To provided for provisions for water management practices and water waste prevention;

C. To establish a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction and rehabilitated projects;

D. To reduce landscape water demands without sacrificing landscape quality or quantity;

E. To retain flexibility and encourage creativity through appropriate design;

F. To assure the attainment of water efficient landscape goals by requiring that landscape not exceed a maximum water demand of 70 percent of its reference evapotranspiration (ETo) or any lower percentage as may be required by water purveyor policy or State legislation, whichever is stricter;

G. To eliminate water waste from overspray and/or runoff;

H. To promote water conservation through public awareness; and

I. To implement the requirements to meet the State of California Water Conservation in Landscaping Act 2006 and the California Code of Regulations Title 23, Division 2, Chapter 2.7.

17.32.020 DEFINITIONS

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

"Active recreational use" means areas of active play or recreation such as sport fields, school yards, picnic grounds, or other areas of intense foot traffic that provide public benefit.

"Amendment" means additions to the soil, such as compost, leaf mold, peat moss, or ground bark, which improves aeration and drainage of clay soils and helps hold water in sandy soils.

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

"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.

"Check valve" or "anti-drain valve" means a valve located under a sprinkler head to hold water in the system to prevent drainage from sprinkler heads when the system is off.

"Distribution uniformity" means a measure of how evenly water is applied over an area.

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

"Established landscape" means the point at which plants in the landscape have developed significant root growth into the site. Typically, most plants are established after one or two years of growth.

"Establishment period" means, for purposes of this chapter, the first year after installing the plants in the landscape, or the first two years if irrigation will be terminated after establishment. The actual establishment period varies depending upon the plant species, the development of the plant's root system, soil conditions, and other environmental factors.

"Estimated annual water use (EAWU)" means the 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 calculated by the formula contained in Section 17.32.060.

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

"Flow rate" means the rate at which water flows through pipe fittings, valves, and emission devices, measured in gallons per minute, gallons per hour, or cubit feet per second.

"Hardscape" means any durable surface material (pervious and nonpervious).

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

"Hydrozone" means a portion of the landscape area having plants with similar water needs that are served by a valve or set of valves with the same irrigation schedule. A hydrozone may also be nonirrigated, for example, a naturalized area.

"Invasive species" are non-indigenous species (e.g., plants or animals) that adversely affects the habitats they invade economically, environmentally, or ecologically. Lists of invasive species are included within the Western Riverside County Multi-Species Habitat Conservation Plan (incorporated by reference)

"Irrigation efficiency" (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied.

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

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

"Landscape coefficient" means the functional equivalent of a crop coefficient in agriculture. When multiplied times ETo, it estimates the amount of water required to maintain landscape plants in good condition.

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

"Land use entitlement" means any legislative, discretionary or quasi-judicial review that requires City approval.

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

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

"Main line" means the pressurized pipeline that delivers water from the water source to the valves or lateral lines.

"Maximum Applied Water Allowance (MAWA)" means the upper limit of annual applied water for the established landscaped area.

"Microclimate" means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to wind, sun exposure, plant density, or proximity to reflective surfaces.

"Moisture-sensing device" means a device that measures the amount of moisture in the soil.

"Mulch" means any organic material such as leaves, bark, straw or inorganic mineral materials such as rocks, gravel and decomposed granite left loose and applied to the soil surface to reduce evaporation and suppress weeds.

"Operating pressure" means the pressure at which an irrigation system is designed by the manufacture to operate (static pressure minus pressure losses). This is usually indicated at the base or nozzle of a sprinkler.

"Overspray" means when sprinklers deliver water beyond the landscaped area, wetting pavements, walks, structures, or other non-landscaped areas.

"Plant factor" means a factor that, when multiplied by reference evapotranspiration, estimates the amount of water used by plants.

"Percolation" means the movement of water through the soil.

"Potable water" means water which is meant for human consumption.

"Precipitation rate" means the rate at which water is applied, usually expressed in inches per hour.

"Pressure compensation bubbler" means an irrigation emitter useful for watering trees and shrubs with water basins; produces a reduced flow of water that bubbles on the soil.

"Quick coupling system" means a sprinkler system which uses permanently installed valves and sprinklers that can be moved from valve to valve.

"Rain sensor" means a component of the irrigation system that automatically suspends the irrigation schedule when it rains.

"Reclaimed water," "recycled water," or "treated sewage effluent" means treated or recycled water of a quality suitable for nonpotable uses such as landscape irrigation and water features; not intended for human consumption.

"Reference evapotranspiration (ETo)" means a standard measurement of environmental parameters which affect the water use of plants. ETo is given in inches per day, month, or year and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool season turf that is well watered. Reference evapotranspiration is used as the basis of determining the Maximum Allowable Water Allowance so that regional differences in climate can be accommodated.

"Rehabilitated landscape" means a significant replacement of established landscaping and/or irrigation with a new landscaping and irrigation that requires a permit, plan check, or design review. For purposes of this chapter, "significant" is defined as any replacement exceeding fifty percent of a landscaped area and is at the discretion of the director of planning. Rehabilitated landscapes shall be consistent with the provisions of Chapter 17.32 of the Municipal Code.

"Runoff" means water which is not absorbed by the soil or landscape to which it is applied. Runoff occurs when water is applied at too great a rate or when there is a slope.

"Smart irrigation controller" means a type of irrigation controller which automatically adjusts the frequency and/or duration of irrigation events in response to changing weather conditions.

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

"Special Landscaped Area (SLA)" means an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, picnic grounds, sports fields, golf courses, where turf provides a playing surface, or other areas of intense foot traffic that provide public benefit.

"Sprinkler head" means a device which discharges 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 set of valves that operate simultaneously.

"Temporarily Irrigated" means irrigation for the purposes of establishing plants, or irrigation which will not continue after plant establishment. Temporary irrigation is for a period of six months or less.

"Turf" means a groundcover of cool- or warm-season grass that is mowed.

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

"Water intensive landscaping" means a landscape with a WUCOLS plant factor of 0.7 or greater.

"Water Use Classification of Landscape Species (WUCOLS)" means the publication entitled "Water Use Classification of Landscape Species" by the U.C. Cooperative Extension (1999 or most current version).

17.32.030 APPLICABILITY

A. Except as provided in subsection B of this section, requirements of this chapter shall apply to:

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

2. All other landscape projects with a landscape area equal to or greater than 2,500 square feet subject to discretionary permits, plan check or design review; and

Cemeteries: recognizing the special landscape needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 17.32.070.GG, 17.32.070.HH, and 17.32.070II. Existing cemeteries are limited to Section 17.32.120.E;

3. In the event Covenants, Conditions and Restrictions are required by the City for any permit subject to this Chapter, a condition shall be incorporated into any project approval prohibiting the use of water intensive landscaping and requiring the use of low water use landscaping pursuant to the provisions of this Chapter in conjunction with common area/open space landscaping. Additionally, such a condition shall also require the Covenants, Conditions and Restrictions to incorporate provisions concerning landscape irrigation system management and maintenance. This Chapter shall not be construed as requiring landscaping on common areas or open space that is intended to remain natural. Covenants, Conditions, and Restrictions shall not prohibit the replacement of turf with less water intensive plant species.

B. This chapter shall not apply to:

1. Any project with a total landscaped area less than 2,500 square feet;

2. Registered federal, state, and/or local historical sites and/or structures;

3. Ecological restoration projects that do not require a permanent irrigation system; and

4. Botanical gardens and arboretums open to the public.

17.32.040 GENERAL PROVISIONS

A. Landscape plans and irrigation plans shall be drawn to the same scale.

B. All landscape plan approvals are subject to and dependent upon the applicant complying with all applicable City Ordinances, codes, regulations and adopted policies.

C. Should any provision of this chapter conflict with any other provisions already established by the City, the more water efficient provision shall apply.

D. If the water purveyor for a proposed project has adopted more restrictive water efficient landscaping requirements, all landscaping and irrigation plans submitted shall comply with the water purveyor's requirements. Said plans shall be accompanied by a written document from the water purveyor delineating the more restrictive requirements.

E. Landscape design shall facilitate the implementation of landscape maintenance practices which foster long-term water conservation. Said practices may include, but not be limited to, scheduling irrigation based on established industry standards, conducting water audits and establishing a water budget to limit the amount of water applied per landscape acre.

F. Landscaping for fuel modification zones shall be subject to standards required by the City's Fire Department.

G. Landscaping adjacent to the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) conservation areas shall avoid invasive species as listed in the MSHCP.

17.32.050 PROCEDURES

A. The submittal, review, revision and approval of all required landscape and irrigation plans shall be in compliance with already established City procedures for land use entitlements. The requirements of this chapter shall be submitted jointly along with the required applications, plans and fees required for land use entitlement as required by the Director of Planning and on file in the Planning Department.

B. The landscape plan package shall include: construction landscape plans, irrigation plans, agronomic soils report, water budget, irrigation schedule, and maintenance schedule.

C. An Agronomic Soil Report is required on all projects for appropriate specifications of soil amendments, and to facilitate selection of water efficient plant species suitable for the site. A soil analysis shall be conducted for the site from reasonable soil samples of the site. The Soil Report shall describe the soil type, pH, soluble salts, infiltration rate, limiting soil characteristics, and recommended soil amendments needed to remediate limiting soil characteristics.

D. A construction cost estimate is required with all construction landscape plans.

E. A landscape maintenance schedule is required with all landscape plans as identified in Section 17.32.110.

F. Landscaping plans shall be prepared using the Water Budget Formula described in the Appendix A to Chapter 17.32. In addition, landscaping plans shall provide a water budget which includes estimated annual water use (in hundred cubic feet per year (ccf/yr)) and the area (in square feet) to be irrigated; and precipitation rates for each valve circuit. The Planning Director or designee shall approve all landscaping plans.

G. Prior to the issuance of a building permit for a project, subject to this Chapter, or as otherwise specified in the conditions of approval for a project, planting and irrigation plans prepared for the project shall be submitted for review and approval by the Planning Director.

H. Prior to the issuance of a certificate of use and occupancy, an applicant shall submit a letter of completion, subject to field verification by the planning director or his or her designee. Said letter of completion shall be prepared by the landscape architect and shall indicate that all plant materials and irrigation system components have been installed in accordance with the approved final landscape and irrigation plans. If a certificate of use and occupancy is not required for the project, such letter of completion shall be submitted prior to scheduling for the final inspection. The letter of completion shall be signed and certified by a licensed landscape architect and shall indicate:

1. Date;

2. Project information:

   a. Project name;

   b. Project applicant name, mailing address, telephone number;

   c. Project address;

   d. Property owner name and mailing address.

3. A field inspection of the irrigation system was completed prior to backfilling (evidence of field inspection shall be attached);

4. The landscaping has been installed in conformance with the approved planting and irrigation plans;

5. Irrigation audit report performed by a certified irrigation auditor after project installation (audit report shall be attached);

6. The irrigation controller has been set according to the irrigation schedule;

7. The irrigation system has been adjusted to maximize irrigation efficiency and eliminate overspray and runoff; and

8. A copy of the irrigation and maintenance schedule has been given to the property owner, local water purveyor, and the Planning Director.

I. All landscape irrigation audits shall comply with the "Irrigation Association Certified Landscape Irrigation Auditor Training Manual (2004 or most current) and shall be conducted by a certified landscape irrigation auditor.

J. The Planning Director or his/her designee shall have the right to enter upon the project site at any time before, during and after installation of the landscaping to conduct inspections for the purposes of enforcing this Chapter.

17.32.060 LANDSCAPE DESIGN REQUIREMENTS

The design and installation of all proposed landscape improvements subject to this section shall comply with the following provisions:

A. The Landscape plan shall be prepared by a Landscape Architect licensed by the State of California.

B. All landscaping plans shall comply with the City of Temecula Citywide Design Guidelines.

C. All landscaped areas shall be irrigated with an automatic irrigation system as

required in this Chapter.

D. Water Quality Management Plan Best Management Practices (if applicable) that affect the landscaping shall be identified on the detailed construction landscape plans.

E. Landscape design shall provide for the functional aspects of landscaping such as grading, drainage, minimal runoff, erosion prevention, wind barriers, provisions for shade and reduction of glare, and outdoor activities.

F. Landscape design shall provide for the retention of existing mature landscaping that is in good, healthful condition, by incorporating such landscaping into the landscape plan. The protection, preservation and enhancement of native species and natural areas are required where feasible.

G. Landscape design shall provide for the grouping of plants in regard to their water, soil, sun and shade requirements and in relationship to the buildings, so as to facilitate appropriate and efficient water applications. Plants with different water needs shall be irrigated separately.

H. Protective tree grates shall be provided for trees planted in pedestrian areas.

I. Root barriers shall be placed where trees are planted within five feet of any hardscape element or building.

J. Turf shall be limited to only those areas designated for active recreational use.

K. Turf shall not be planted in areas that are less than eight feet in width.

L. Turf is not permitted on bermed areas or on slopes greater than 25 percent due to the problem of water runoff.

M. A shallow swale shall be designed at the toe of all berms which are adjacent to sidewalks or other impervious/impervious hardscape surfaces to "catch" any runoff. This will help prevent weathering of pavement. If overhead spray irrigation is used for bermed areas, sprinkler heads shall be placed at the toe of the berm, so as to water from the bottom up.

N. A minimum three-inch layer of mulching shall be installed and maintained over all non-turf areas. In areas with groundcover planted from flats, the mulch depth shall be no less than one and one-half inches. The mulching should be in the form of shredded bark, bark chips of varying sizes, or other similar materials. The size and type of mulch used should allow for moisture to pass through the surface, thus providing permeability and reduced erosion, particularly on slopes. Nonporous material shall not be placed under mulch.

O. Stabilizing mulching products shall be used on slopes.

P. If the area proposed for development is improved and is not scheduled for

development within six months of the completion of the previous phase, it shall be temporarily landscaped and irrigated for dust and soil erosion control, and shall not be counted toward meeting the landscaped area requirements of the zoning district.

Q. Enhanced hardscape features that include public art, sculpture and/or water features may be counted as part of the required landscaping as long as they are designed and integrated in a manner that accentuates the landscaping.

R. Decorative water features. The surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation and shall use recirculating water systems. Where available, recycled water shall be used for decorative water features.

S. Permeable surfaces shall be used wherever permissible in place of impervious paving, to encourage on-site water infiltration and support water conservation measures.

T. The landscape plan, at a minimum, shall include:

1. Property lines, streets, and street names;

2. Building locations, driveways, sidewalks, retaining wall, and other pervious or non-pervious hardscape features;

3. Special landscape areas;

4. Identify areas irrigated with recycled water;

5. Identify type of mulch and application depth;

6. Identify soil amendments, type and quantity;

7. Identify type and surface area of water features;

8. Type and installation detail of any stormwater best management practices;

9. A legend indicating all plant species by botanical name and common name, spacing, and quantities of each typed of plant by container size;

10. Delineate and label each hydrozone, and identify each hydrozone as low, moderate, or high water use; and

11. Identify area, in square feet devoted to landscaping and a breakdown of the total areas by landscape hydrozone.

U. Maximum Applied Water Allowance.

1. The Landscape Plan shall be prepared using the following water budget formula:

MAWA (in gallons) = (ETo)(0.62)(0.7 x LA+0.3 x SLA)

ETo is reference evapotranspiration
SLA is the amount of special landscape area in square feet
LA is total landscape area (including the SLA) in square feet.

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

V. Estimated Annual Water Use (EAWU).

1. EAWU for a given hyrdozone is calculated as follows:

EAWU (in gallons) = (ETo)(0.62)[((PF x HA)/IE) + SLA]

ET_0 is reference evapotranspiration
PF is Plant Factor
HA is hydrozone area in square feet
IE is irrigation efficiency (minimum 0.71)
SLA is the amount of special landscape area is square feet.

2. Landscaping plans shall provide EAWU (in the same units as the MAWA) for each valve circuit in the irrigation hydrozone. The sum of all EAWU calculations shall not exceed the MAWA for the project.

3. The plant factor used shall be from WUCOLS. The plant factor for low water use plants range from 0 to 0.3, for moderate water use plants range from 0.4 to 0.6, and for high water use plants range from 0.7 to 1.0.

4. The plant factor calculation is based on the proportions of the respective plant water uses and their plant factor, or the plant factor of the higher water using plant is used.

17.32.070 IRRIGATION SYSTEM DESIGN REQUIREMENTS

All irrigation systems shall be designed, constructed, managed, and maintained to achieve the highest overall efficiency possible. Efficiency is measured by the amount of water beneficially used to sustain plant life divided by the amount of water applied. Efficiency is affected by the attributes of the controller, method of irrigation, irrigation equipment, proper hydrozoning, site topography, condition and size of plants, and weather conditions.

The design and installation of all irrigation improvements shall be in compliance with the following provisions:

A. The irrigation plan shall incorporate appropriate irrigation equipment, drip irrigation, bubbler, spray head, and/or rotor irrigation heads in order to provide the most efficient irrigation system. Irrigation systems shall be designed and maintained to meet or exceed an average irrigation efficiency of 0.71.

B. A manual shut-off 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 or routine repair.

C. The irrigation plan shall be prepared at the same scale as the construction landscape plan and, at a minimum, shall identify the following:

1. Location and size of service lateral(s);

2. Location and size of water meter(s);

3. Point of connection (POC) location and static pressure at POC. Each point of connection shall indicate the size of the water meter, the static pressure available, and the maximum flow of the irrigation system;

4. Manufacturer's name, model number, total flow rate (gallons per minute), designed operating pressure (psi), and precipitation rate for each overhead spray and bubbler circuit, and total flow rate (gallons per hour) and design operating pressure (psi) for each drip and low volume irrigation circuit;

5. Location, size, and type of all irrigation components including, but not limited to smart controller, central controller, master valve, flow sensor, backflow prevention device, ball valves, anti-drain check valves, pressure supply (main) line, lateral lines, pipe sizing, valves, spray heads, rotors, drip, low volume irrigation equipment, gallons per minute, pressure regulators, and pumps;

6. Hydraulic calculation worksheet including flow rate (gallons per minute), design operating pressure, and pressure loss for valve with "worse condition;"

7. Precipitation rate (inches per hour) for each spray type circuit;

8. Irrigation legend to include all irrigation equipment used on the project;

9. Location and identification of each hydrozone;

10. A hydrozone information table for each hydrozone;

11. Topographic elevation lines to determine slope;

12. Proximity to existing or planned recycled/non potable water lines;

13. Irrigation system details for assembly and installation; and

14. Calculation for the project's landscape Water Budget Formula (see Appendix A to Chapter 17.32).

D. Separate landscape water meters shall be installed for non single-family residential landscaping with a landscaped area greater than 5,000 square feet.

E. All non single-family landscaped areas must be serviced by a "smart irrigation controller" which automatically adjusts to the frequency and/or duration of irrigation events in response to changing weather conditions. Smart irrigation controllers shall have the following attributes:

1. Real-time, weather based program adjustment capability;

2. Project must have an on-site weather station or external ETo input;

3. Rain sensors shall be placed within an unobstructed natural rainfall area and shall be located above the irrigation spray pattern;

4. Master valve (or simultaneous operations) for landscaped areas greater than 12,000 square feet;

5. Flow sensor;

6. Multiple start times; and

7. Multiple programs.

F. Residential front yard typical Irrigation plans must demonstrate that sufficient capacity exists on the specified irrigation controller to supply adequate additional zones for future side and backyard landscaping. More than one controller per residential unit shall be avoided.

G. With the exception of single-family residential units, all irrigation plans shall be designed for use of non potable water in all areas scheduled for non potable water in the future. Provisions for the conversion to a nonpotable water system shall be provided within the landscape plan should there be the possibility for future nonpotable water availability. Water systems designed to utilize nonpotable water shall be designed to meet all applicable standards of the City of Temecula, the California Regional Water Quality Control Board, State Department of Health Services, the Riverside County Health Department and the local reclaimed water purveyor.

H. Non single-family residential landscaping greater than one acre in size shall include a central controller programmed to distinguish irregular flows (e.g. broken valve, line, spray head, etc.). The central controller shall temporarily shut off the affected branch or the entire system, and send an immediate electronic message to the maintenance entity.

I. Separate valves shall be provided for separate water use planting areas, so that plants with similar water needs are irrigated by the same irrigation valve. Drip irrigation techniques or similar high-efficiency irrigation type shall be provided where appropriate (i.e., shrubs, massing in-mulched areas) in instances where spray irrigation is not necessary.

J. Irrigation systems shall be zoned according to plant water use, slope aspect, and sun/shade microclimate. If low water use plants (that can also survive/flourish with medium water application) are used within a medium water use hydrozone, they must be counted as medium water use in the irrigation calculations.

K. The capacity of the irrigation systems shall not exceed:

1. The capacity required for peak water demand based on water budget calculations;

2. Meter capacity; and

3. Backflow preventer type and device capacity.

L. The use of head check valves shall be included in irrigation systems as applicable.

M. Pressure regulation shall be incorporated into all irrigation systems to prevent excessive pressure at sprinkler heads.

N. Low head drainage is not permitted.

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

P. Bermed areas should be irrigated with drip line irrigation. If overhead irrigation is necessary for bermed areas, then sprinkler heads shall be placed at the toe of the berm.

Q. Overhead spray systems shall not be used in landscape areas narrower than eight feet in width.

R. Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface, unless the landscaped area is adjacent to a permeable surface and no overspray or run-off occurs.

S. Overhead irrigation shall be limited to the hours of 8 p.m. and 9 a.m.

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

U. Rotors and spray heads shall be designed and installed with no overspray onto non-permeable surfaces, structures, and non-vegetated areas. Head-to-head coverage with matched precipitation heads is shall be required, unless otherwise directed by the manufacturer. Rotors and spray heads shall be zoned separately. Half rotors and full rotors shall be zoned separately unless matched precipitation nozzles are used.

V. High efficiency irrigation methods (e.g. drip, MP rotators, and microsprays) are required for appropriate applications.

W. Point-to point drip systems shall utilize Schedule 40 PVC lateral lines. The lateral lines shall either be placed on-grade and secured with pipe anchors at a minimum 10 feet on center, or buried one foot below grade.

X. For drip line installations, in-line pressure regulators shall be used per factory recommendations for the specific irrigation products being used. If drip line is being installed, it must be filtered at the valve along with any other necessary equipment.

Y. The delivery tubing for point-to-point irrigation systems shall be no longer than three feet and attached to grade at minimum two foot intervals.

Z. Emitter line drip systems shall have the lines placed no more than 18 inches apart. The emitter lines adjacent to curbs or walks shall be placed at a maximum of nine inches from the curb or walk. Emitter lines shall be attached to grade at a minimum of five feet on-center. All plants shall be planted between two emitter lines.

AA. The finish grade for all on-grade drip systems shall be a minimum of three inches below adjacent curbs or walks. All drip systems shall receive a minimum of three inches of medium grind bark.

BB. All drip systems shall utilize the mature canopy size of the plant in determining the number of emitters to be placed at each plant. A schedule showing the varying amount of emitters shall be placed on the plans. The run-times shall be shown in the irrigation schedules.

CC. The maximum square feet of any drip valve shall be 2,500 square feet.

DD. A drip system shall extend no more than any two sides of any building (north/east, and south/west, by exposure).

EE. All drip systems shall have a brass/bronze line-sized basket strainer placed at the point of connection.

FF. Systems shall be scheduled so that the irrigation precipitation rate does not exceed the infiltration rate of the soil.

GG. A baseline irrigation schedule shall be provided on the plans for the six-month initial plant establishment period. The contractor shall adjust the schedule to meet site specific requirements and use the baseline schedule to set the weather based controller. The schedule currently in effect shall be posted in the controller.

HH. A second baseline irrigation schedule shall be provided on the plans which incorporate the specific water needs of the plants throughout the post-establishment calendar year. The contractor shall adjust the schedule to meet site specific requirements and use the baseline schedule to set the weather based controller. The schedule currently in effect shall be posted in the controller.

II. The irrigation schedules shall include the recommended irrigation days per week, number of cycles per day, minutes of run times per cycle, and estimated amount of applied irrigation water, expressed in gallons per month and gallons per year.

JJ. The controller shall be operational and set to real-time weather prior to the completion of the 90-day maintenance period of the installing contractor.

KK. After establishment of the plant materials, the irrigation of landscaped areas shall be limited to the hours between dusk and early morning in order to provide maximum benefit to the plant material and to reduce unnecessary water loss through wind drift and evaporation. Drip irrigation systems are exempt from this provision.

17.32.080 GRADING PLAN REQUIREMENTS (if applicable)

A. A grading design plan may be required and shall include rough/precise grade elevations prepared for the project by a licensed civil engineer.

17.32.090 RESIDENTIAL REQUIREMENTS

A. Single-Family Residential Requirements.

1. The planting plans shall incorporate the use of compatible species of drought-tolerant/water-efficient plants to reduce water demand. A variety of plantings and hardscape should be selected and provided appropriately for their intended use. Special attention shall be given to selecting appropriate trees and plants that, at their maturity, will be in scale with the house and yard. Landscaping shall consist of plants found in the City of Temecula Plant List as identified in Appendix B to Chapter 17.32.

2. Landscape designs shall consider such factors as the function of the landscape elements, consistency with the building and its architectural design, compatibility to the area, special design features, berming, use of hardscape or nonorganic materials, and drought-tolerant plant materials for water conservation.

3. Existing mature trees and shrubs that represent the existing significant landscaping elements shall be preserved.

4. Street trees shall be planted along all streets in residential areas. On any street, at least one street tree shall be provided at the front of each residential lot. In the street side yard, slope, and similar areas, at least one street tree per 45 linear feet of street shall also be provided.

5. Front yard landscaping shall be provided in all residential zoning districts. In addition to the street tree requirement, front yard landscaping shall include, at a minimum, one 15-gallon size tree per lot, one 5-gallon size tree per lot, and a variety of drought tolerant shrubs and ground-cover. Shrubs shall be a minimum five gallons at the time of planting. Turf areas shall be used sparingly in response to functional needs only and shall be in compliance with the Water Budget Formula (Appendix A to Chapter 17.32).

6. Slope banks five feet or greater in vertical height with slopes between 5:1 and 2:1 shall, at a minimum, be irrigated and landscaped with a combination of appropriate shrubs, vegetative ground cover, and mulch that will absorb rainwater and reduce runoff for erosion control. If drip irrigation is used on slopes, a fertilizer injector system shall also be used.

a. Slope banks five feet or greater in vertical height with slopes greater than or equal to 3:1 shall, at a minimum, be landscaped to soften their appearance as follows:

i. One 15-gallon or larger tree per each 600 square feet of slope area;

ii. One gallon or larger shrub for each 100 square feet of slope area; and

iii. Appropriate vegetative ground cover or mulch.

iv. In addition to the above requirements, slope banks in excess of eight feet in vertical height with slopes greater or equal to 2:1 shall also provide one 5-gallon or larger tree per each 1,000 square feet of slope area.

7. All trees and shrubs shall be planted in staggered clusters to soften and vary the slope plane.

8. Trees and shrubs shall be planted in a manner that at maturity they do not interfere with utility lines, sight lines for traffic safety, encroach on adjacent property, or create barriers to the solar access rights of adjoining property owners.

9. Residential front yard typical Irrigation plans must demonstrate that sufficient capacity exists on the specified irrigation controller to supply adequate additional zones for future side and backyard landscaping. More than one controller per residential unit shall be avoided.

10. The project applicant shall provide home buyers with educational information regarding the design, installation and maintenance of water efficient landscape and irrigation landscapes as approved by the Director of Planning or water purveyor, upon the sale of each dwelling unit within the project. The plans shall include a key identifying the common names of the plants used in the landscaping.

B. Residential Model Homes Requirements.

1. All model homes in residential subdivisions shall comply with provisions of this chapter.

2. The project applicant shall distribute outdoor water conservation pamphlets provided by local water purveyors, if available, to buyers upon the sale of each dwelling unit within the development.

3. A sign shall be displayed in the front yard of each model home which is clearly visible to home buyers. The sign shall indicate that the model home features water efficient landscape, hydrozones, and irrigation equipment which contributes to overall water efficiency.

C. Multi-Family Residential Requirements

1. The planting plans shall incorporate the use of compatible species of drought-tolerant/water efficient plants to reduce water demand. A variety of plantings and hardscape should be selected and provided appropriately for their intended use. Special attention shall be given to selecting appropriate trees and plants that, at their maturity, will be in scale with the house and yard. Landscaping shall consist of plants found in the City of Temecula Plant List (Appendix B to Chapter 17.32).

2. Landscape designs shall consider such factors as the function of the landscape elements, consistency with the building and its architectural design, compatibility to the area, special design features, berming, use of hardscape or nonorganic materials, and drought-tolerant plant materials for water conservation.

3. To the extent feasible, existing mature trees and shrubs that represent the existing significant landscaping elements shall be preserved.

4. Parking areas shall comply with the standards as set forth by Chapter 17.24 of the Development Code.

5. All setback areas shall be landscaped, including interior courts, open space areas, and boundary areas that are not covered with buildings, pavement, or other hardscape surface.

6. Turf areas shall be used for functional needs only and shall be in compliance with the Water Budget Formula (Appendix A to Chapter 17.32).

17.32.100 COMMERCIAL/OFFICE/INDUSTRIAL/PUBLIC INSTITUTIONAL REQUIREMENTS

A. The planting plans shall incorporate the use of drought-tolerant/water efficient plants to reduce water demand. A variety of plantings and hardscape should be selected and provided appropriately for their intended use. Special attention shall be given to selecting appropriate trees and plants that, at their maturity, will be in scale with the house and yard. Landscaping shall consist of plants found in the City of Temecula Plant List as identified in Appendix B to Chapter 17.32.

B. Landscape designs shall consider such factors as the function of the landscape elements, consistency with the building and its architectural design, compatibility to the area, special design features, berming, use of hardscape or nonorganic materials, and drought-tolerant plant materials for water conservation.

C. To the extent feasible, existing mature trees and shrubs that represent the existing significant landscaping elements shall be preserved.

D. All development projects shall also comply with the City of Temecula Citywide Design Guidelines.

E. Street trees shall be planted at a minimum of one tree per 30 linear feet of street frontage. Trees shall be a minimum 15-gallon size at the time of planting. Shrubs shall be a minimum of five gallons at the time of planting.

F. Setback areas that are not used for vehicular and pedestrian access shall be landscaped. In addition, all interior courts open space areas and boundary areas that are not covered with buildings, pavement, or other hardscape surface shall be landscaped.

G. Landscape designs shall consider such factors as the function of the landscape elements, consistency with the building and its architectural design, compatibility to the area, special design features, berming, use of hardscape or nonorganic materials, drought-tolerant plant materials for water conservation, and utilize planting (i.e., combination of shrubs, trees and climbing vines) to break up large building masses and perimeter walls and fencing.

H. The use or combination of berming, landscape materials, low level walls and structures, shall be used to screen parking areas, loading areas, trash enclosures, and utilities from public view.

I. Parking areas shall comply with the standards as set forth by Chapter 17.24 of the Temecula Municipal Code.

J. Slope banks five feet or greater in vertical height with slopes between 5:1 and 2:1 shall, at a minimum, be irrigated and landscaped with a combination of appropriate shrubs, vegetative ground cover, and mulch that will absorb rainwater and reduce runoff for erosion control. All trees and shrubs shall be planted in staggered clusters to soften and vary the slope plane. If drip irrigation is used on slopes, a fertilizer injector system shall also be used.

1. Slope banks five feet or greater in vertical height with slopes greater than or equal to 3:1 shall, at a minimum, be irrigated and landscaped with a combination of appropriate shrubs, vegetative ground cover, and/or mulch that will absorb rainwater and reduce runoff for erosion control, and to soften their appearance as follows:

a. One 15-gallon or larger tree per each 600 square feet of slope area;

b. One gallon or larger shrub for each 100 square feet of slope area; and

c. Appropriate vegetative ground cover or mulch that will absorb rainwater and reduce runoff.

2. In addition to the requirements above, slope banks in excess of ten feet in vertical height with slopes greater or equal to 2:1 shall also provide on five-gallon or larger tree per each 1,000 square feet of slope area.

K. Where trees are planted in pedestrian areas, a protective tree grate shall be provided.

L. Trees and shrubs shall be planted so that they do not interfere with utilities, light standards, sight lines for traffic safety, encroach on adjacent property, or obstruct to the solar access rights of adjoining property owners.

17.32.110 OPEN SPACE/RECREATION/CONSERVATION ZONING DISTRICTS REQUIREMENTS

A. A minimum of 80 percent of the net lot area shall be open space and unencumbered with buildings. Open space may include walkways and recreation areas.

B. A minimum of 50 percent of the net lot area shall be covered with a drought-tolerant landscaping.

C. A minimum of one drought tolerant shade tree shall be provided for every 1,000 square feet of net area.

D. Turf areas shall be used for functional needs only and shall be in compliance with the Water Budget Formula (Appendix A to Chapter 17.32).

E. Any remaining areas which are not otherwise landscaped or surfaced for a specific recreational activity shall be covered with drought-resistant vegetation, decorative hardscape.

F. Pervious hardscape shall be used where feasible.

G. Vehicular access ways shall be paved.

17.32.120 MAINTENANCE AND ENFORCEMENT

A. Landscapes shall be maintained to ensure water efficiency. Landscape maintenance shall include, but not be limited to routine inspection, adjusting and repair of the irrigation system and its components, resetting irrigation controllers, aerating and dethatching turf areas, replenishing mulch, fertilizing, pruning, weeding, clearing of debris, monitoring for pests and disease, the removal and timely replacement of dead plants, and repair and timely replacement integrated architectural features.

B. A 90-day maintenance period is required of the installing contractor immediately following approval of the final landscape inspection.

C. An annual landscape maintenance schedule shall be prepared and provided to the property owner and Planning Director. The maintenance schedule shall identify plant types (turf, shrubs, groundcover, trees, etc.), mulch and/or inorganic ground cover, and shall indicate the frequency of pruning and fertilizer applications by plant type and the replenishment of mulch.

D. Repair of irrigation equipment shall be done with originally specified materials or their equivalent.

E. The City will rely on water purveyors to enforce landscape water use efficiency requirements. The City shall coordinate with local water purveyors and indentify programs that enhance and encourage landscape water use efficiency such as:

1. Tiered water rate structure;

2. Allocation-based conservation water pricing structure;

3. A rate structure at least as effective as the above options;

4. Irrigation audits and/or irrigation surveys; or

5. Penalties for water waste.

F. New or rehabilitated landscape areas shall be subject to a landscape audit. The landscape audit shall include inspection of plant materials and irrigation systems in accordance with the State of California Landscape Water Management Program as described in the Landscape Irrigation Auditors Handbook, the entire document, which is hereby incorporated by reference.

G. Landscape audits will be coordinated with the water purveyor and shall be conducted by a certified Landscape Irrigation Auditor."

Section 5. Severability. If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance, or its application to any person or circumstance, is for any reason held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases of this Ordinance, or its application to any other person or circumstance. The City Council of the City of Temecula hereby declares that it would have adopted each section, subsection, subdivision, paragraph, sentence, clause or phrase hereof, irrespective of the fact that any one or more other sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases hereof be declared invalid or unenforceable.

Section 6. Notice of Adoption. The City Clerk of the City of Temecula shall certify to the passage and adoption of this Ordinance including Appendices A and B and shall cause the same or a summary thereof to be published and posted in the manner required by law.

PASSED, APPROVED, AND ADOPTED by the City Council of the City of Temecula this 12th day of January, 2010.

Jeff Comerchero, Mayor

ATTEST:

Susan W. Jones, MMC
City Clerk

[SEAL]

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss
CITY OF TEMECULA)

I, Susan W. Jones, MMC, City Clerk of the City of Temecula, do hereby certify that the foregoing Ordinance No. 09-08 was duly introduced and placed upon its first reading at a meeting of the City Council of the City of Temecula on the 8th day of December, 2009, and that thereafter, said Ordinance was duly adopted by the City Council of the City of Temecula at a meeting thereof held on the 12th day of January, 2010, by the following vote:

AYES:	5	COUNCIL MEMBERS:	Edwards, Naggar, Roberts, Washington, Comerchero
NOES:	0	COUNCIL MEMBERS:	None
ABSENT:	0	COUNCIL MEMBERS:	None
ABSTAIN:	0	COUNCIL MEMBERS:	None

Susan W. Jones, MMC
City Clerk

Appendix A

City of Temecula Water Budget Formula

WORKSHEET - (Insert Project Name)

(For projects with more than 1 hydrozone)

1 Maximum Annual Water Allowance (MAWA)

INPUT the total square footage of landscape = 0 S.F.

INPUT the Hist. ETo for the area =

MAWA = 0 ccf / yr

2 Estimated Annual Water Use (EAWU)

Hydrozone # 1 INPUT Plant Factor = 0.8 *(Turf)*

INPUT square footage of hydrozone = 0

INPUT hydrozone irrigation efficiency = 0

EAWU = ccf / yr

Hydrozone # 2 INPUT Plant Factor = 0.8 *(High)*

INPUT square footage of hydrozone = 0

INPUT hydrozone irrigation efficiency = 0

EAWU = ccf / yr

Hydrozone # 3 INPUT Plant Factor = 0.5 *(Med)*

INPUT square footage of hydrozone = 0

INPUT hydrozone irrigation efficiency = 0

EAWU = ccf / yr

Hydrozone # 4 INPUT Plant Factor = 0.2 *(Low)*

INPUT square footage of hydrozone = 0

INPUT hydrozone irrigation efficiency = 0

EAWU = ccf / yr

Hydrozone # 5 INPUT Plant Factor = 0.1 *(Very Low)*

INPUT square footage of hydrozone = 0

INPUT hydrozone irrigation efficiency = 0

EAWU = ccf / yr

Total EAWU = ccf / yr

MAWA - EAWU = 0 ccf / yr

(this number must be positive)

INSTRUCTIONS FOR COMPLETING WATER BUDGET FORMULA

1. To find Maximum Allowable Water Allowance (MAWA)

STEP 1. Calculate the total square footage of the landscape area and insert that number into Space A (Round the number to the nearest hundred).

STEP 2. Insert the Reference Evapotranspiration (ETo) in Space B from Chart 1.

STEP 3. Multiply A x .62 x B x .7, put the answer in Space C and divide by 748. This gives the MAWA in hundreds of cubic feet (ccf) (Space D).

Maximum Allowable Water Allowance (MAWA)

MAWA = A x 0.62 x B x 0.70 / 748

Input the total square footage of landscape = [A] x 0.62

Input the Historical ETo for the area = [B] x 0.70

MAWA = [C] gal/yr / 748

MAWA = [D] ccf

2. To Find Estimate Annual Water Use (EAWU) for each hydrozone

STEP 1. Find plant factor (Chart 2) for the hydrozone, using the highest plant factor per hydrozone. If a medium plant factor and a low plant factor are in the same hydrozone, the factor is medium. Place that number in Space E.

STEP 2. Calculate the square footage for the hydrozone (round to the nearest hundred) and put the number in Space F. Next, insert the hydrozone irrigation efficiency factor (IF) from Chart 3 into Space G.

STEP 3. Multiply ETo (Chart 1) x E x F x 0.62, then divide the number by (G x 748). This gives the EAWU number for Space H.

STEP 4. Repeat steps 1 - 3 for each hydrozone.

STEP 5. Add up the EAWU (Space H) for each hydrozone to calculate Total EAWU (Space I).

Estimated Annual Water Use (EAWU)

EAWU = ETo x E x F x 0.62 / (G x 748)

Hydrozone #1

Input Plant Factor = [E] x ETo

Input square footage of hydrozone = [F] x 0.62

Input hydrozone irrigation efficiency = [G]

Hydrozone #1 EAWU = [H] ccf/yr

Add each hydrozone H + H + H + H + H = I

Total EAWU = [I]

3. To Find the Total Water Allowance

STEP 1. To calculate the Total Water Allowance (Space J), Subtract the Total EAWU (Space I) from MAWA (Space D)

Total Water Allowance

MAWA - EAWU = [J] ccf/yr
(this number must be positive)

Chart 1

CIMIS Station	Location	ETo
62	Temecula	66.14
130	Temecula East	49.54

Chart 2

Plant Category	Plant Factor
High	0.7 - 1.0
Medium	0.4 - 0.6
Low	0.0 - 0.3

Chart 3

Application Method	IE Factor
Drip	0.9
Bubblers	0.85
MP Rotors	0.75
Rotors	0.75
Microsprays	0.7
Spray Heads	0.7

APPENDIX B, City of Temecula Development Code, 17.32, PLANT LIST, (by water use type)

Botanical name	Common name	Type	Kc	Kc	Height Feet	Spread Feet	Riv.Co. Native	Comments
Arctostaphylos	emerald carpet	GC	0.2	L	1	5		
Acacia redolens	prostrate acacia	GC	0.2	L	2	12		
Baccharis pilularis cvs.	dwarf coyote brush	GC	0.2	L	2	8		
Baccharis 'Centennial'	bentennial baccharis	GC	0.2	L	2	5		
Lantana montevidensis	lantana	GC	0.2	L	1	5		
Maleophora crocea	ice plant (Maleophora)	GC	0.2	L	0.5	2		
Myoporum parvifolium	myoprum	GC	0.2	L	0.5	8		
Rosemarinus 'Prostratus'	trailing rosemary	GC	0.2	L	2	6		
Teucrium chamaedrys	germander	GC	0.2	L	1	2		
Abelia grandiflora prostrata	prostrate glossy abelia	GC	0.5	M	2	3		
Arctotheca calendula	cape weed	GC	0.5	M	1	5		
Berberis spp.	barberry	GC	0.5	M	1	6		
Cerastium tomentosum	snow in summer	GC	0.5	M	0.5	3		
Ceratostigma pumbaginoides	dwarf plumbago	GC	0.5	M	1	4		
Cotoneaster spp.(ground covers)	cotoneaster	GC	0.5	M	1	5		
Fragaria chiloensis	wild strawberry	GC	0.5	M	0.5	1		
Gazania spp.	gazania	GC	0.5	M	0.5	2		
Geranium incanum	cranesbill	GC	0.5	M	0.5	2		
Hypericum calycinum	Aaron's beard	GC	0.5	M	1	3		
Juniperus conferta	shore juniper	GC	0.5	M	1	6		
Lirope spicata	creeping lily turf	GC	0.5	M	1	3		
Lotus corniculatus	birdsfoot trefoil	GC	0.5	M	1	3		
Mahonia repens	creeping mahonia	GC	0.5	M	2	3		
Muehlenbeckia axillaris	creepng wire vine	GC	0.5	M	1	3		
Myoporum X 'Pacificum'	pacifica saltbush	GC	0.5	M	2	15		
Myoporum 'South Coast'	south coast myoprum	GC	0.5	M	2	10		
Parthenocissus quinquefolia	Virginia creeper	GC	0.5	M	1	5		
Pelargonium peltatum	ivy geranium	GC	0.5	M	2	4		
Potentilla verna	spring cinquefoil	GC	0.5	M	1	3		
Senecio mandraliscae	kleinia	GC	0.5	M	1	3		
Thymus pseudolanuginosus	wolly thyme	GC	0.5	M	1	1		
Thymus serphyllum	creeping thyme	GC	0.5	M	1	1		
Trachelospermum asiaticum	Asian star jasmine	GC	0.5	M	1	3		
Trifolium fragiferum O'Connor	O'Connor's legume	GC	0.5	M	1	6		
Verbena rigida	vervian	GC	0.5	M	1	4		
Zoyzia tenuifolia	Mascarene grass	GC	0.5	M	0.5	2		
Ophiopogan japonicum	mondo grass	GC	0.8	H	1	1		
Lotus scoparius	deer weed	P	0.1	VL	2	2	X	
Nolina parryi	bear grass	P	0.1	VL	6	3	X	
Achillea millefolium	common yarrow	P	0.2	L	3	3		
Achillea tomentosa	woolly yarrow	P	0.2	L	0.5	3		
Artemisia absinthium	wormwood	P	0.2	L	3	3		
Baileya multiradiata	desert marigold	P	0.2	L	1	1.5		
Coreopsis auriculata'Nana'	dwarf coreopsis	P	0.2	L	0.5	2		
Coreopsis lanceolata	coreopsis	P	0.2	L	1.5	2		
Deschampsia caespitosa	tufted hairgrass	P	0.2	L	1.5	1		
Dymondia margaretae	dymondia	P	0.2	L	0.5	2		
Elymus spp.	wild rye	P	0.2	L	2	2		
Encelia californica	California encelia	P	0.2	L	4	4	X	
Epilobium spp.(Zauchneria)	California fuchsia	P	0.2	L	3	3		
Kniphofia uvaria	red hot poker	P	0.2	L	2	3		
Narcissus spp.	daffodil	P	0.2	L	2	1		
Pennisetum alopecuroides	Chinese pennisetum	P	0.2	L	3	3		
Pennisetum setaceum'Cupreum'	purple fountain grass	P	0.2	L	4	4		
Stipa pulchra	feather grass	P	0.2	L	1.5	1.5		
Stipa tenuissima	feather grass	P	0.2	L	1.5	1.5		
Agapanthus africanus	lily-of-the-nile	P	0.5	M	1.5	1.5		
Anigozanthos flavidus	kangaroo paw	P	0.5	M	2	2		
Armeria maritima	sea pink	P	0.5	M	0.5	1		
Asparagus spp.	ornamental asparagus	P	0.5	M	1	3		
Calamagrostis spp.	feather reed	P	0.5	M	2	2		

APPENDIX B, City of Temecula Development Code, 17.32, PLANT LIST, (by water use type)

Botanical name	Common name	Type	Kc	Kc	Height Feet	Spread Feet	Riv.Co. Native	Comments
Carex comans	sedge	P	0.5	M	1	3		
Centaurea cineraria	dusty miller (cineraria)	P	0.5	M	2	2		
Chrysanthemum superbum	Shasta daisy	P	0.5	M	2	2		
Cuphea ignea	cigar plant	P	0.5	M	1	1		
Delphinium elatum	candle larkspur	P	0.5	M	3	2		
Dietes bicolor	fortnight lily	P	0.5	M	3	3		
Dietes iridiodes	fortnight lily	P	0.5	M	3	3		
Digitalis purpurea	foxglove	P	0.5	M	4	2		
Erigeron karvinskianus	fleabane	P	0.5	M	1.5	3		
Erodium chamaedryoides	cranesbill	P	0.5	M	0.5	1		
Erysimium linifolium	wallflower	P	0.5	M	2	2		
Festuca californica	California fescue	P	0.5	M	0.5	1		
Festuca ovina glauca	blue fescue	P	0.5	M	0.5	1		
Gaura lindheimer	gaura	P	0.5	M	3	3		
Geranium sanguinium	cranesbill	P	0.5	M	1	2		
Helictotrichon sempervirens	blue oat grass	P	0.5	M	2	2		
Hemerocallis spp.	day lily	P	0.5	M	1	2		
Heuchera sanguinea	coral bells	P	0.5	M	1	2		
Imperata cylindrica 'Rubra'	Japanese blood grass	P	0.5	M	1	2		
Iris spp.	Douglas iris hybrids	P	0.5	M	2	1		
Lilium asiatic	asian lily	P	0.5	M	2	1		
Linaria purpurea	toadflax	P	0.5	M	1.5	1		
Lirope muscari	big blue lily turf	P	0.5	M	1	1.5		
Miscanthus sinensis	eulalia grass	P	0.5	M	5	5		
Muhlenbergia dumosa	bamboo muhly	P	0.5	M	3	3		
Muhlenbergia rigens	deer grass	P	0.5	M	3	3	X	
Nepeta X faassenii	catmint	P	0.5	M	2	2		
Penstemon heterophyllus	penstemon	P	0.5	M	1	2	X	
Stachys bysantina	lamb's ears	P	0.5	M	1.5	1.5		
Tulbaghia fragrans	sweet garlic	P	0.5	M	1	1		
Tulbaghia violacea	society garlic	P	0.5	M	1	1		
Zantedeschia aethiopica	common calla	P	0.5	M	2	1		
Bergenia crassifolia	winter blooming bergenia	P	0.8	H	2	2		
Equisetum spp.	horsetail	P	0.8	H	4	2		Contain roots
Adenostoma fasciculatum	chamise	S	0.1	VL	10	10	X	
Adenostoma sparsifolium	red shanks/ribbonwood	S	0.1	VL	10	10	X	
Calliandra eriophylla	fairy duster	S	0.1	VL	3	4		
Cercocarpus minutiflorus	San Diego mountain mahogany	S	0.1	VL	6	10	X	
Fallugia paradoxa	Apache plume	S	0.1	VL	6	4		
Lobelia laxiflora	Mexican bush lobelia	S	0.1	VL	2	2		
Salvia apiana	white sage	S	0.1	VL	4	4	X	
Simmondsia chinensis	jojoba	S	0.1	VL	6	6	X	
Agave americana	century plant	S	0.2	L	5	5		
Arctostaphylos cultivars	manzanita cultivars	S	0.2	L	Varies	Varies		
Arctostaphylos spp.	manzanita	S	0.2	L	Varies	Varies	X	
Baccharis pilularis consan.	coyote brush	S	0.2	L	10	6	X	
Baccharis sarothroides	desert broom	S	0.2	L	10	6	X	
Buddleia marrubiifolia	woolly butterfly bush	S	0.2	L	5	5		
Caesalpinea gilliesii	desert bird of paradise	S	0.2	L	10	10		
Caesalpinea mexicana	Mexican bird of paradise	S	0.2	L	6	6		
Callistemon citrinus	bottle brush	S	0.2	L	12	10		
Convolvulus cneorum	bush morning glory	S	0.2	L	3	3		
Senna artemisioides	feathery cassia	S	0.2	L	5	5		
Senna eremophila	deset cassia	S	0.2	L	5	5		
Ceanothus spp.	California lilac	S	0.2	L	Varies	Varies	X	
Ceanothus cultivars	ceanothus	S	0.2	L	Varies	Varies		
Cereus peruvianus	Peruvian apple cactus	S	0.2	L	25	6		
Cistus spp.	rockrose	S	0.2	L	Varies	Varies		
Comarostaphylis diversifolia	summer holly	S	0.2	L	10	10	X	
Convolvulus cneorum	bush morning glory	S	0.2	L	3	3		
Dalea bicolor	dalea (bicolor)	S	0.2	L	3	3		
Dasylirion spp.	desert spoon	S	0.2	L	3	3		

APPENDIX B, City of Temecula Development Code, 17.32, PLANT LIST, (by water use type)

Botanical name	Common name	Type	Kc	Kc	Height Feet	Spread Feet	Riv.Co. Native	Comments
Dendromecon spp.	bush poppy	S	0.2	L	15	15		
Echium fastuosum	pride of madeira	S	0.2	L	5	5		
Elaeagnus pungens	silverberry	S	0.2	L	12	12		
Encelia farinosa	brittle bush	S	0.2	L	5	5	X	
Eriogonum spp.	buckwheat	S	0.2	L	3	4	X	
Euphorbia rigida	euphorbia (rigida)	S	0.2	L	2	3		
Euryops pectinatus	euryops/shrub daisy	S	0.2	L	5	3		
Forestiera neomexicana	desert oliva	S	0.2	L	6	6		
Fouquieria splendens	ocotillo	S	0.2	L	15	5	X	
Fremontodendron spp.	flannel bush	S	0.2	L	15	12	X	
Galvesia speciosa	island bush snapdragon	S	0.2	L	2	4	X	
Grevillea spp.	grevillea	S	0.2	L	4	4		
Hesperaloe parviflora	red/yelow yucca	S	0.2	L	3	3		
Heteromeles arbutifolia	toyon	S	0.2	L	8	8		
Ilex vomitoria	yaupon	S	0.2	L	6	6		
Keckiella antirhinnoides	yellow penstemmon	S	0.2	L	6	8	X	
Keckiella cordifolia	heart-leaved penstemmon	S	0.2	L	5	8	X	
Lantana camara	lantana	S	0.2	L	3	5		
Larrea tridentata	creosote bush	S	0.2	L	4	4		
Lavandula spp.	lavender	S	0.2	L	3	3		
Lavatera bicolor	tree mallow	S	0.2	L	6	4		
Leptospermum scoparium	New Zealand tea tree	S	0.2	L	6	6		
Leucophyllum frutescens	Texas ranger	S	0.2	L	6	6		
Mahonia nevinii	Nevin mahonia	S	0.2	L	4	6		
Malosma laurina (Rhus laurina)	laurel sumac	S	0.2	L	8	8		
Nerium oleander	oleander	S	0.2	L	10	10		
Rhamnus californica	coffeeberry	S	0.2	L	10	10	X	
Rhamnus crocea	redberry	S	0.2	L	3	5	X	
Rhus ovata	sugar bush	S	0.2	L	8	8	X	
Rosmarinus offficinalis	rosemary	S	0.2	L	5	5		
Ruellia brittoniana	mexican ruellia	S	0.2	L	3	2		Contain roots
Salvia chamaedroides	blue sage	S	0.2	L	1	4	X	
Salvia clevelandii	Cleveland sage	S	0.2	L	4	4		
Salvia gregii	autumn sage	S	0.2	L	4	4		
Salvia leucantha	Mexican bush sage	S	0.2	L	4	4		
Salvia leucophylla	purple sage	S	0.2	L	4	4		
Santolina spp.	lavender cotton	S	0.2	L	2	2		
Sollya heterophylla	Australian bluebell creeper	S	0.2	L	2	4		
Teucrium fruticans	bush germander	S	0.2	L	5	5		
Trichostema lanatum	woolly blue curls	S	0.2	L	4	4	X	
Westringia fruticosa	coast rosemary	S	0.2	L	5	5		
Yucca filamentosa	Adam's needle	S	0.2	L	2	5		
Yucca whipplei.	our Lord's candle	S	0.2	L	3	3	X	
Abelia'Edward Goucher'	pink abelia	S	0.5	M	4	4		
Abelia X grandiflora	glossy abelia	S	0.5	M	5	5		
Abelia 'Sherwoodii'	Sherwood dwarf abelia	S	0.5	M	3	4		
Aspidistra elatior	cast iron plant	S	0.5	M	2	2		
Buddleia davidii	butterfly bush	S	0.5	M	6	6		
Buxus microphylla japonica	Japanese boxwood	S	0.5	M	4	4		
Caesalpinea pulcherrima	dwarf poinciana	S	0.5	M	10	10		
Callistemon viminalis	weeping bottle brush	S	0.5	M	20	15		
Chamelaucium uncinatum	Geraldton wax flower	S	0.5	M	6	6		
Clivia miniata	Kafir Lily	S	0.5	M	2	2		
Cocculus laurifolius	laurel leaf cocculus	S	0.5	M	25	25		
Coprosma kirkii	creeping coprosma	S	0.5	M	2	3		Rabbit prone
Coprosma repens	mirror plant	S	0.5	M	10	6		
Cordyline australis	cordyline	S	0.5	M	20	6		
Cotoneaster spp. (shrubs)	cotoneaster	S	0.5	M	Varies	Varies		
Cycas revoluta	sago palm	S	0.5	M	4	4		
Dodonaea viscosa	hopseed bush	S	0.5	M	12	6		
Dodonaea viscosa 'Purpurea'	purple hopseed bush	S	0.5	M	12	6		
Escallonia spp.	escallonia	S	0.5	M	Varies	Varies		

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Euonymus japonicus	evergreen euonymus	S	0.5	M	Varies	Varies		
Euryops pectinatus viridis	green euryops	S	0.5	M	5	5		
Feijoa sellowiana	pineapple guava	S	0.5	M	10	10		
Felicia ameloides	blue marguerite	S	0.5	M	1.5	4		
Felicia fruticosa	shrub aster	S	0.5	M	2	3		
Gardenia veitchii	gardenia	S	0.5	M	3	3		
Garrya eliptica	coast silktassel	S	0.5	M	20	20		
Grewia occidentalis	lavender star flower	S	0.5	M	6	6		
Hebe spp.	hebe	S	0.5	M	3	3		
Hibiscus syriacus	rose of sharon	S	0.5	M	10	6		
Hypericum 'Hidecote'	St.Johnswort	S	0.5	M	4	4		
Ilex X altaclarensis 'Wilsonii'	Wilson holly	S	0.5	M	8	8		
Ilex aquifolium	English holly	S	0.5	M	20	20		
Ilex cornuta 'Burfordii'	Burford holly	S	0.5	M	10	10		
Ilex dimorphophilla	Okinawan holly	S	0.5	M	3	3		
Jasminum humile	Italian jasmine	S	0.5	M	10	10		
Jassminum mesnyi	primrose jasmine	S	0.5	M	8	8		
Juncus patens	California grayrush	S	0.5	M	2	2		
Juniperus spp.	juniper	S	0.5	M	Varies	Varies		
Ligustrum japonicum	Japanese privet	S	0.5	M	10	10		
Mahonia aquifolium	Oregon grape	S	0.5	M	6	6		
Mahonia bealei	leatherleaf mahonia	S	0.5	M	8	8		
Mahonia 'Golden Abundance'	golden abundance mahonia	S	0.5	M	6	4		
Mahonia lomartifolia	Chinese holly grape	S	0.5	M	8	4		
Murraya paniculata	orange jessamine	S	0.5	M	10	10		
Myrtus communis	true myrtle	S	0.5	M	5	4		
Nandina domestica	heavenly bamboo	S	0.5	M	5	3		
Nandina domestica 'Purpurea'	heavenly bamboo	S	0.5	M	1.5	1		
Osmanthus fragrans	sweet olive	S	0.5	M	10	10		
Perovskia spp.	Russian sage	S	0.5	M	3	3		
Phormium hybrids	flax	S	0.5	M	4	3		
Phormium tenax	New Zealand flax	S	0.5	M	5	4		
Photinia X fraseri	Fraser photinia	S	0.5	M	10	10		
Photinia serrulata	Chinese photinia	S	0.5	M	10	10		
Pittosporum tobira	mock orange	S	0.5	M	8	8		
Pitt. tobira 'Wheelers Dwarf'	dwarf pittosporum	S	0.5	M	2	2		
Plumbago auriculata	cape plumbago	S	0.5	M	6	8		
Punica granatum 'nana'	dwarf pomegranate	S	0.5	M	3	3		
Pyracantha spp.	firethorn	S	0.5	M	Varies	Varies		
Rhamnus alaternus	Italian buckthorn	S	0.5	M	12	12		
Rhaphiolepis spp.	Indian hawthorne	S	0.5	M	4	4		
Rhaphiolepis'Majestic Beauty'	majestic beauty	S	0.5	M	12	4		
Rosa 'Cecil Brunner'	Cecile Bnunner rose	S	0.5	M	6	6		
Rosa hybrids bush	rose	S	0.5	M	Varies	Varies		
Spiraea japonica	spiraea	S	0.5	M	4	4		
Tecomaria capensis	cape honeysuckle	S	0.5	M	6	8		
Thymus vulgaris	common thyme	S	0.5	M	1	2		
Trachelospermum jasminoides	star jasmine	S	0.5	M	1.5	5		
Veronica spp.	veronica	S	0.5	M	1.5	1.5		
Viburnum japonicum	Japanese viburnum	S	0.5	M	10	10		
Viburnum rhytidophyllum	leatherleaf viburnum	S	0.5	M	8	8		
Viburnum suspensum	sadanqua viburnum	S	0.5	M	8	8		
Viburnum tinus	laurustinus	S	0.5	M	8	8		
Xylosma congestum	shiny xylosma	S	0.5	M	8	8		
Prunus ilicifolia	holly leaf cherry	T	0.1	VL	40	25	X	
Quercus dumosa	California scrub oak	T	0.1	VL	40	40	X	
Quercus wislizeni	interior live oak	T	0.1	VL	40	40	X	
Acacia baileyana	Bailey acacia	T	0.2	L	25	30		
Acacia cultriformis	knife acacia	T	0.2	L	12	12		
Acacia dealbata	silver wattle	T	0.2	L	40	30		
Acacia smallii	desert sweet acacia	T	0.2	L	30	20		
Acacia stenophyla	shoestring acacia	T	0.2	L	30	20		

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Botanical name	Common name	Type	Kc	Kc	Height Feet	Spread Feet	Riv.Co. Native	Comments
Arbutus unedo	strawberry tree	T	0.2	L	20	20		
Nolina recurvata	bottle palm	T	0.2	L	6	6		
Brachychiton populneus	bottle tree	T	0.2	L	40	30		
Brahea edulis	Guadelupe palm	T	0.2	L	30	10		
Ceratonia siliqua	carob	T	0.2	L	30	30		
Cercidium floridum	blue palo verde	T	0.2	L	30	30	X	
Cercidium microphyllum	little leaf palo verde	T	0.2	L	25	25	X	
Cercidium praecox	Sonoran palo verde	T	0.2	L	25	25		
Cercis occidentalis	western redbud	T	0.2	L	15	15		
Chilopsis linearis	desert willow	T	0.2	L	25	25		
Chitalpa tashkentensis	chitalpa	T	0.2	L	25	25		
Cupressus arizonica var. glabra	smooth Arizona cypress	T	0.2	L	40	20		
Cupressus sempervirens	Italian cypress	T	0.2	L	50	10		
Elaeagnus angustifolia	Russian olive	T	0.2	L	20	20		
Eucalyptus camaldulensis	red gum	T	0.2	L	70	40		
Eucalyptus lehmannii	bushy yate	T	0.2	L	25	25		
Gleditsia triacanthos	honey locust	T	0.2	L	50	30		
Laurus nobilis	sweet bay	T	0.2	L	30	30		
Leptospermum laevigatum	Australian tea tree	T	0.2	L	30	30		
Olea europaea	olive	T	0.2	L	25	25		
Parkinsonia aculeata	Mexican palo verde	T	0.2	L	20	20	X	
Phoenix canariensis	Canary Island date palm	T	0.2	L	50	40		
Phoenix dactylifera	date palm	T	0.2	L	60	40		
Pinus brutia	Calabrian pine	T	0.2	L	40	40		
Pinus eldarica	eldarica pine	T	0.2	L	40	40		
Pinus halepensis	Aleppo pine	T	0.2	L	40	40		
Pinus pinea	Italian stone pine	T	0.2	L	50	40		
Pittosporum phillyraeoides	willow pittosporum	T	0.2	L	20	15		
Prunus lyonii	Catalina cherry	T	0.2	L	40	30	X	
Quercus agrifolia	coast live oak	T	0.2	L	40	50	X	
Quercus chrysolepis	canyon live oak	T	0.2	L	30	40	X	
Quercus ilex	holly oak	T	0.2	L	50	50		
Quercus suber	cork oak	T	0.2	L	50	50		
Rhus lancea	African sumac	T	0.2	L	25	25		
Robinia X ambigua	locust	T	0.2	L	40	20		
Schinus molle	California pepper tree	T	0.2	L	35	35		
Sophora secundiflora	Texas mountain laurel	T	0.2	L	25	25		
Washingtonia filifera	California fan palm	T	0.2	L	50	10	X	
Washingtonia robusta	Mexican fan palm	T	0.2	L	75	10		
Acacia pendula	weeping acacia	T	0.5	M	25	15		
Albizia julibrissin	silk tree	T	0.5	M	35	35		
Alnus cordata	Italian alder	T	0.5	M	35	20		
Arbutus 'Marina'	Marina arbutus	T	0.5	M	35	30		
Arecastrum romanzoffianum	queen palm	T	0.5	M	40	10		Not zone 18
Banksia integrifolia	tree banksia	T	0.5	M	20	10		
Bauhinia variegata	purple orchid tree	T	0.5	M	30	30		
Brachychiton acerifolius	flame tree	T	0.5	M	50	30		
Brachychiton discolor	Queensland lace bark	T	0.5	M	30	30		
Cedrus atlantica	Atlas cedar	T	0.5	M	50	30		
Cedrus deodora	deodar cedar	T	0.5	M	60	30		
Celtis sinensis	Chinese hackberry	T	0.5	M	40	40		
Cercis canadensis	eastern redbud	T	0.5	M	30	30		
Chamaerops humilis	Mediterranean fan palm	T	0.5	M	20	15		
Chionanthus retusus	Chinese fringe tree	T	0.5	M	30	20		
Cinnamomum camphora	camphor tree	T	0.5	M	40	40		
Citrus spp.	orange, lemon etc.	T	0.5	M	Varies	Varies		Not zone 18
Cupaniopsis anacardioides	carrotwood	T	0.5	M	40	40		
Cypressocyparis leylandii	leyland cypress	T	0.5	M	20	10		
Eucalyptus citriodora	lemon scented gum	T	0.5	M	60	30		
Eucalyptus erythrocorys	red cap gum	T	0.5	M	20	10		
Eucalyptus nicholii	peppermint gum	T	0.5	M	30	20		
Eucalyptus torquata	coral gum	T	0.5	M	15	10		

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Fraxinus oxycarpa 'Raywoodi'	raywood ash	T	0.5	M	50	30		
Fraxinus velutina	Arizona ash	T	0.5	M	50	30		
Fraxinus velutina 'Modesto'	Modesto ash	T	0.5	M	50	30		
Geijera parviflora	Australian willow	T	0.5	M	25	20		
Ginkgo biloba	maiden hair tree	T	0.5	M	60	30		
Junipenus scopulorum'Tolleson'	Tolleson's juniper	T	0.5	M	20	10		
Junipenus scopulorum	skyrocket juniper	T	0.5	M	20	3		
Koelreuteria bipinnata	Chinese flame tree	T	0.5	M	30	30		
Koelreuteria paniculata	golden rain tree	T	0.5	M	30	30		
Lagerstroemia indica	crape myrtle	T	0.5	M	25	20		
Ligustrum lucidum	glossy privet	T	0.5	M	35	30		
Liquidambar styraciflua	sweet gum	T	0.5	M	50	20		
Liriodendron tulipifera	tulip tree	T	0.5	M	50	30		
Magnolia grandiflora	southern magnolia	T	0.5	M	60	30		
Magnolia soulangeana	saucer magnolia	T	0.5	M	20	20		
Magnolia stellata	star magnolia	T	0.5	M	10	20		
Malus spp. eg.'Prairie Fire'	crabapple	T	0.5	M	20	20		
Maytenus boaria	mayten tree	T	0.5	M	30	20		
Melaleuca styphelioides	melaleuca	T	0.5	M	30	20		
Pinus canariensis	Canary Island pine	T	0.5	M	60	20		
Pinus torreyana	Torrey pine	T	0.5	M	40	30		
Pistacia chinensis	Chinese pistache	T	0.5	M	40	40		
Platanus X acerifolia	London plane	T	0.5	M	50	30		
Platanus racemosa	California sycamore	T	0.5	M	60	40	X	
Podocarpus gracilior	fern pine	T	0.5	M	40	40		
Podocarpus henkelii	long leaf yellow wood	T	0.5	M	40	20		
Podocarpus macrophyllus	yew pine	T	0.5	M	40	40		
Populus fremontii	western poplar	T	0.5	M	50	40	X	
Populus nigra 'Italica'	Lombardy poplar	T	0.5	M	50	15		
Prunus caroliniana	Carolina laurel cherry	T	0.5	M	35	20		
Prunus spp. (ornamental)	flowering cherry	T	0.5	M	25	25		
Prunus spp. (ornamental)	flowering plum	T	0.5	M	25	25		
Punica granatum	pomegranate	T	0.5	M	20	20		
Pyrus calleryana cultivars	Callery pear	T	0.5	M	40	20		
Pyrus kawakamii	evergreen pear	T	0.5	M	40	40		
Quercus lobata	valley oak	T	0.5	M	60	50	X	
Quercus virginiana	southern live oak	T	0.5	M	50	50		
Sapium sebiferum	Chinese tallow tree	T	0.5	M	35	35		
Tipuana tipu	tipu tree	T	0.5	M	30	30		
Trachycarpus fortunei	windmill palm	T	0.5	M	30	10		
Tristaniopsis laurina	little leaf myrtle	T	0.5	M	15	8		
Ulmus parvifolia	Chinese evergreen elm	T	0.5	M	40	40		
Vitex agnus-castus	chaste tree	T	0.5	M	20	20		
Alnus rhombifolia	white alder	T	0.8	H	40	20		Surface roots
Betula pendula	European white birch	T	0.8	H	30	15		
Salix spp.	willow	T	0.8	H	20	20		Invasive roots
Clematis lasiantha	pipestem clematis	V	0.2	L	1	10		
Lonicera japonica	Japanese honeysuckle	V	0.2	L	1	10		
Lonicera japonica 'Halliana'	Hall's honeysuckle	V	0.2	L	1	10		
Macfadyena unguis-cati	cat's claw	V	0.2	L	1	10		
Vitis californica	California wild grape	V	0.2	L	1	10	X	
Ficus pumila	creeping fig	V	0.5	M	6	6		
Clematis armandii	evergreen clemeitis	V	0.5	M	15	5		
Clytostoma callistigioides	violet trumpet vine	V	0.5	M	15	5		
Distictis buccinatoria	blood red trumpet vine	V	0.5	M	20	5		
Distictis 'Rivers'	royal trumpet vine	V	0.5	M	20	5		
Lonicera sempervirens	trumpet honeysuckle	V	0.5	M	20	5		
Parthenocissus tricuspidata	Boston ivy	V	0.5	M	15	15		
Rosa banksiae	lady Banks rose	V	0.5	M	15	15		
Rosa hybrids..climbing	climbing rose	V	0.5	M	10	15		
Solandra maxima	cup of gold vine	V	0.5	M	10	10		
Solanum jasminoides	potato vine	V	0.5	M	10	10		

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Wisteria spp.	wisteria	V	0.5	M	20	20		
Clematis hybrids	deciduous clematis	V	0.8	H	15	5		

LEGEND	Kc, Crop Coefficient Established by WUCOLS*
GC, Ground cover	Kc 0.1, Very Low water use
P, Perennial	Kc 0.2, Low water use
S, Shrub	Kc 0.5, Medium water use
T, Tree	Kc 0.8, High water use, (Not recommended)
V, Vine	
C, Cool Season Grass	*California Department of Water Resources
W, Warm Season Grass	WUCOLS III, August, 2000.

Mowable Turf Grasses

Cool Season Grasses, 80% of Eto

Botanical name	Common name	Type	Kc	Kc	Turf Varieties	Comments
Agrostis palustris	Creeping Bentgrass	C	H	0.8	Penncross, A-4	
Poa pratensis	Kentucky Bluegrass	C	H	0.8	Rugby, Cobalt	Blu-Rye Mix
Festuca rubra	Red Fescue	C	H	0.8	Dawson	
Festuca arundinacea	Tall Fescue	C	H	0.8	Marathon	
Festuca arundinacea	Tall Fescue, Dwarf Varieties	C	H	0.8	Bonsai, Matador	
Lolium perenne	Perennial Ryegrass	C	H	0.8	Saturn, Manhattan	Blu-Rye Mix

Warm Season Grasses, 60% of Eto

Botanical name	Common name	Type	Kc	Kc	Turf Varieties	Comments
Cynodon dactylon	Common Bermudagrass	W	M	0.5	Safari, Sultan	
Cynodon species	Hybrid Bermudagrass	W	M	0.5	Santa Ana, TifDwarf, Tifway	
Buchloe dactyloides	Buffalograss	W	M	0.5	Texoka, Cody	
Zoysia japonica	Zoysia	W	M	0.5	De Anza, El Toro	
Stenotaphrum secundatum	St. Augustine	W	M	0.5	Sod Only	
Pennisetum clandestinum	Kukuyugrass	W	M	0.5	AZ1, Whittet	