



# City of Arcadia

## Development Services Department

Jason Kruckeberg  
*Director of  
Development Services*

February 3, 2010

Simon Eching  
Department of Water Resources  
Water Use and Efficiency Branch  
PO Box 942836  
Sacramento, CA 94236-0001

Dear Mr. Eching:

As required by the Water Conservation in Landscaping Act of 2006 (AB 1881), the City of Arcadia has attached a copy of the Water Efficient Landscape Ordinance adopted by the City Council on December 15, 2009 and the Landscape Documentation Package and Guidelines designed to implement the Ordinance. Please accept this submittal as verification of compliance.

If you have any further questions or need additional information, please contact Jim Kasama, Community Development Administrator, at (626) 574-5442.

Sincerely,

Jason Kruckeberg  
Assistant City Manager/Development Services Director

CC: Jim Kasama, Community Development Administrator  
Marie Nguyen, Public Works Services Department

ORDINANCE NO. 2267

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF  
ARCADIA, CALIFORNIA AMENDING THE ARCADIA MUNICIPAL  
CODE BY ADDING A DIVISION 4 TO CHAPTER 5, PART 5  
OF ARTICLE VII REGARDING WATER EFFICIENT LANDSCAPING

THE CITY COUNCIL OF THE CITY OF ARCADIA, CALIFORNIA, DOES  
ORDAIN AS FOLLOWS:

SECTION 1. The Arcadia Municipal Code is amended by adding Division  
4 to Chapter 5, Part 5 of Article VII to read as follows:

DIVISION 4

WATER EFFICIENT LANDSCAPING

"7554. **SHORT TITLE.** This Ordinance shall be known as the "Water  
Efficient Landscaping Ordinance."

7554.1. **DEFINITIONS.**

1. Administrator: person in the City of Arcadia who has the authority to approve a permit, plan check, and design review for a project.
2. Amendments: any material added to a soil to improve its physical properties, such as water retention, permeability, water infiltration, and drainage.
3. Applicant: Any person required to submit a Landscape Design Application. Applicant may include the property owner or an agent of the owner.
4. Application Rate: the depth of water applied to a given area, measured in inches per minute, or inches per hour, or gallons per hour.
5. Applied Water: The portion of water supplied by the irrigation system to the landscape.
6. Automatic Rain Shut-off Feature: a system component which automatically suspends the irrigation system event when it rains.
7. Botanical Gardens and Arboretums: gardens in which a variety of plants are grown for scientific and educational purposes.

8. Certified Landscape Irrigation Auditor: person certified to perform landscape irrigation audits by an accredited educational institution or a professional trade organization.
9. Control Valve: device used to control the flow of water in the irrigation system. It may also mean all of the sprinklers or emitters in a line controlled by the valve.
10. Controller: automatic timing device used to remotely control valves or heads to set an irrigation schedule. A weather-based controller is a controller that uses evapotranspiration or weather data. A self-adjusting irrigation controller is a controller that uses sensor data (i.e., soil moisture sensor)
11. Developer: landowner or owner's agent responsible for the development of land. Does not include homeowners or landlords of single-family homes.
12. Discretionary Permit: permit requiring a decision making body to exercise judgment prior to its approval, conditional approval, or disapproval.
13. Ecological Restoration Project: project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
14. Estimated Applied Water Use (EAWU): the average annual total amount of water estimated to be necessary to keep plants in a healthy state. It is based on the reference evapotranspiration rate, the size of the landscape area, plant water use factors, and the relative irrigation efficiency of the irrigation system.
15. Hydrozone: section or zone of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule. A hydrozone may be irrigated or non-irrigated.
16. Infiltration Rate: rate of water entry into the soil expressed as a depth of water per unit of time (i.e., inches per hour).
17. Installation Application: application to the City for new landscaping or re-landscaping which may include a landscape concept and/or landscape construction drawings. The portion of the application submitted with a discretionary permit application will include a landscape concept plan. The ministerial portion of the application will include landscape construction drawings.
18. Invasive Species: non-indigenous species that adversely affect the habitats they invade economically, environmentally, or ecologically.

19. Irrigation Efficiency: the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum irrigation efficiency for purposes of this Division is 0.71.
20. Irrigation System: network of piping, valves and irrigation heads.
21. Landscape Architect: person licensed to practice landscape architecture in California pursuant to Chapter 3.5 (commencing with Section 5615) of Division 3 of the California State Business and Professions Code.
22. Landscape Concept Plan: portion of a landscape documentation package that includes a design statement, irrigation notes, planting notes, the plant palette, and conforms with the requirements of this Division.
23. Landscape Construction Drawings: portion of a landscape documentation package that includes the irrigation plan, and conforms with the requirements of this Division
24. Landscape Documentation Package: complete packet of documents required under Sections 4, 5 and 6 to be submitted to the local agency. Documentation packages include the landscape concept plan and landscape construction drawings (irrigation plan, plant and soils plan, water management plan).
25. Landscape Water Audit: in depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. Audits include, but are not limited to: inspection, system tune-up, system test with distribution uniformity and verification of minimal overspray or runoff that causes overland flow, and preparation of an irrigation schedule.
26. Low-Head Drainage: drainage from a sprinkler that is caused by water flowing down an irrigation system from a higher level of elevation.
27. Maximum Applied Water Allowance (MAWA): the upper limit of annual applied water for the established landscaped area. It is based upon the area's ET Adjustment Factor and the size of the landscaped area. The Estimated Applied Water Use shall not exceed the MAWA.
28. Mulch: organic material such as leaves, bark, or inorganic material such as pebbles, stones, gravel, decorative sand or decomposed granite left loose and applied to the soil surface to reduce evaporation.
29. Operating Pressure: pressure at which an irrigation system of sprinklers is designed by the manufacturer to operate, usually indicated at the base of a sprinkler.

30. Overspray: water that is delivered beyond the landscaped areas by the irrigation system onto pavements, walks, structures or other non-landscaped areas.
31. Planting Plan: plan submitted with the construction drawings indicating a list and quantity of plants.
32. Potable Water: water meant for human consumption that is treated to legal standards for human consumption.
33. Pressure Regulator: a device used in sprinkler systems for radius and high pressure control.
34. Rain Sensor: a system component which detects rain fall and automatically overrides the irrigation system during rain events.
35. Recycled Water: water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource.
36. Rehabilitated Landscapes: any re-landscaping project that requires a permit, plan check, or design review and meets the requirements of Section 2.
37. Runoff: water that is not absorbed by the soil or landscape to which it is applied and flows from the area.
38. SMART Irrigation Controller: weather-based or soil moisture-based irrigation controller that monitors and uses information about the environmental conditions at a specific location and landscape to automatically adjust watering schedules.
39. Soil Management Plan: plan submitted with the construction drawings indicating results from soil tests and recommended soil amendments.
40. Soil Test: test done by soil test lab that indicates at a minimum, soil texture, water holding capacity, pH, and soluble salts.
41. Soil Type: the classification of soil based on the percentage of its composition of sand, silt, and clay.
42. Special Landscape Area: an area of the landscape dedicated to edible plants, areas irrigated with recycled water, and areas dedicated to active play such as parks, sports fields, golf courses, where turf provides a playing surface.
43. Sprinkler Head: device which delivers water through a nozzle.
44. Static Water Pressure: the pipeline or municipal water supply pressure when water is not flowing.

44. Static Water Pressure: the pipeline or municipal water supply pressure when water is not flowing.
45. Total Project Net Landscape Area: all planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation.
46. Turf: a surface layer of earth containing mowed grass or grasslike sedge with its roots. Cool Season Turf thrives in cooler weather while warm season turf is better suited for hot weather conditions.
47. Water Efficient Landscape Worksheet: worksheet which calculates a site's water budget.
48. Water Feature: any 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).
49. Water Management Plan: plan submitted with the construction drawings as part of the landscape documentation package.
50. Water Schedules: schedule of irrigation times through a given year.
51. Water-Conserving Landscape Design: a landscape design developed to conserve water.

7554.2. **PURPOSE AND INTENT.** The purpose of this Division is:

- A. That this Division be at least as effective in conserving water as the State of California's model ordinance adopted pursuant to Government Code §65595;
- B. To assure beneficial, efficient, and responsible use of water resources for all customers/users within the City of Arcadia;
- C. To retain the land's natural hydrological role within the Los Angeles River Watershed and promote the infiltration of surface water into the groundwater in the Raymond Basin and the Main San Gabriel Basin;
- D. To acknowledge that landscape water use accounts for more than 60% of all domestic water use in the City of Arcadia;
- E. To recognize that landscapes enhance the aesthetic appearance of developments and communities;

- F. To encourage the appropriate design, installation, maintenance, and management of landscapes so that water demand can be decreased, runoff can be retained, and flooding can be reduced without a decline in the quality or quantity of landscapes;
- G. To preserve existing natural vegetation and the incorporation of native plants, plant communities and ecosystems into landscape design, where possible;
- H. To promote and encourage the use of low water use plants;
- I. To minimize the use of cool season turf;
- J. To promote the conservation of potable water by maximizing the use of recycled water and other water conserving technology for appropriate applications;
- K. To promote public education about water conservation and efficient water management;
- L. To reduce or eliminate water waste.

7554.3. **APPLICABILITY.**

After January 1, 2010, this Division shall apply to all of the following landscape projects:

- A. New construction and rehabilitated landscapes for public agency projects and private non-residential development projects with a total project net landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, landscape permit, plan check, or design review;
- B. New construction and rehabilitated landscapes which are developer-installed residential projects with a total project net landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review;
- C. New construction which are homeowner-installed residential projects with a total project net landscape area equal to or greater than 5,000 square feet requiring a building or landscape permit, plan check, or design review;
- D. Existing total net landscape areas that are one acre or more for which a water efficient landscape worksheet shall be prepared according to the specifications for existing landscapes in the Landscape Documentation Package;

- E. Special Landscaped Areas, such as areas dedicated to edible plants, areas that are irrigated with recycled water, or areas dedicated to active play, for which a water efficient landscape worksheet and landscape documentation package shall be prepared according to the specifications for Special Landscaped Areas.

This Division does not apply to:

- A. Registered local, state or federal historical sites;
- B. Ecological restoration projects that do not require a permanent irrigation system;
- C. Mined-land reclamation projects that do not require a permanent irrigation system; or
- D. Botanical gardens and arboretums open to the public.

7554.4. **PLAN CHECK REQUIREMENTS.** A Landscape Documentation Package prepared by a licensed landscape architect shall include the following landscape design criteria:

- A. Plant Selection and Grouping.

Any plant may be used in the landscape, providing the Estimated Applied Water Use (EAWU) does not exceed the Maximum Applied Water Allowance (MAWA) and that the plants meet the specifications set forth below:

1. Plants having similar water needs shall be grouped together in distinct hydrozones.
2. Plants shall be selected based upon their adaptability to the climate, geologic, and topographical conditions of the site. Protection and preservation of existing native species and natural areas is encouraged. The planting of appropriate trees is encouraged.
3. Minimize the use of turf. Turf areas shall be used sparingly in response to functional needs and shall not exceed the MAWA. Where turf is installed the use of warm season turf is strongly encouraged.

4. Fire prevention needs shall be addressed in areas that are fire prone. Design should be consistent with regulations from the Arcadia Fire Department.
5. Invasive species of plants should be avoided especially near parks, buffers, greenbelts, water bodies, and open spaces because of their potential to cause harm in sensitive areas.
6. Encourage the appropriate use of mulch within developed landscapes to retain moisture.

#### B. Water Features

1. Recirculating water systems shall be used for decorative water features.
2. Where available, recycled water shall be used as the source for water features (excluding swimming pools and spas).
3. The surface area of a water feature will be included in the MAWA calculation with the evaporation rate equivalent to that of a high water use plant.

#### 7554.5. **IRRIGATION REQUIREMENTS.**

- A. All irrigation systems shall be designed to prevent runoff, over-spray, low head drainage and other similar conditions. Soil types and infiltration rates shall be considered when designing irrigation systems. Irrigation systems shall be designed, constructed, managed, and maintained to achieve as high an overall efficiency level as possible.
- B. Dedicated (separate) landscape water meters shall be installed for all projects greater than 5,000 square feet, except for single family residences. Dedicated landscape water meters are highly recommended on landscape areas less than 5,000 square feet to facilitate water management.
- C. All irrigation systems shall include:
  1. A SMART irrigation controller, or other equivalent technology which automatically adjusts the frequency and/or duration of irrigation events in response to changing weather conditions shall be required. The planting areas shall be grouped and irrigated in relation to hydrozones based on similarity of water requirements (e.g. turf separate from shrub and groundcover, full sun exposure

areas separate from shade areas; top of slope separate from toe of slope);

2. Anti-drain check valves shall be installed to prevent low-head drainage in sprinkler heads;
3. A pressure regulator when the static water pressure exceeds the maximum recommended operating pressure of the irrigation system; and,
4. A rain sensor with an automatic rain shut-off feature shall be required.

**7554.6. SOIL AND GRADING REQUIREMENTS.**

A. Soil testing shall be performed after mass grading, prior to landscape installation to ensure the selection of appropriate plant material that is suitable for the site, and reported in a soil management plan. The soil management plan shall include:

1. Determination of soil texture, indicating the available water holding capacity;
2. An approximate soil infiltration rate (either) measured or derived from soil texture/infiltration rate tables. A range of infiltration rates shall be noted where appropriate;
3. Measure of pH and total soluble salts; and
4. Recommended amendments.

B. Grading on site shall be designed to minimize unnecessary soil compaction, erosion and water waste. Grading plans must satisfy the City's grading requirements and be submitted as part of the landscape documentation package.

**7554.7. IMPLEMENTATION.**

A. Applicants subject to the requirements of this Division shall submit a complete Landscape Documentation Package to the Administrator. The Application may be submitted in two parts:

1. A Landscape Concept Plan, which is submitted with a discretionary permit application or when otherwise required by the City; and

2. Landscape Construction Drawings, submitted as a ministerial application.

All applications and plans shall conform to the plant, irrigation, and water budget formula requirements set forth in this Division and the Landscape Documentation Package.

1. Landscape Concept Plan shall include:
  - a. Design statement;
  - b. irrigation notes;
  - c. planting notes;
  - d. a conceptual plant palette identifying proposed hydrozones;
  - e. MAWA calculation for the landscape project area.
  
2. Landscape Construction Drawings

All applications subject to the requirements of this Division shall include landscape construction drawings that comply with the design standards and specifications contained in this Division. The construction drawings shall be in compliance with the landscape concept plan.

All landscape construction drawings shall include an irrigation plan, a planting and soils plan, the grading plan, and a water management plan with detailed notes and legends as necessary for a complete landscape plan review.

If the Construction Drawings differ significantly from the Landscape Concept Plan (determined by the Administrator) the Applicant must resubmit an overall water budget calculation in accordance with the Landscape Documentation Package.

  - a. Irrigation Plan

The irrigation plan shall be a separate document from the planting plan. The irrigation plan shall be prepared in accordance with the requirements of this Division and include pressure calculations and the location, installation details, and specification of control valves, irrigation heads, piping, irrigation controllers, and power supply.
  
  - b. Planting Plan and Soils Plan

The planting plan shall include, but not be limited to:

    1. A description of any existing plant material to be retained or removed.
  
    2. A plan showing the planting areas and hydrozones, plant spacing, plant location and size, natural features, water features and all paved areas.

3. A legend listing the common and botanical plan names and total quantities by container size and species.
4. Soil management plan, including the soil test results and recommendations.
5. The grading plan shall be included for reference.

c. Water Management Plan

A Water Management Plan shall be prepared in accordance with the requirements of this Division and shall include:

1. An introduction and statement of site conditions.
  2. Identification of the party(ies) responsible for implementation of the Water Management Plan.
  3. The anticipated water requirements in inches per year, and water budget for the various hydrozones identified in the landscape concept plan to include calculations demonstrating an overall water budget that requires no more irrigation than the 0.7 of the ET adjustment factor.
  4. A description of the water delivery systems, including the type of irrigation system to be used; water conservation methods to be applied, and precipitation rates for each hydrozone.
  5. Seasonal irrigation water schedules or procedures for programming of proposed SMART controllers.
  6. A maintenance plan for the ongoing operation and maintenance of the irrigation system.
- B. All applications for model homes shall include samples of public information documents and signage that will be placed at the model homes describing the water conservation principles used in the landscaping for the model home.
- C. COMPLIANCE /ENFORCEMENT. The Administrator or designee shall have the duty and authority to administer and enforce this Division.

1. Prior to issuance of a building permit for a project subject to this Division, or as otherwise specified in the conditions of approval for a project a complete landscape documentation package prepared by an independent licensed landscape architect shall be submitted to the Administrator for review and approval. The licensed landscape architect shall ensure that all components of the package adhere to the requirements of this Division. Any documentation packages submitted without the signature of a licensed landscape architect shall not be accepted for review.
2. Prior to issuance of a certificate of occupancy or final inspection for a project subject to this Division, a Certificate of Completion shall be submitted to the Administrator certifying that the landscaping and irrigation has been completed in accordance with the approved Planting and Irrigation Plans for the project. The Certificate of Completion shall be signed by a licensed landscape architect and shall indicate all of the following:
  - a. That the landscaping and irrigation has been installed in conformance with the approved Planting and Irrigation Plans.
  - b. That the SMART or equivalent irrigation controller has been set according to the approved irrigation schedule;
  - c. That the irrigation system has been adjusted to maximize irrigation efficiency and eliminate over-spray and runoff; and
  - d. That a copy of the irrigation schedule has been given to the property owner.
3. Upon notice to the Applicant, the Administrator shall have the right to enter the project site to conduct inspections for the purpose of enforcing this Division before, during and after installation of the landscaping and irrigation.
4. A copy of the completed Landscape Documentation Package shall be given to the Development Services Department. If the property is found to be in excess of their established MAWA, the property shall be subject to a landscape water audit.

7554.8.      **RECYCLED WATER**

The City of Arcadia recognizes that the current and future use of recycled water within its jurisdiction is NOT in the foreseeable future. Therefore applicants are exempt from being required to install recycled water irrigation systems.

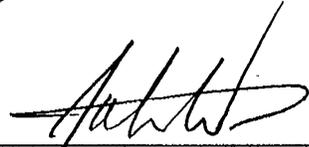
7554.9      **Section 9.    STORMWATER MANAGEMENT**

- A.    Stormwater management combines practices to minimize runoff and water waste to recharge groundwater, and to improve water quality. Implementing stormwater best management practices into the landscape, irrigation, and grading design plans to minimize runoff, and increase retention and infiltration are highly recommended on site.
  
- B.    Project applicants shall refer to the City of Arcadia or Regional Water Quality Control Board for information on any stormwater ordinances and stormwater management plans."

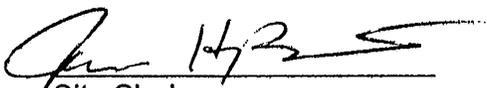
SECTION 2.    The City Clerk shall certify to the adoption of this Ordinance and shall cause a copy of the same to be published in the official newspaper of said City within fifteen (15) days after its adoption. This Ordinance shall take effect thirty-one (31) days after its adoption.

[SIGNATURES ON NEXT PAGE]

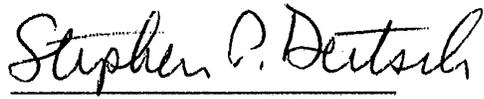
Passed, approved and adopted this 15th day of December, 2009.

  
\_\_\_\_\_  
Mayor of the City of Arcadia

ATTEST:

  
\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:

  
\_\_\_\_\_  
Stephen P. Deitsch  
City Attorney

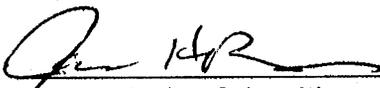
STATE OF CALIFORNIA       )  
COUNTY OF LOS ANGELES ) SS:  
CITY OF ARCADIA            )

I, JAMES H. BARROWS, City Clerk of the City of Arcadia, hereby certifies that the foregoing Ordinance No. 2267 was passed and adopted by the City Council of the City of Arcadia, signed by the Mayor and attested to by the City Clerk at a regular meeting of said Council held on the 15th day of December, 2009 and that said Ordinance was adopted by the following vote, to wit:

AYES:       Council Member Amundson, Chandler, Kovacic and Wuo

NOES:       None

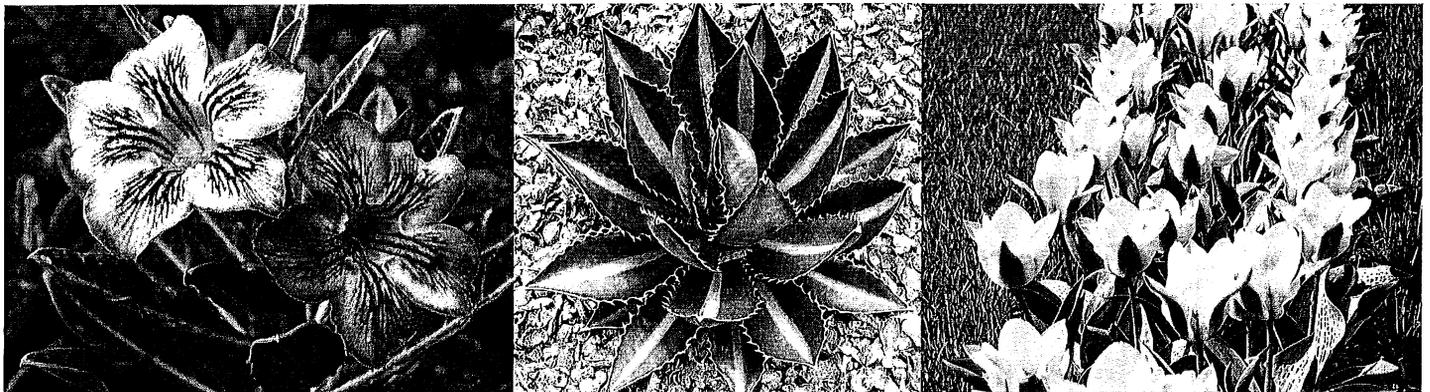
ABSENT:     Council Member Harbicht

  
\_\_\_\_\_  
City Clerk of the City of Arcadia

# WATER EFFICIENT LANDSCAPING

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## DOCUMENTATION PACKAGE AND GUIDELINES



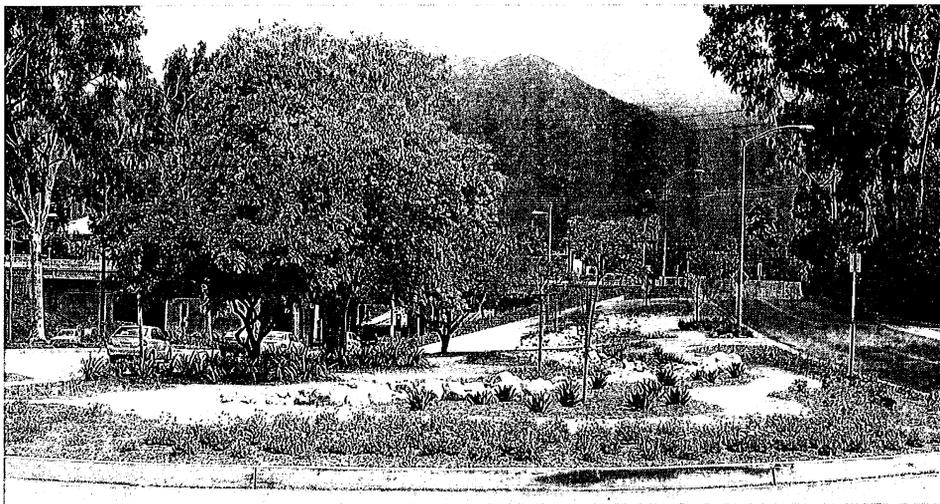
CITY OF ARCADIA  
DEVELOPMENT SERVICES  
240 W. HUNTINGTON DRIVE  
ARCADIA, CA 91006  
(626) 574-5423

## Documentation Package

Your action is required to conserve water supplies and comply with State Law. The Water Conservation in Landscaping Act of 2006 (AB 1881) required cities and counties to adopt landscape water conservation ordinances by January 1, 2010. The City of Arcadia adopted Ordinance No. 2267 on December 15, 2009 to comply with State Law.

Ordinance No. 2267 requires all projects that meet the following thresholds to comply with specific water conservation practices:

- A **developer-installed residential project** subject to a building permit, landscaping permit, building plan check, and/or design review that includes a total area of 2,500 or more square feet of rehabilitated and/or new irrigated landscaping.
- An **owner-builder residential project** subject to a building permit, landscaping permit, building plan check, and/or design review that includes a total area of 5,000 square feet of new irrigated landscaping.
- A **private non-residential development project** subject to a building permit, landscaping permit, building plan check, and/or design review that includes a total area of rehabilitated and/or new irrigated landscaping of 2,500 or more square feet.
- A **public agency project** subject to a building permit, landscaping permit, building plan check, and/or design review that includes a total area of rehabilitated and/or new irrigated landscaping of 2,500 square feet.
- A facility with one acre or more of existing irrigated landscaping.
- A Special Landscaped Area that is dedicated to edible plants, or irrigated with recycled water, or dedicated to active play.



## PROCESS FOR COMPLIANCE

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Prior to the approval of any **Design Review** for a project that meets the thresholds for this review, the following must be submitted:

- Landscape Concept Plan that includes a design statement, irrigation and planting notes, a conceptual plant palette identifying proposed hydrozones, and an estimate of the Maximum Applied Water Allowance – see page 6.

Prior to the approval of a **Plan Check** and issuance of a **Building Permit** or other relevant permit, the following items are required to be submitted.

- Water Efficient Landscape Documentation Package
  - Section A. Project Information
  - Section B. Water Budget Calculation & Maximum Applied Water Allowance
  - Section C. Hydrozone Information Table
  - Section D. Estimated Applied Water Use
  - Section E. Water Budget Comparison and Acknowledgement
- Soil Management Plan (Soil Analysis Report and On-site soil Assessment with Recommendations)
- Landscape Design Plan
- Irrigation Design Plan
- Grading Design Plan

Prior to a **Final Inspection** sign-off and/or the issuance of a **Certificate of Occupancy** for any project, the following shall be submitted:

- A Certificate of Completion signed by a licensed landscape architect or certified irrigation designer and the property owner certifying that the landscaping has been installed and will be maintained in accordance with the approved plans, and also certifying that the irrigation and maintenance schedule has been completed and will be followed.

**CITY OF ARCADIA  
Water Efficient Landscaping  
Documentation Package**

Please complete the entire worksheet, as it is part of the Water Efficient Landscape Documentation Package that is required to be submitted per Ordinance No. 2267.

**SECTION A: PROJECT INFORMATION**

Date: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Applicant: \_\_\_\_\_

Project Address and Location:

Street Address		Assessor Parcel Number
Arcadia		Tract/Parcel Map No. and Lot Number(s)
California	9100__	Nearest Cross Street

**Project Type:** Please check only one

- |                                                                                      |                                                    |
|--------------------------------------------------------------------------------------|----------------------------------------------------|
| <input type="checkbox"/> Public or community facility (i.e., park, playground, etc.) | <input type="checkbox"/> Single-Family Residential |
| <input type="checkbox"/> Commercial                                                  | <input type="checkbox"/> Multi-Family Residential  |
| <input type="checkbox"/> Industrial                                                  | <input type="checkbox"/> Other _____               |
| <input type="checkbox"/> Institutional (i.e., hospital, school, etc.)                |                                                    |

**Please fill in the information below to describe the landscape project:**

- Total landscaped area \_\_\_\_\_ (sq. feet)
- Total turf area \_\_\_\_\_ (sq. feet)
- Total non-turf area \_\_\_\_\_ (sq. feet)
- Total active recreational areas \_\_\_\_\_ (sq. feet)
- Total area permanently and solely dedicated to edible plants \_\_\_\_\_ (sq. feet)
- Total irrigated landscape area \_\_\_\_\_ (sq. feet)
- Total non-irrigation landscape area \_\_\_\_\_ (sq. feet)

**Project Contacts** – The project applicant and other individuals may receive inquiries or notifications of all proceedings regarding the Water Efficient Landscape Documentation Package. Please provide the name, mailing address, email address, and telephone no(s) etc. of each person to receive such inquiries and notifications.

**1. Project Applicant**

Name	Telephone and Fax Number(s)	
Title	Email Address	
Company	Mailing Address	
City	State	Zip Code

**2. Property Owner**

Name(s)	Telephone and Fax Number(s)	
Mailing Address	Email Address	
City	State	Zip Code

**3. Licensed Landscape Architect or Landscape Contractor**

Name	Title	
Company	License No.	
Mailing Address	Telephone and Fax Number(s)	
City	Email Address	
State	Zip Code	Website

**4. Certified Irrigation Designer**

Name	Title	
Company	License No.	
Mailing Address	Telephone and Fax Number(s)	
City	Email Address	
State	Zip Code	Website

**5. Landscape Installation Contractor**

Name		Title
Company		License No.
Mailing Address		Telephone and Fax Number(s)
City		Email Address
State	Zip Code	Website

**6. Landscape Maintenance Contractor (if known)**

Name		Title
Company		License No.
Mailing Address		Telephone and Fax Number(s)
City		Email Address
State	Zip Code	Website

**7. Please check the Water Supplier that applies to this project:**

- City of Arcadia Water Services      11800 Goldring Road, Arcadia, CA 91006  
(626) 256-6650
- East Pasadena Water Company      110 E. Live Oak Ave., Arcadia, CA 91006  
(626) 446-1372
- Sunny Slope Water Company      1040 El Campo Dr., Pasadena, CA 91107  
(626) 568-4266 or (626) 795-4163
- California American Water      2020 Huntington Drive, San Marino, CA 91108  
(888) 237-1333
- Golden State Water Company      110 E. Live Oak Avenue, Arcadia, CA 91006  
(626) 446-1372

**SECTION B: WATER BUDGET CALCULATION – MAXIMUM APPLIED WATER ALLOWANCE (MAWA) FOR PROJECT**

The Project's **Maximum Applied Water Allowance (MAWA)** shall be calculated using this formula:

$$\text{MAWA} = (\text{ET}_o) (0.62) (0.70 \times \text{LA})$$

- MAWA = Maximum Applied Water Allowance in gallons per year
- ET<sub>o</sub> = Reference Evapotranspiration rate (inches per year) which is 50.2 for the Arcadia area\*
- 0.62 = Conversion factor (to gallons)
- 0.70 = Adjustment factor for plant types and irrigation efficiency
- LA = Landscaped Area in square feet

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

Show Calculations (a sample calculation is shown on page 11)

\* The ET<sub>o</sub> for the Arcadia area is based on the State's Department of Water Resources' Reference Evapotranspiration rate (ET<sub>o</sub>) for the City of Monrovia.

**SECTION C: HYDROZONE INFORMATION TABLE**

Please complete a Hydrozone Information Table with the details for each hydrozone. Use as many sheets as necessary to detail all the Hydrozones. The table is to be keyed to the landscape and irrigation plans. A sample table is shown on page 10.

<b>Project Address:</b>				
<b>Hydrozone*</b>	<b>Irrigation Zone or Valve</b>	<b>Irrigation Method**</b>	<b>Area in Sq. Ft.</b>	<b>% of Landscape Area</b>
<b>Totals</b>	<b>--</b>	<b>--</b>		<b>100</b>

*Attach as many sheets as necessary.*

\* **Hydrozone** – Per the Department of Water Resources’ Water Use Classification of Landscape Species (WUCOLS) for Region 4 – South Inland Valleys and Foothills, the various Hydrozone designations are as follows. The applicable WUCOLS edition is available at [www.water.ca.gov/wateruseefficiency/docs/wucols00.pdf](http://www.water.ca.gov/wateruseefficiency/docs/wucols00.pdf).

- HW = High Water Use Zone – Plants and water features that need or use high amounts of water (i.e., Dichondra, Japanese maples, pools, spas, fountains, ponds, etc.)
- MW = Moderate Water Use Zone
- LW = Low Water Use Zone
- VLW = Very Low Water Use Zone – Typically an area that is not automatically irrigated, but has plants that may need only occasional hand-watering during particularly hot and/or dry periods.
- CST = Cool Season Turfgrass Zone
- WST = Wet Season Turfgrass Zone
- NW = No Water Use Zone

**\*\*Irrigation Method**

- MS = Micro-spray      S = Spray      R = Rotor      B = Bubbler
- D = Drip              O = Other      N = None

**SECTION D. ESTIMATED APPLIED WATER USE (EAWU)**

The project's Estimated Applied Water Use (EAWU) is calculated using the following formula. The EAWU must not exceed the Maximum Applied Water Allowance (MAWA) calculated on page 6.

$$EAWU = (ET_o) (0.62) [(Sum\ of\ all\ HAs\ x\ their\ PFs) \div 0.71]$$

EAWU = Estimated Applied Water Use in gallons per year

ET<sub>o</sub> = Reference evapotranspiration<sup>1</sup> rate

0.62 = Conversion factor to gallons

HA = Hydrozone Area in square feet

PF = Plant Factor<sup>2</sup>

0.71 = Irrigation efficiency factor (measurement of water beneficially used vs. water applied) per state regulations.

Show calculations (sample calculations are shown on page 11)

*Attach additional sheets if necessary.*

<sup>1</sup> The Reference Evapotranspiration rate (ET<sub>o</sub>) for Hydrozones that are to be irrigated year round is **50.2**. To calculate EAWU on a monthly basis for Hydrozones that will not be irrigated year round, the following ET<sub>o</sub> table is to be used and totaled to arrive at an annual EAWU for those Hydrozones:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2.2	2.3	3.8	4.3	5.5	5.9	6.9	6.4	5.1	3.2	2.5	2.0

<sup>2</sup> The Plant Factor (PF) is an estimate of the amount of water needed by a plant based on the Hydrozone designation by the Department of Water Resources' Water Use Classification of Landscape Species (WUCOLS). The applicable WUCOLS edition is available at [www.water.ca.gov/wateruseefficiency/docs/wucols00.pdf](http://www.water.ca.gov/wateruseefficiency/docs/wucols00.pdf). For the purposes of this Water Efficient Landscape Documentation Package, the Hydrozone Plant Factors are as follows: HW is 0.85, MW is 0.50, LW is 0.15, VLW is 0.05, CST is 0.80, WST is 0.60, and NW is 0.00.

**Section E. WATER BUDGET COMPARISON AND ACKNOWLEDGEMENT**

The **Estimated Applied Water Use (EAWU)** from page 9 must not exceed the **Maximum Applied Water Allowance (MAWA)** from page 7.

EAWU must be less than or equal to MAWA

---

**ACKNOWLEDGMENT**

**SIGNATURE(S):**

The signature of at least one of the following is required to complete this Water Efficient Landscape Documentation Package.

I/We acknowledge and agree under penalty of perjury under the laws of the State of California that the information contained in this Water Efficient Landscape Documentation Package is true and correct.

\_\_\_\_\_  
Signature of Project Applicant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Property Owner

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature and Wet Stamp of Licensed Landscape Architect

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature and Certification No. of Certified Irrigation Designer

\_\_\_\_\_  
Date

**--- Sample page ---**

**Do not include in submittal to City or Water Purveyor**

The following calculations and tables are provided only as examples

**Section B:** MAWA = (ETo) (0.62) (0.70 x LA)  
 = (50.2) (0.62) (0.70 x 7,250 sq. ft.)  
 = (50.2) (0.62) (5,075)  
 = 157,954.30

**Section C:**

<b>Project Address:</b> <i>somewhere in Arcadia, CA</i>				
<b>Hydrozone*</b>	<b>Irrigation Zone or Valve</b>	<b>Irrigation Method**</b>	<b>Area in Sq. Ft.</b>	<b>% of Landscape Area</b>
A = MW	1	R	600	8.27
B = LW	2	B	1,000	13.79
C = MW	3	MS	890	12.28
D = WST	4	R	2,850	39.31
E = VLW	5	none	810	11.17
F = HW	Pool & Spa	n.a.	1,100	15.17
<b>Totals</b>	--	--	7,250	<b>99.99</b>

**Section D:** EAWU = (ETo) (0.62) [(Sum of all HAs x PFs) ÷ 0.71]

Hydrozone A:	600	x 0.50	=	300.00
Hydrozone B:	1,000	x 0.15	=	150.00
Hydrozone C:	890	x 0.50	=	445.00
Hydrozone D:	2,850	x 0.60	=	1,710.00
Hydrozone E:	810	x 0.05	=	40.50
<u>Hydrozone F:</u>	<u>1,100</u>	<u>x 0.85</u>	<u>=</u>	<u>935.00</u>
Sum of all	HAs	x PFs	=	3,580.50

EAWU = (50.2) (0.62) [ 3,580.50 ÷ 0.71]  
 = (50.2) (0.62) [ 5,042.96 ]  
 = 156,957.08

**Section E:** EAWU must be less than or equal to MAWA

156,957.08 is less than 157,954.30

The proposed landscaping complies with Ordinance No. 2267



## **WATER EFFICIENT LANDSCAPING GUIDELINES**

### **INTRODUCTION**

The purpose of this Guide is to present practical standards for landscape and irrigation design for projects in the City of Arcadia. Additionally, this Guide is designed to assist landscape architects, irrigation designers, contractors, planners and the public in the selection of plant materials and irrigation methods that meet the objectives of the City's Water Efficient Landscaping Ordinance in order to conserve water in this drought prone state of California.

Arcadia's commitment to water conservation is exemplified in the adoption of standards and the implementation of guidelines which result in a reduction of landscape related water usage citywide. It is the City's goal to reduce landscape related water usage as much as possible per site, through implementation of the Guide. To meet this goal, Planting Plans and Irrigation Plans should be prepared using the Water Budget Formula found in the City's Landscape Documentation Package.

### **WHY DO I NEED I NEED THIS GUIDE?**

The Water Efficient Landscaping Ordinance applies to all projects that require permits, plan check, and/or design reviews and includes both public and private development. Specifically, it applies to new construction being built by developers with landscaped areas larger than 2,500 square feet; and existing single family homes where the landscaped area is more than 5,000 square feet and are undergoing a change.

Landscaping and proper irrigation is a critical component of any successful development project. Landscaping should define a sense of space by making a statement, ensuring community continuity, complementing good architectural design, and creating a cohesive finished product. The City of Arcadia emphasizes design elements that can achieve aesthetic objectives while acknowledging the practical water constraints of this unique geographic environment.

## **WHAT ARE THE GENERAL LANDSCAPING DESIGN GUIDELINES I SHOULD FOLLOW?**

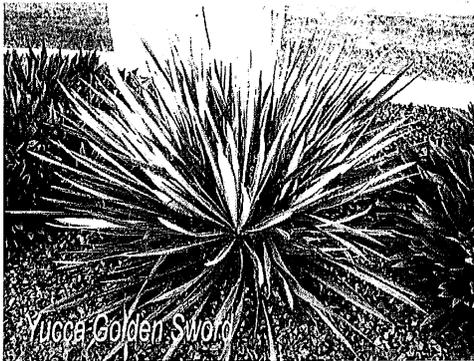
Landscape plans should incorporate the following design guidelines relative to their respective product types and use of drought-tolerant/water-efficient plants to reduce water demand. A rich variety of plantings and hardscape can enhance the landscape design based on their intended uses.



### **A. Single Family Residential Design Guidelines:**

1. Trees, shrubs, and groundcover shall be incorporated within single-family development projects to create a comfortable and aesthetically pleasing environment for residents and those viewing from public areas. The Single Family Design Guidelines handout has a planting palette that can be used as a guide.
2. Landscape architects and designers are encouraged to use clinging vines, espaliers, trellises, and shrubs to enhance the architecture and define attractive private open spaces.
3. Front yard areas can be designed using landscape elements pertaining to the form, horizontal and vertical lines, hardscape and softscape, and ornate qualities that are compatible with the primary structure. Visual openness and water efficiency should be maintained. Special attention should be given to selecting appropriate trees and plants that, at their maturity, will be in scale with the house and yard.

4. Landscape architects and designers can use visual focal points such as boulders, landscape mounds, planter beds, etc.
5. Use of vegetative ground cover that will absorb rainwater and reduce runoff is strongly encouraged. Permeable surfaces shall be used wherever possible to reduce paving.



6. Landscaping should be included as part of the design for a fence or wall. It should be used to soften and screen large masses of blank wall surface area and deter graffiti.
7. Turf areas should be used sparingly in response to functional needs and shall be in compliance with the water budget formula.

#### **B. Multi-Family Residential Design Guidelines:**

1. Trees, shrubs, and groundcover should be incorporated within multi-family development projects to create a comfortable and aesthetically pleasing environment for residents and those viewing from public areas.
2. Landscape architects and designers can use clinging vines, espaliers, trellises, and shrubs to enhance the architecture and define useful public and private spaces.
3. Landscape architects and designers can integrate visual focal points such as boulders, landscaped mounds or berms, sculpture, and public art into their planting designs.
4. Planting plans should utilize hardy native or drought tolerant trees, shrubs, and groundcover that are easy to water and maintain.
5. Landscaping should be included as part of the design for a fence or wall. It should be used to soften and screen large masses of blank wall surface area and deter graffiti.
6. Planting plans should complement the landscape elements between the proposed project, surrounding streetscapes, and adjacent publicly maintained landscaping to ensure community continuity and character.

7. Turf areas should be used sparingly in response to functional needs and shall be in compliance with the water budget formula.



### **C. Commercial, Mixed Use, and Industrial Design Guidelines:**

1. Landscaping should be in scale with adjacent buildings and be of appropriate size at maturity to accomplish its intended goals. A balance of deciduous and evergreen trees can be used.
2. Landscaping should be incorporated around the base of building(s) (except loading or service areas) to soften the edge between the parking lot, structure(s), and street. Such landscaping should be accentuated at entrances to provide a focal point.
3. New projects proposed adjacent to existing residential uses should incorporate adequate landscape screening/buffering.
4. Landscaping should be included as part of the design for a fence or wall. It should be used to soften and screen large masses of blank wall surface area and deter graffiti.
5. Turf areas should be used sparingly in response to functional needs and shall be in compliance with the water budget formula.
6. Landscaping plans should complement the landscape and hardscape elements between the proposed project, surrounding streetscapes, and adjacent publicly maintained landscaping to ensure community continuity and character.

### **WHAT SHOULD I KNOW BEFORE I PREPARE MY PLANTING PLAN?**

- Plants should be selected based on their level of maintenance, durability, mature widths and heights, aesthetic appeal, and thematic qualities.
- A greater percentage of “low” or “very low” water use plant species is strongly encouraged.
- Shade trees are ideal for residential, commercial and industrial building parking lots and open



space areas. They should be incorporated to provide natural cooling opportunities and for the purpose of energy and water conservation.

- All non-turf planting areas (except hydroseeded areas) should be mulched on a regular basis to retain moisture, suppress weeds, and moderate soil temperature.
- Turf should be used as a functional recreational element and not solely for aesthetic purposes.
- Plants should be grouped and irrigated on separate valve zones (hydrozones) based on their water use requirements, slope aspect, and sun/shade microclimate.
- Shrubs should be designed so that their mature width will not require excessive pruning, excessive pruning is discouraged.
- To prevent graffiti, self clinging vines should be planted to ensure full coverage of the public facing side of all walls.



### **WHAT SHOULD I KNOW BEFORE I PREPARE MY IRRIGATION PLAN?**



- Irrigation systems shall be designed, constructed, managed, and maintained to achieve the highest overall efficiency possible.
- Rotors and spray heads should be designed and installed with minimized overspray onto paved surfaces, structures, and non-vegetated areas.
- For drip line installations, in-line pressure regulators should be used per factory recommendations for the specific irrigation products being used.
- Irrigation systems should be zoned according to plant water use, slope aspect, and sun/shade microclimate.
- With the exception of single family residential units, all irrigation plans should be designed for recycled water use in the future.

- Projects should include a “smart” irrigation controller with the following attributes:
  - a. Real time, weather based program adjustment capability;
  - b. On-site weather station or external ETo input;
  - c. Rain sensors should be placed within an unobstructed natural rainfall area and located above the irrigation spray patter.
  - d. Flow sensor;
  - e. Multiple start times; and
  - f. Minimum of two programs.
- Systems should be scheduled so that the irrigation precipitation rate does not exceed the infiltration rate of the soil.

## **CONCLUSION**

The Landscape Documentation Package must be completed and submitted with your plans. If you have any questions or need any additional assistance, please contact the City of Arcadia Development Services Department at (626) 574-5423.

