Conservation in Landscaping - Rules, Regulations and Procedures. Landscape Documentation Package - Submittal Instructions

Purpose

The purpose of these rules, regulations and procedures is to identify the suggested minimum requirements for implementing the provisions of the City of Lakewood Water Conservation in Landscaping Ordinance under Section 8600 et seq. of the Lakewood Municipal Code, pursuant to Governor's Executive Order EO B-29-15. The provisions in these procedures apply to the following projects in Lakewood:

1. New development projects with an aggregate landscape area equal to or greater than 500 square feet and which require a building or landscape permit, plan check or approval from the Development Review Board.

2. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 square feet and which require a building or landscape permit, plan check, or approval from the Development Review Board.

3. Existing landscapes where the City has by mutual agreement designated another agency to implement some or all of the requirements contained in this Chapter.

4. Existing landscapes installed before December 1, 2015 and which are over one acre in size.

5. Existing landscapes where water is wasted as a result of inefficient landscape irrigation due to water runoff from leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures.

6. Landscapes located in cemeteries as specified by Governor's Executive Order EO B-29-15.

These requirements do not apply to:

1. Registered local, state or federal historical sites;

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

3. Mined-land reclamation projects that do not require a permanent irrigation system; or

4. Existing plant collections, as part of botanical gardens and arboretums open to the public.

A Landscape Documentation Package shall be prepared pursuant to Governor's Executive Order EO B-29-15 and submitted to the Community Development Department prior to commencing work. Directions for the preparation of the Landscape Documentation Package and Certification of Completion are contained in this packet. The Landscape Documentation Package will be reviewed to ensure completeness and compliance with the requirements contained herein. The Landscape Documentation Package may be approved, approved with conditions, or denied.

Upon approval the applicant must obtain all appropriate permits from City of Lakewood Community Development Department prior to starting work.

Landscape Documentation Package - The Landscape Documentation Package shall contain:

1. The attached Water Conservation in Landscaping application form;

2. Water Efficient Landscape Worksheet;

3. Soil management report as necessary;

4. Landscape design plan;

5. Irrigation design plan;

6. Grading design plan as necessary;

Certificate of Completion - Upon completion of the project the applicant shall submit a Certificate of Completion to the City of Lakewood Community Development Department. The Certificate of Completion includes:

1. An original signed Certificate of Completion form (included in this packet);

2. Submittal of as-built Landscape Documentation Package if significant alterations were made to the original plans;

3. Irrigation and landscape maintenance schedule;

4. Results from the Irrigation Audit, Irrigation Survey, or Irrigation Water Use Analysis; and

5. Grading Plan if not previously submitted with the Landscape Documentation Package.

LANDSCAPE PLAN APPLICATION REQUIRMENTS

LANDSCAPE DOCUMENTATION PACKAGE

LANDSCAPE PLAN PREPARATION

Landscape Plan and Details. For the efficient use of water, a landscape should be designed and planned for the intended function of the project. Functionality may include areas designed for active recreation, food production, or aesthetic enhancement. Landscape design plans meeting the following criteria shall be submitted as part of the Landscape Documentation Package:

I. Plant Materials. Any plant may be used in the landscape, providing the Estimated Total Water Use (ETWU) in the landscape area does not exceed the Maximum Applied Water Allowance (MAWA) as provided in these instructions.

A. Methods to achieve water efficiency through plant selection shall include one or more of the following:

1. Protection, preservation, or restoration of native species and natural vegetation as appropriate.

2. Selection of water-conserving plant, tree, and turf species. Special consideration should be given to local native plants.

3. Selection of plants based on adaptability to the local climate, geologic, topographic, disease, and pest resistance conditions of the site. Selection of plants shall also take into consideration shading of the planting area, proximity to adjacent hardscape areas and structures.

4. Selection of trees based on applicable local street tree guidelines, the amount of shade produced by a tree, or size of the tree at maturity as appropriate for the planting area.

5. Selection of plants from local and regional landscape program plant lists. Designers are encouraged to utilize the Water Use Classification of Landscape Species (WUCOLS) published by the University of California Cooperative Extension http://ucanr.edu/sites/WUCOLS/.

6. Selection of plants from Los Angeles County Fuel Modification Plan Guidelines as appropriate.

B. Hydrozones. The landscape area shall be divided into hydrozones. Each hydrozone shall be selected and planted appropriately based upon their adaptability to the climate, soil conditions, and site topography. Each hydrozone shall have plant materials with similar water use demand, with the following exception; hydrozones may mix plants with different water needs provided that individual hydrozones mix plants of moderate and low water use, or moderate and high water use. Hydrozones that mix low and high water use plants should be avoided. The water use calculation for mixed hydrozones must be based on one of the following:

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

2. Plant factor of the highest water using plant is used for the calculation.

C. Turf. Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape.

D. High water use plants. Plants with a plant factor of 0.7 to 1.0 should not be used in street medians.

E. Fire Prone Areas. A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required pursuant to California Public Resource Code Section 4291(a) and (b). Refer to the Los Angeles County Fuel Modification Plan Guidelines as appropriate.

F. Invasive or Noxious Plant Species. The use of invasive and/or noxious plant species is discouraged.

G. Low Water Use Plants. The architectural guidelines of a common interest development, including community apartment projects, condominiums, planned developments, or stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water plants as a group, pursuant to California Civil Code Section 1353.8.

II. Water Features. Water features such as ponds, and waterfalls used in landscaped areas shall meet the following criteria:

A. Recirculating water systems shall be used for water features;

B. Water features shall be designed and operated to minimize water loss; and

C. Water features shall use reclaimed water if available and approved by the State of California Department of Public Health and the Los Angeles County Department of Public Health.

D. Recreational pools and spas shall be designed to minimize water loss.

E. All water features shall be included in the project's Estimated Total Water Use. Surface areas of water features shall be classified as high water use hydrozones.

III. Mulch and Amendments. The Landscape Plan shall include the use of mulch to retain moisture and minimize water runoff.

A. Prior to the planting of any materials, compacted soils shall be transformed to a friable condition. On engineered slopes, only amended planting holes need meet this requirement.

B. Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected.

C. For landscape installations, compost at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top six inches of soil are exempt from adding compost and tilling.

D. A minimum of three-inch (3″) layer of mulch shall be applied over all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is not recommended by a landscape architect.

E. Stabilizing mulching products shall be used on slopes that meet current engineering standards.

F. The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet this mulching requirement.

G. Use of organic mulch materials made from recycled or post-consumer products is encouraged except where prohibited by Los Angeles County Fuel Modification Plan Guidelines or other applicable local ordinances.

IV. Landscape Design Plan. The Landscape Design Plan shall include:

A. Landscape Design Plan. The landscape design plan shall be drawn to scale on

project base sheets in a clear and legible fashion. The plans shall be drawn to a scale which is appropriate for the size of the project and adequate to clearly identify each component of the plan. The smallest scale that may be used is one inch equals 20 feet (1" = 20').

B. Elements Required on the Landscape Design Plan. The following elements shall be detailed on the project plans:

1. Project Base Sheet Elements. The project base sheets shall include dimensioned property lines, building footprints, and pervious and non-pervious hardscape areas including parking areas, paving, and sidewalks.

2. Natural Features and Plantings to Remain in Landscaped Areas. Landscape plans shall include natural features, including rock out-cropping, streams, existing mature and ornamental trees and shrubs proposed to remain on the subject site.

3. Hydrozone Identification. The landscape plan shall identify and label each hydrozone by number, letter, or other method and shall identify each hydrozone as low, moderate, high water, or mixed water use. Areas that are expected to receive temporary irrigation shall be included in the low water use hydrozone for the water budget calculations.

4. Location of Plants. The landscape plan shall indicate each species of each plant species using a unique symbol for each.

5. Table of Plants. The landscape plan shall include a table of plants corresponding to the planting plan. The table shall include the botanical name, common name, container size, spacing, quantity, and the level of water use for each group of plants indicated.

6. Tree Staking and Soil Preparation Details. Landscape plan shall include tree staking details, soil preparation details and specifications, planting specifications, and any other applicable details. The landscape plan shall identify the type and quantity of soil amendments.

7. Recreation Areas. The landscape plan shall identify recreation areas.

8. Edible Plants. Identify areas dedicated permanently and solely to edible plants.

9. Mulch Application. The landscape plan shall identify the type of mulch and application depth. A minimum depth of three inches (3") of mulch is required.

10. Water Features. The landscape plan shall identify type and surface area of water features.

11. Stormwater Retention and Infiltration Facilities. The landscape plan should identify the location, installation details, and 24-hour retention or infiltration capacity of applicable stormwater best management practices (BMPs) as described in the Stormwater Management portion of this packet.

12. Rain Harvesting Facilities. The landscape plan shall identify applicable rain harvesting or catchment technologies.

13. Graywater. The landscape plan shall identify applicable graywater discharge piping, systems components, and area(s) of distribution.

IRRIGATION PLAN PREPARATION

Irrigation Plan and Details. An irrigation system shall meet all the requirements listed in this

section to obtain the most efficient use of water. The applicant shall design the irrigation system using the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package. This section does not apply to areas where temporary irrigation is used solely for the plant establishment period.

I. Irrigation Design Plan. The irrigation system must be designed and installed to comply with the Irrigation Efficiency criteria and the Maximum Applied Water Allowance as found on the Water Efficient Landscape Worksheet.

A. Water Meters. Landscape water meters, defined as either a dedicated water service water service meter or private sub-meter, shall be installed for all non-residential irrigated landscapes between 1,000 square feet, but not more than 5,000 square feet (which is the threshold at which State Water Code 535 applies) , and residential irrigated landscapes of 6,000 square feet or greater. A landscape water meter may be either a customer service meter dedicate to landscape use provided by the local water purveyor; or a privately owned meter or sub-meter.

B. Automatic Irrigation Controllers. Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data using non-volatile memory shall be required for all irrigation systems.

C. Water Pressure. If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating devise is required to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

A. Measuring Water Pressure. Static water pressure, dynamic or operating pressure and flow reading of the water supply shall be measured at the point of connection by the applicant during the design stage. If the measurements are not available at the design stage, the measurements shall be conducted upon initial installation of the irrigation system.

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

D. Sensors. Sensors (rain, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate.

E. Shut-Off Valve. Manual shut-off valves shall be installed as close as possible to the point of connection of the water supply to minimize water loss in the event of a pipeline break or routine repair.

F. Backflow Prevention Devices. Backflow prevention devices shall be installed to protect the water supply from contamination by the irrigation system pursuant to the Plumbing Code.

G. Flow Sensors. Flow sensors that detect high flow conditions created by system damage or malfunction are required for all non-residential landscapes and residential landscapes of 5,000 square feet or more.

H. Master Shut-Off Valves. Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers

that are individually pressurized in a system equipped with low pressure shut-down features.

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

J. Soil Management. Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

K. Irrigation Devices. All irrigation emission devices must meet the standard set in the American Society of Agricultural and Biological Engineers'/International Code Council's (ASABE/ICC) 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard." All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.

L. Watering Mulched Planters. Drip irrigation or low volume irrigation should be used in mulched plant areas to maximize water infiltration in the root zone.

M. Check Valves. Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.

N. Narrow Planters. Irrigated areas with a minimum width of 10 feet in any direction shall utilize irrigation devices that produce no water runoff or overspray.

O. Overspray. Overhead irrigation sprinklers may be located within 24 inches of a non-permeable surface provided that the non-permeable surface is designed and constructed to drain entirely to the landscape planter.

P. Slopes. Slopes greater than 25% shall not be irrigated at an application rate exceeding 0.75 inches per hour. This restriction may be modified if the Landscape Documentation Package clearly demonstrates that no runoff or erosion will occur.

II. Hydrozones. The design of the irrigation system shall conform to the hydrozones of the landscape design plan.

A. Installation of a Separate Valve for Each Hydrozone. Each valve should irrigate a hydrozone with similar site, slope, sun exposure, soil conditions and plant materials with similar water use. On the landscape and irrigation design plans, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table found on the Water Efficient Landscape Worksheet.

B. Sprinkler Head/Emitter Selection. Sprinkler heads and other emission devices shall be selected based on the needs of the plant types within each hydrozone.

C. Tree Irrigation. Trees should be placed on separate valves from shrubs, groundcovers, and turf to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.

D. Mixed Hydrozones. Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use may be allowed if the plant factor calculations are based on the proportions of the respective plant water uses and their plant factor; or if the plant factor of the higher water using plant is used for calculations. Individual hydrozones that mix high and low water use plants should be avoided.

III. Irrigation Plan Submittal. The Irrigation Design Plan shall show:

A. The location and size of separate water meters for landscape;

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

C. The static water pressure at the point of connection to the public water supply;

D. For each station, the flow rate expressed as gallons per minute, the application rate expressed as inches per hour, and the design operating pressure expressed as pressure per square inch.

E. The use of reclaimed, recycled, or gray water irrigation systems as applicable.

F. The irrigation design plan shall be drawn to scale on project base sheets in a clear and legible fashion. The plans shall be drawn to a scale which is appropriate for the size of the project and adequate to clearly identify each component of the plan. The smallest acceptable scale is one inch – 20 feet (1" = 20').

SOILS ASSESSMENT

Soil Management Report. In order to reduce water runoff and encourage healthy plant growth, a soil management report shall be submitted by the project applicant or his/her designee, as follows:

I. Soil Analysis.

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

B. Certified Soils Laboratory. Soil samples from the proposed planting areas shall be submitted to a certified soils laboratory for analysis and recommendations. The analysis must include soil texture, infiltration rate (determined by laboratory test or soil texture infiltration rate table), soil pH, total soluble salts, sodium, percent of organic matter, and recommendations.

C. Project sites with a gross area of 30,000 square feet or more shall conduct soil sampling at a ratio of one sample per 6,000 square feet of lot area.

II. Soil Analysis Report Submittal. The project applicant, or his/her designee, shall comply with one of the following:

A. Results of the soils samples shall be submitted with the Landscape Documentation Package, if the project does require significant grading; or

B. Results of the soils samples shall be submitted to the City with the Certificate of Completion.

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

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

GRADING PLAN

Grading Design Plan. For the efficient use of water, grading of a project site shall be designed to

minimize soil erosion, runoff, and water waste. A grading plan shall be submitted as part of the Landscape Documentation Package. A grading plan prepared by a civil engineer for another local agency as part of the plan check process satisfies this requirement.

I. Grading Plan Detail. The grading plan shall indicate finished configurations and elevations of the landscape. The grading plan shall be drawn to scale on project base sheets in a clear and legible fashion. The plans shall be drawn to a scale which is appropriate for the size of the project and adequate to clearly identify each component of the plan. The smallest scale that may be used is one inch – 20 feet (1"=20').

A. Grading Plan Design. To prevent excessive erosion and runoff, grading plans shall be designed:

1. To a finished grade that eliminate the potential of runoff from irrigation and rainfall, and does not allow drainage to adjacent private properties;
2. To avoid to the extent feasible the disruption of natural drainage patterns and undisturbed soil; and
3. To avoid to the extent feasible soil compaction in landscape areas.

B. Elements Required on the Grading Plan. The elements shall be detailed on the project plan:

1. Height of graded slopes;
2. Contour elevations with spacing shown at no greater than five feet (5');
3. Drainage patterns;
4. Pad elevations;
5. Finish grade; and
6. Stormwater retention improvements, if applicable.

STORMWATER MANAGEMENT AND RAINWATER RETENTION

I. Stormwater Management. Stormwater management practices are implemented to minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site rainwater retention and infiltration is encouraged.

A. All planted landscape areas are required to have friable soil to maximize water retention and infiltration.

B. Landscape areas should be designed for capture and infiltration capacity that is sufficient to prevent runoff from impervious surfaces (i.e. roof and paved areas) from either the one inch, 24-hour rain event, or (2) the 85th percentile, 24-hour rain event, and/or additional capacity as required by any applicable local, regional, state or federal regulation.

C. Storm water projects should incorporate the following elements to improve on-site storm water and dry weather runoff capture and use:

1. Design and construct impervious surfaces, such as driveways, so that water drains to planting areas.
2. Minimize impervious surfaces such as paved areas, roof and concrete driveways.
3. Minimize water runoff by incorporating pervious or porous surfaces such as gravel, permeable pavers or blocks, or pervious or porous concrete.
4. Incorporate rain gardens, cisterns, and other rain harvesting or catchment systems.
6. Incorporate infiltration beds, swales, basins and drywells to capture storm water and dry weather runoff and increase percolation into the soil.
7. Construct wetlands and ponds that to retain, equalize excess flow, and filter pollutants.

D. Stormwater management plan shall be drawn to scale on project base sheets in a clean and legible fashion. The plans shall be drawn to a scale which is appropriate for the size of the project and adequate to clearly identify each component of the plan. The smallest acceptable scale that may be used is one inch equals 20 feet (1" = 20').

PUBLIC EDUCATION

All model homes shall incorporate water efficient landscaping pursuant to the Section 8600 of the Lakewood Municipal Code and the guidelines contained in this packet. Model homes shall include signs and written information demonstrating the principles of the water efficient landscaping installed at the model home site.

Signs shall be used to identify the model as an example of a water efficient landscape featuring elements such as hydrozones, irrigation equipment, and others components that contribute to the overall water efficient theme. Signage may include information about compliance with applicable water conservation in landscaping requirements, information on the landscape designer or landscape contractor, benefits and cost advantages of using water conserving landscapes. Information shall be provided to home purchasers about designing, installing, managing, and maintaining water efficient landscapes.

IRRIGATION SCHEDULE

Irrigation Schedule. An irrigation schedule shall be submitted with the Landscape Documentation Package. The irrigation schedule shall provide at a minimum: an irrigation program with a minimum four-season water schedule; and run time and frequency (days per week) of irrigation for each station. A copy of the irrigation schedule shall be maintained at the subject site. Irrigation schedules shall be developed, managed and evaluated to utilize the minimum amount of water required to maintain plant health.

A. Irrigation Schedule Criteria. Irrigation schedules shall meet the following criteria:

1. Automatic Irrigation Controller. Irrigation scheduling shall be regulated by automatic irrigation controllers that operate using either evapotranspiration or soil moisture data. Parameters used to set the automatic controller shall be developed and submitted for each of the following:

- **a)** The plant establishment period;
- **b)** The established landscape; and
- **c)** Temporarily irrigated areas.

2. Schedule for Overhead Irrigation. Overhead irrigation should be scheduled based on the watering times established in the City of Lakewood Water Conservation Ordinance and the existing water supply stage determined by the Lakewood City Council.

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

4. Station Setting Criteria. Each irrigation schedule shall consider all of the following factors for each station:

- **a)** Irrigation interval (days between irrigation) or days to irrigate;
- **b)** Irrigation run times (hours or minutes per irrigation event). Run time shall be limited to avoid runoff;
- **c)** Number of cycle starts required for each irrigation event to avoid runoff;
- **d)** Amount of applied water scheduled to be applied on a monthly basis;
- **e)** Application rate setting;
- **f)** Root depth setting;
- **g)** Plant type setting;
- **h)** Soil type;
- **i)** Slope factor setting;
- **j)** Shade factor setting; and
- **k)** Irrigation uniformity or efficiency setting.

IRRIGATION AUDIT, IRRIGATION SURVEY, OR IRRIGATION WATER USE ANALYSIS

An irrigation audit is an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. Irrigation audits include inspections, system tune-ups, system tests for distribution uniformity or emission uniformity, reporting overspray or runoff, and preparation of an irrigation schedule. Irrigation audits must be conducted in a manner consistent with the Irrigation Association's Landscape Irrigation Auditor Certification.

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

An irrigation water use analysis is a review of water use data based on meter readings and billing data.

A. All landscape irrigation audits shall be conducted by a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.

B. For project sites with a gross area of 30,000 square feet irrigation audits shall be conducted at a ratio of one sample per 6,000 square feet of lot area.

C. Landscape audits shall be prepared for new construction and rehabilitated landscape projects installed after December 1, 2015 for the following:

1. New development projects with an aggregate landscape area equal to or greater than 500 square feet and which require a building or landscape permit, plan check or design review.
2. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 square feet and which require a building or landscape permit, plan check, or design review.
3. Existing landscapes where the City has by mutual agreement designated another agency to implement some or all of the requirements contained in this Chapter.
4. Existing landscapes installed before December 1, 2015 and which are over one acre in size.
5. Existing landscapes where water is wasted as a result of inefficient landscape irrigation due to water runoff from leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures.
6. Landscapes located in cemeteries as specified by Governor's Executive Order EO B-29-15.

D. A Water Use Analysis shall be prepared for existing landscapes that were installed before December 1, 2015, are over one acre in size, and which have a dedicated water meter. The Water Use Analysis shall evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the Maximum Applied Water Allowance for existing landscapes. The Maximum Applied Water Allowance (MAWA) for such landscapes shall be calculated as: MAWA = (0.8)(ETo)(LA)(0.62).

E. An Irrigation Survey shall be prepared for existing landscapes that were installed before

December 1, 2015, are over one acre in size, and which do not have a dedicated water meter. The Irrigation Survey shall evaluate water use and provide recommendations as necessary in order to prevent water waste.

CERTIFICATE OF COMPLETION

Certificate of Completion. Upon completion of the installation of the landscape, the designer shall certify that the landscape complies with all the requirements of the City of Lakewood Water Conservation in Landscaping Ordinance and the requirements as stated in the Rules, Regulations and Procedures for the Implementation of the ordinance. The Certificate of Completion shall be submitted to the City of Lakewood Community Development Department and shall include:

A. Certificate of Completion Supporting Documents. The certificate and the supporting documents listed below shall be submitted prior to the final approval of the project completion.

B. Irrigation Schedule. Submit irrigation scheduling parameters used to set the controller (may be included with the Irrigation Plan and Details).

C. Landscape and Irrigation Maintenance Schedule.

1. Landscapes shall be maintained to ensure water use efficiency.
2. A regular maintenance schedule shall include, but not be limited to, routine inspection; adjustment and repair of the irrigation system and its components; aerating and dethatching of turf areas; replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing obstructions to sprinklers and emitters.
3. Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.
4. Project applicants are encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.
5. The results of the soils assessment and grading plan shall be submitted with the Certificate of Completion, if not initially submitted with the Landscape Documentation Package, unless the grading plan was prepared by a civil engineer for another local agency as part of the plan check process.
6. If significant changes occurred in the field during construction, a Landscape Documentation Package that reflects the "as-built" conditions shall be submitted with the Certificate of Completion for review and approval.

WATER EFFICIENT LANDSCAPE WORKSHEET - INSTRUCTIONS

The Water Efficient Landscape Worksheet is a required element of the Landscape Documentation Package. This worksheet will assist the applicant in determining the Maximum Applied Water Allowance (MAWA) and the Estimated Total Water Use (ETWU) for the landscape project. The Water Efficient Landscape Worksheet is located in the Appendices. Instructions for completing the Water Efficient Landscape Worksheet are shown below. The information obtained from the hydrozone information table is used to calculate the MAWU and the ETWU.

STEP 1: Complete the Hydrozone Information Table

Complete the hydrozone information table for each hydrozone. A Hydrozone is a portion of the landscaped area having plants with similar water needs: low; moderate; high; or mixed- low and moderate, and moderate and high. Enter the Plant Water Use Factor for each hydrozone. If you are unsure specifically which Plant Water Use Factor number to cite within a range, use the average number.

Water needs of plants in hydrozone	Plant Factor Range	Plant Factor Average
Very Low Water Use	0 to 0.1	0.05
Low Water Use	0.1 to 0.3	0.2
Moderate Water Use	0.4 to 0.6	0.5
High Water Use	0.7 to 1.0	0.8
Special Landscape Areas	(shall not exceed 1.0)	Varies

To determine if a plant's water usage is very low, low, moderate, or high Refer to the Water Use Classification of Landscape Species (WUCOLS) published by the University of California Cooperative Extension http://ucanr.edu/sites/WUCOLS/.

A Guide to Estimating Irrigation Water Needs of Landscape Plantings in California August 2000 published by University of California Cooperative Extension, California Department of Water Resources. This publication is available at http://www.water.ca.gov/wateruseefficiency/publications/ or by writing the California Department of Water Resources:

California Department of Water Resources
Bulletins and Reports
P. O. Box 942836
Sacramento, California 94236-0001

Hydrozones that include a mix plants of moderate and low water use, or moderate and high water use, are allowed if:
1) Plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
2) The plant factor of the highest water using plant is used for the calculation.
3) Avoid placing low -and high- water use plants within the same hydrozone.
Special Landscape Areas (SLA) are areas dedicated solely to edible plants, recreational areas, or are

areas that irrigated with reclaimed (recycled) water, or water features using reclaimed (recycled) water. The Hydrozone Information Table also requires information on the method of irrigation (such as spray, rotor, bubbler, drip irrigation, etc.) for each hydrozone.

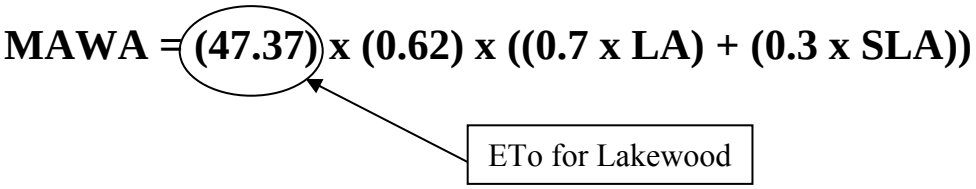
STEP 2: Calculate the Maximum Applied Water Allowance (MAWA)

These water calculations apply to certain new and rehabilitation projects, as well as landscapes installed prior to January 1, 2010 and which are over one (1) acre in area (upon written notice to conduct a water audit on the landscape area).

Formula to calculate Maximum Applied Water Allowance (MAWA):

$$\mathbf{MAWA = (ETo) \times (CF) \times ((ETAF \times LA) + (0.3 \times SLA))}$$

Formula to calculate Maximum Applied Water Allowance (MAWA) inserting factors:



TERMS			
Abbreviation	**Definition**	**Factor**	**Comments**
MAWA	Maximum Applied Water Allowance		
ETo	Reference Evapotranspiration	47.37	See Appendices
CF	Conversion Factor to gallons	0.62	
ETAF	Evapotranspiration Adjustment Factor	0.45	
LA	Landscape Area	square footage of the landscape project	
SLA	Special Landscape Area	square footage of special landscape areas in project	See step 1 for list
Additional Water Allowance for SLA		0.3	

Example:
A landscape project is 32,000 square feet in area includes additional 2,000 square feet of Special Landscape Area (See list in step 1). Using this example, the MAWA is calculated as follows:

MAWA = (47.37) x (0.62) x ((0.45 x 25,000) + (0.3 x 2,000))
MAWA = 348,027 gallons per year

STEP 3: Calculate the Estimated Total Water Use (ETWU)

These water calculations apply to certain new and rehabilitation projects, as well as landscapes installed prior to January 1, 2010 and which are over one (1) acre in area (upon written notice to conduct a water audit on the landscape area).

Formula to calculate Estimated Total Water Use (ETWU):

ETWU = (ETo) x (CF) x ((Sum of (PF X HA)/IE) + SLA)

Formula to calculate Total Water Use (ETWU) inserting factors:

ETWU = (47.37) x (0.62) x ((Sum of (PF X HA)/IE) + SLA)

ETo for Lakewood

TERMS			
Abbreviation	**Definition**	**Factor**	**Comments**
ETWU	Estimated Total Water Use		
ETo	Reference Evapotranspiration	47.37	See Appendices
CF	Conversion Factor to gallons	0.62	
PF	Plant Factor		
HA	Hydrozone Area	square footage of the landscape project	
IE[1]	Irrigation Efficiency	0.71	minimum required
SLA	Special Landscape Area	square footage of special landscape areas in project	See step 1 for list

[1]Irrigation Efficiency (IE) is defined as the measurement of the amount of water beneficially used by plants, divided by the amount of water applied. Not all water applied to landscapes is used by plants. Some water is lost due to runoff, wind spray, or deep percolation. IE is derived from the measurements and estimates of irrigation system characteristics and management practices. The minimum acceptable IE for the purposes of these submittal procedures is 0.71. Greater irrigation efficiency may be achieved from irrigations systems that are well designed and that well maintained. For more information on IE, see Chapter 5 of A Guide to Estimating Irrigation Water Needs of Landscape Plantings in California August 2000.

Example:
Calculating for plant factor by hydrozone area is dependent on the number of hydrozones in a landscape project, plant factors, hydrozone square footage, and any Special Landscape Areas. In sample table below the sum of PF x HA is 6,200. SLA is added after the sum of PF x HA is calculated.

Sample Hydrozone Table: Plant Factor Calculation by Hydrozone Area

Hydrozone Number	Plant Water Use (Low, Moderate, High)	Plant Factor (PF)	Hydrozone Area (HA)	PF x HA
1	High	0.8	1,000	800
2	Moderate	0.5	2,000	1,000
3	Low	0. 2	5,000	1,000
4	Low	0. 2	8,000	1,600
5	Low	0.2	9,000	1,800
			Sum of PF x HA:	6,200
6	SLA	1.0	2,000	2,000

Using this sample the ETWU formula appears as:

ETWU = (47.37) x (0.62) x (6,200)/0.71) + 2,000)
ETWU = 315,204 gallons per year

STEP 4: Comparing the Estimated Total Water Use with the Maximum Applied Water Allowance

Any plant may be used in the landscape, providing the Estimated Total Water Use (ETWU) in the landscape area does not exceed the Maximum Applied Water Allowance (MAWA). Compare the project's Maximum Applied Water Allowance to the Estimated Total Water Use. The plant plan is acceptable, if the Estimated Total Water Use is less than the Maximum Applied Allowance. If the estimated water use is higher than the allowance, then the applicant shall alter the plant plan to lower the estimated total water use.

The example above would meet the Water Conservation in Landscaping Ordinance criteria, because the Estimated Total Water Use of 315,204 gallons per year is 32,823 gallons lower than the Maximum Applied Water Allowance of 348,027 gallons per year.

FORMS FOR SUBMITTAL OF THE LANDSCAPE DOCUMENT PACKAGE & CERTIFICATE OF COMPLETION

WATER EFFICIENT LANDSCAPE WORKSHEET

Project Address_____Date_____

Hydrozone Information Table

Hydrozone Plant Factor[1]		Valve/zone Number	Irrigation Method[2]	Landscape Area (Sq. Ft.)	% of Landscape Area
1					
2					
3					
4					
5					
6					
Totals			**-**		**100%**

[1]Hydrozone Key

VL = Very Low Water Use Plants (Plant Water Use Factor range = 0.0 to 0.1)
LW = Low Water Use Plants (Plant Water Use Factor range = 0.1 to 0.3)
MW = Moderate Water Use Plants (Plant Water Use Factor range = 0.4 to 0.6)
HW = High Water Use Plants (Plant Water Use Factor range = 0.7 to 1.0)
SLA = Special Landscape Area
If project area contains more than 6 hydrozones, duplicate this table on a separate sheet.

[2]Indicate the method of irrigation (such as spray, rotor, bubbler, drip irrigation, etc.).

Maximum Applied Water Allowance Calculation

MAWA = (47.37) x (0.62) x ((0.45 x LA) + (0.3 x SLA))

Insert your MAWA calculation in the box below:

Maximum Applied Water Allowance (MAWU): _____gallons per year.

Estimated Total Water Use Calculation

ETWU = (47.37) x (0.62) x ((Sum of (PF X HA)/IE) + SLA)

Insert your ETWU calculations in the boxes below (create a larger table if necessary):

Hydrozone Number	Plant Water Use (Low, Med, Hi)	Plant Factor (PF) (varies)	Hydrozone Area (HA)	PF x HA
1				
2				
3				
4				
5				
			Sum of PF x HA:	
6	SLA (if applicable)			

Estimated Total Water Use (ETWU): _____gallons per year.
Difference between MAWA and ETWU: _____gallons per year.

WATER CONSERVATION IN LANDSCAPING - APPLICATION FORM

Project Address_____ Submittal Date_____

Applicant's Name_____

Applicant's Address_____

Applicant's City/State/Zip Code_____

Applicant's Telephone_____E-Mail_____

Landscape Architect or Designer's Name_____

Designer's Address_____

Designer's City/State/Zip Code_____

Designer's Telephone_____E-Mail_____

Property Owner's Name_____

Owner's Address_____

Owner's City/State/Zip Code_____

Owner's Telephone_____E-Mail_____

Total Landscape Area (sq. ft.)_____ Landscape Type (check one): ___New ___Rehabilitated

Land Use Type (check one):
__Single Family __Planned Development __Multi-Family __Commercial __other (specify) _____

Irrigation Water Supply (check one): __Potable __Reclaimed (Recycled) __Gray Water __other (specify) _____

Water Purveyor (check one):
__City of Lakewood Water Resources Department __Golden State Water Company

I agree to comply with the requirements of the water efficient landscape ordinance and that this Landscape Documentation Package is complete. I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation and grading design plans.

_____
Applicant Signature Date

For City Use Only
Fee Paid: $ Planner:

Date:

WATER CONSERVATION IN LANDSCAPING
CERTIFICATE OF COMPLETION

Project Address_____ Project Completion Date_____

Applicant's Name_____

Applicant's Address_____

Applicant's City/State/Zip Code_____

Applicant's Telephone_____E-Mail_____

Landscape Architect or Designer's Name_____

Designer's Address_____

Designer's City/State/Zip Code_____

Designer's Telephone_____E-Mail_____

Property Owner's Name_____

Owner's Address_____

Owner's City/State/Zip Code_____

Owner's Telephone_____E-Mail_____

I certify that the landscape project for the above property has been installed per the approved Landscape Documentation Package.

_____

Applicant Signature Date

(check one: ___Landscape Designer, ___Irrigation Designer, or ___Licensed Landscape Contractor)

_____

City Use Only

___Final landscape inspection
___Certification of Completion Checklist
___Approved landscape and irrigation maintenance schedule
___Irrigation audit report
___Soil analysis report
___Send a copy of this approved Certificate of Completion to the water purveyor and the property owner.

_____

Approved - Planner Date

Appendix 1
City of Lakewood Water Conservation in Landscaping Ordinance
Ordinance 2009-5

Ordinance 2009-5 (amended Lakewood Municipal Code Section 7511.1) is available from the City Clerk of the City of Lakewood City or on-line at:

http://weblink.lakewoodcity.org/weblink7/docview.aspx?id=68347

Appendix 2
City of Lakewood Water Conservation Ordinance
Ordinance 2009-9

Ordinance 2009-9 (amended Lakewood Municipal Code Section 8600 et al) is available from the City Clerk of the City of Lakewood City or on-line at:

http://weblink.lakewoodcity.org/weblink7/docview.aspx?id=151764

Appendix 3

LONG BEACH CIMIS STATION DATA 2008-2009

ETo (Reference Evapotranspiration) is based on data provided by the California Department of Water Resources, California Irrigation Management Information System (CIMIS). The Long Beach CIMIS station (station #174) is the station of reference used in Lakewood.

2008-2009 Data for the Long Beach CIMIS Station:

Los Angeles Basin - Long Beach - #174

Month Year	Tot ETo (in)	Tot Precip (in)	Avg Sol Rad (Ly/Day)	Avg Vap Pres (mBars)	Avg Max Air Tmp (F)	Avg Min Air Tmp (F)	Avg Air Tmp (F)	Avg Max Rel Hum (%)	Avg Min Rel Hum (%)	Avg Rel Hum (%)	Avg Dew Point (F)	Avg Wind Speed (mph)	Avg Soil Temp (F)
Oct 2008	4.03 K	0.04	400 K	12.9 K	81.0 K	51.9 K	64.7	92	33	62 K	50.3 K	2.5 K	68.0
Nov 2008	2.35 K	2.12	276	12.2	74.4 K	48.6	59.7	92	44	71	49.3	2.2 K	63.0 K
Dec 2008	1.53 K	2.76	205	9.6	63.4 K	41.5	51.3	93 K	47 K	73	42.8	2.3 K	58.4 L
Jan 2009	2.37 K	0.18	268 K	8.6	71.8 K	42.2	55.4 K	88 K	32 K	59	39.9	2.3	-M
Feb 2009	2.25 K	3.70 K	304 K	9.7	65.2 K	42.6 K	53.4	92	46	70	43.2	2.8 K	52.8 K
Mar 2009	3.80 K	0.28	436	10.5 K	66.2 K	45.2	55.4	92	48	70 K	45.4 K	3.0 K	60.7
Apr 2009	4.87 K	0.00	538 K	10.7 K	69.8 K	47.1	58.5 K	90 K	43 K	65 K	45.9 K	3.4 K	63.7
May 2009	4.96	0.00	526	14.8	71.0 K	56.6	62.8	89	61	76	55.1	3.4	69.9
Jun 2009	4.68	0.02	502	15.2	72.0	57.4 K	64.1	90	58	74	55.7	3.3 K	70.8
Jul 2009	6.37	0.00	611	17.4	80.2	60.6 K	69.0	91	50	72	59.4	3.0	75.1
Aug 2009	5.61 K	0.00	531 L	16.6 K	81.4 K	59.8 K	63.7 K	87 K	43 K	70 K	58.7 K	2.8 K	74.4 K
Sep 2009	4.55 K	0.01 K	465 K	17.8 K	82.5 K	60.2 K	69.7 K	92 K	46 K	72 K	60.1 K	2.6 K	74.4 K
Totals/Avgs	47.37	9.11	422	13.0	73.2	51.1	60.6	91	46	69	50.5	2.8	66.5

Source: http://wwwcimis.water.ca.gov/

Appendix 4
GLOSSARY

ANTI-DRAIN VALVE. See check valve.

APPLIED WATER. The portion of water supplied by the irrigation system to the landscape.

AUTOMATIC IRRIGATION CONTROLLER. An automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.

BACKFLOW PREVENTION DEVICE. A safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

CERTIFICATE OF COMPLETION. The document required under Section 8651 of the Lakewood Municipal Code.

CERTIFIED IRRIGATION DESIGNER. A person certified to design irrigation systems by an accredited academic institution a professional trade organization or other program such as the US Environmental Protection Agency's WaterSense irrigation designer certification program and Irrigation Association's Certified Irrigation Designer program.

CERTIFIED LANDSCAPE IRRIGATION AUDITOR. A person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's WaterSense irrigation auditor certification program and Irrigation Association's Certified Landscape Irrigation Auditor program.

CHECK VALVE or ANTI-DRAIN VALVE. A valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.

COMMON INTEREST DEVELOPMENTS. Community apartment projects, condominium projects, planned developments, and stock cooperatives per California Civil Code Section 1351.

CONTOUR. A line drawn on a plan which connects all points of equal elevation above or below a known or assumed reference point.

CONTROL VALVE. A valve in an irrigation system which is manually or automatically actuated using electric or hydraulic controls.

CONVERSION FACTOR. The conversion factor is (0.62). This is the number that converts acre-inches per acre per year to gallons per square foot per year.

CYCLE. The complete operation of a controller station.

DESIGNER. A person qualified to practice landscape architecture and/or irrigation design.
DIRECTOR. Director of Community Development for the City of Lakewood.

DRIP IRRIGATION. Any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants. The City of Lakewood Water Conservation Ordinance (Appendix 2) requires drip irrigation emitters to supply no more than two (2) gallons per hour.

ECOLOGICAL RESTORATION PROJECT. A project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

EMITTER. A drip irrigation emission device that delivers water slowly from the system to the soil.

ESTABLISHED LANDSCAPE. The point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.

ESTABLISHMENT PERIOD OF THE PLANTS. The first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.

ESTIMATED TOTAL WATER USE (ETWU). The calculation to determine the total water used for the landscaped area including water features. The estimated total water use shall not exceed the maximum applied water allowance. See Section 8608.1 of the Lakewood Municipal Code.

ET ADJUSTMENT FACTOR (ETAF). "ET adjustment factor" (ETAF) means a factor of 0.55 for residential areas and 0.45 for non-residential areas, that when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency two major influences upon the amount of water that needs to be applied to the landscape. The ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0. The ETAF for existing non-rehabilitated landscapes is 0.8.

EVAPOTRANSPIRATION RATE. The quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

FLOW RATE. The rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.

GRADING. Earthwork performed to alter the natural contours of an area to be planted.

HARDSCAPE. Any durable material (pervious and non-pervious).

HOME-OWNER INSTALLED LANDSCAPE. Any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who occupies the dwelling he or she owns. This excludes speculative homes, which are not owner-occupied dwellings.

HYDROZONE. A portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.

INFILTRATION RATE. The rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).

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

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

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

IRRIGATION SYSTEM. A complete connection of system components, including the water distribution network and the necessary equipment downstream from the backflow prevention device.

LANDSCAPE ARCHITECT. A person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.

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

LANDSCAPE CONTRACTOR. A person licensed by the State of California to construct, maintain, repair, install or subcontract the development of landscape systems.

LANDSCAPE DOCUMENTATION PACKAGE. The documents required in the Water Conservation in Landscaping Rules, Regulations and Procedures.

LANDSCAPE PROJECT. The total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 8601of the Lakewood Municipal Code.

LATERAL LINE. The water delivery pipeline that supplies water to the emitters or sprinklers from the valve.

LOCAL WATER PURVEYOR. The City of Lakewood and Golden State Water Company Provide retail water service to Lakewood.

LOW VOLUME IRRIGATION. The application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, 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. The pressurized pipeline that delivers water from the water source to the valve or outlet.

MAXIMUM APPLIED WATER ALLOWANCE. The annual maximum amount of water that can be applied to a landscaped area. See Section 8608 of the Lakewood Municipal Code. The maximum applied water allowance is based on local evapotranspiration, the ET Adjustment Factor, and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.

MICROCLIMATE. The climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.

MINED-LAND RECLAMATION PROJECTS. Any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

MULCH. Any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

NEW CONSTRUCTION. A new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.

OPERATING PRESSURE. The pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

OVERHEAD SPRINKLER IRRIGATION SYSTEM. A system that deliver water through the air (e.g., spray heads and rotors).

OVERSPRAY. The irrigation water which is delivered beyond the target area.
PERMIT. An authorizing document issued by the City of Lakewood for new construction or rehabilitated landscapes.

PERVIOUS. Any surface or material that allows the passage of water through the material and

into the underlying soil.

PLANT FACTOR or PLANT WATER USE FACTOR. The amount of water required to maintain a health plant. Low water use plants have a plant factor between 0 and 0.3, moderate water use plants have a plant factor between 0.4 and 0.6, and high water use plants have a plant factor between 0.7 and 1.0. A factor , when multiplied by ETo, estimates the amount of water needed by plants. Plant factors cited in this ordinance are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species."

PLANTING AREA. The parcel area less building pad(s), driveway(s), patio(s), deck(s), walkway(s) and parking area(s). Planting area includes water bodies (i.e. fountains, ponds, lakes) and natural areas.

PLANTING PLAN. A plan showing the location, spacing, numbers, container sizes of all plant materials including common and botanical names.

PRECIPITATION RATE. The rate of application of water measured in inches per hour.

PROJECT APPLICANT. The individual or entity submitting a Landscape Plan Application required under Chapter 6 of the Lakewood Municipal Code. A project applicant may be the property owner or his or her designee.

RAIN SENSOR or RAIN SENSING SHUTOFF DEVICE. A component which automatically suspends an irrigation event when it rains.

RECORD DRAWING or AS-BUILTS. A set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.

RECREATIONAL AREA. Areas dedicated to active play such as parks, sports fields, golf courses and any other area where turf provides a playing surface.

RECLAIMED WATER. Treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features; not intended for human consumption.

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

REHABILITATED LANDSCAPE. Any planting area in which more than 50 percent of the existing landscape material is replaced or modified within a 12-month period in more than 50 percent of the planting area, which is greater than 2,500 square feet and meets the provisions in Section 8601 of the Lakewood Municipal Code.

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

SOIL MOISTURE SENSING DEVICE or SOIL MOISTURE SENSOR. A device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.

SOIL TEXTURE. The classification of soil based on its percentage of sand, silt and clay.

SPECIAL LANDSCAPE AREA. Any area of the landscape dedicated solely to edible plants, water features using reclaimed water, and areas dedicated to active play such as parks, sports fields, golf courses and any other area where turf provides a playing surface.

SPRINKLER HEAD. A device which delivers water through a nozzle.

STATIC WATER PRESSURE. The pipeline or municipal water supply pressure when water is not flowing.

STATION. An area served by one valve or by a set of valves that operate simultaneously.

SWING JOINT. An irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.

TURF. A ground cover surface of mowed grass.

VALVE. A device used to control the flow of water in the irrigation system.

WATER CONSERVING PLANT SPECIES. A plant species identified as having a low plant factor.

WATER FEATURE. A design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.

WATERING WINDOW. The time of day irrigation is allowed.

WUCOLS or WATER USE CLASSIFICATION OF LANDSCAPE SPECIES. Water Use Classification of Landscape Species is published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2000.