CITY OF LONG BEACH

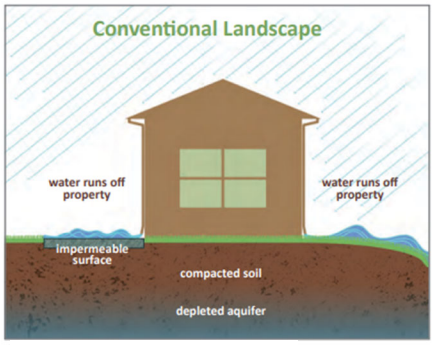
Community Development Department
Planning Bureau
411 W. Ocean Blvd, 3rd Flr, Long Beach, CA 90802
562.570.6194 | longbeach.gov/lbcd/planning/

Model Water Efficient Landscape Ordinance (MWELO)
PERFORMANCE Compliance Checklist

INTRODUCTION

About 40% of the water Californians use at home is used outdoors. Large water savings can be gained by efficient landscape design, installation, management, and maintenance. This is accomplished by choosing climate adapted plants, improving soil conditions, using, and maintaining high efficiency irrigation equipment and managing the irrigation schedule to fit the plants' water needs as they are influenced by local climate. To increase water efficiency and better use a valuable resource, rainwater and stormwater collection and graywater and recycled water can replace or augment potable water use in landscapes.

The state of California governs landscape water efficiency standards through the Model Water Efficient Landscape Ordinance (MWELO). To find out more about Long Beach's landscaping regulations visit www.longbeach.gov/MWELO.



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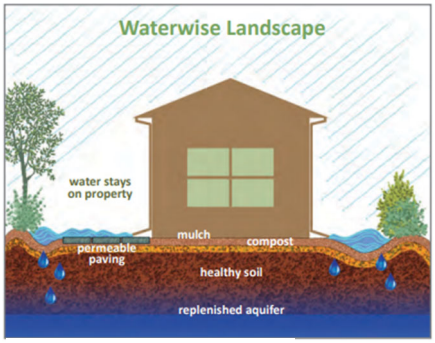

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APPLICABILITY

A MWELO permit is required if your project requires a building permit, plan check or design review and includes either:

- **New Construction projects** with an **aggregate landscape area of 500 square feet** or more
  - New construction is defined as a new building with a landscape or other new landscape such as a park, playground or greenbelt without an associated building.
- **Rehabilitated Landscapes** with an **aggregate landscape area of 2500 square feet** or more
  - Rehabilitated landscape is defined as any relandscaping project that requires a permit, plan check, or design review, and the modified landscape area (all planting areas, turf areas, and water features) is equal to or greater than 2,500 square feet.

COMPLIANCE PATHWAYS

There are two pathways for MWELO compliance: Prescriptive or Performance.

- For landscape areas **between 500-2500 square feet,** either **Performance or Prescriptive** is required depending on the project scope.
- For landscape areas **2500 square feet or more, the Performance** pathway is required.

For information on landscaping rebates visit Long Beach Utilities. No MWELO permit required.

PROCESS

1. Determine your MWELO compliance pathway and review the appropriate checklist for your Landscape Documentation Package.
2. **Complete the Landscape and Irrigation Section** of the Building Permit Application and submit your completed application package in person at the Permit Center.
3. Landscape Documentation Package review by the Planning Bureau.
4. Permit approval
5. Provide a copy of the Landscape Documentation Package and drawings to property owner.
6. **Performance pathway only**: submit the Water Efficient Landscape Worksheet to LB Utilities.
7. **Initial rough irrigation inspection** at the start of work by Planning Bureau.
8. **Final Inspection** by Planning Bureau and **Certificate of Completion Package submittal**
9. Certificate of Completion Package approval

Part 1: LANDSCAPE PACKAGE COMPONENTS – PERFORMANCE PATHWAY

Submit a Landscape Documentation package which includes the following:

- ☐ Building Application that includes:
  - Date
  - Project Applicant and Signature
  - Project Address
  - Contact Information for Project Applicant and Property Owner
  - Total Landscape Area in square feet (including special landscape, turf and plant areas)
  - Project Type (residential, non-residential, new or rehabilitated landscape)
  - Water Supply Type (potable, recycled, well)
  - Water Supplier
- ☐ Soil Management Report
- ☐ Grading Design Plan
- ☐ Landscape Design Plan
- ☐ Irrigation Design Plan
- ☐ Water Efficient Landscape Worksheet

Part 2: LANDSCAPE PACKAGE REQUIREMENTS – PERFORMANCE PATHWAY

The following requirements are mandatory and must be documented in the Landscape Package.

SOIL MANAGEMENT REPORT

- ☐ **Laboratory soil analysis and recommendations** that **include** the following:
  - Soil Texture
  - Infiltration Rate
  - Percent Organic Content
  - Total Soluble Salts
  - Sodium
  - pH
  - Recommendations
- ☐ **In projects with multiple landscape installations** (i.e. home developments) and **large landscape projects** a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement.

- ☐ **Report Submission timeframe**:
  - No significant mass grading planned = submit as part of the Landscape Package
  - Significant mass grading planned = submit at final inspection

GRADING DESIGN PLAN

- ☐ **The landscape grading plan** (prepared by a civil engineer) shall indicate finished configurations and elevations of the landscape area **including**:
  - Height of graded slopes
  - Drainage patterns
  - Pad elevations
  - Finished grade
  - Stormwater retention improvements, if applicable
- ☐ **To prevent excessive erosion and runoff**, it is highly recommended that project applicants:
  - Grade so that all irrigation and normal rainfall remains within the property lines and does not drain on to non-permeable hardscapes.
  - Avoid disruption of natural drainage patterns and undisturbed soil; and
  - Avoid soil compaction in landscape areas.
- ☐ The plan shall contain the following statement: **"I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan."**
- ☐ **Bear the signature** of a licensed professional as authorized by law.

LANDSCAPE DESIGN PLAN

Design Plan

The landscape design plan, at a minimum, shall:

- ☐ **Identify each hydrozone** by number, letter, or other method.
- ☐ **Identify the plant factor** (PF) for each hydrozone as very low (VL), low (L), moderate (M), high (H), or mixed water use.
  - **Temporarily irrigated landscape** areas shall use the low water use plant factor in the water budget.
- ☐ **Identify special landscape areas** including:
  - Recreational areas
  - Edible plant areas
  - Areas using/irrigated with recycled water
- ☐ **Identify type of mulch** and application depth
- ☐ **Identify soil amendments** including type and quantity.
- ☐ **Identify water features** including type and surface areas.
- ☐ **Identify hardscapes** (pervious and non-pervious)
- ☐ **Identify** designated **insect habitat.**
- ☐ **Identify** location and installation details of any **stormwater best management practices**
- ☐ **Identify** any **rain harvesting or catchment technologies**
- ☐ **Identify** any **graywater** discharge piping, system components, and area(s) of distribution.
- ☐ **Identify plants** by botanical name, common name or cultivar as specified in Section 53481 of the Food and Agricultural Code.

- ☐ Must contain the following statement**: "I have complied with the performance compliance option criteria of the MWELO and applied them for the efficient use of water in the landscape design plan."**
- ☐ **Bear the signature** of the designer of record.

Plant Selection

- ☐ **Any plant may be selected for the landscape**, providing the Estimated Total Water Use in the landscape area **does not exceed the Maximum Applied Water Allowance**.
- ☐ **The architectural guidelines of a common interest development** (i.e. community apartment projects, condominiums, planned developments) shall not prohibit or include conditions that have the effect of prohibiting the use of low water use plants as a group.
- ☐ **Each hydrozone** shall have plant materials with similar water use.
    - Exceptions are allowed for hydrozones that use a mix of plants with L/M or M/H plant factors
- ☐ **High water use plants** (PF range of 0.7 to 1.0) are prohibited in street medians.
- ☐ **Turfgrass**
    - **Turf shall not be planted on sloped areas** that exceed a slope of one foot vertical elevation change for every four feet of horizontal length.
- ☐ **Plants shall be selected and planted** appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. **Methods to achieve water use efficiency shall include one or more of the following:**
    - **Use the Sunset Western Climate Zone System**, 2007, which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate.
    - **Recognize the horticultural attributes of plants** (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure (e.g., buildings, sidewalks, power lines); allow for adequate soil volume for healthy root growth.
    - **Consider the solar orientation for plant placement** to maximize summer shade and winter solar gain.
    - **Protection and preservation of native species** and natural vegetation
    - **Selection** of **plants based on local climate suitability**, disease, and pest resistance
    - **Selection** of **water-conserving plant**, tree, and turfgrass species, especially local native plants
    - **Selection of trees** based on applicable **local tree ordinances** or **tree shading guidelines**, and size at maturity as appropriate for the planting area
    - **Selection** of plants from **local and regional landscape program** recommended plant lists;
    - **Selection** of plants from local **Fuel Modification Plan Guidelines**.

Water Features

- ☐ **Recirculating water systems** shall be used for water features.
- ☐ **Where available, recycled water** shall be used for decorative water features.
- ☐ **Surface area of a water feature** shall use the High water use PF in the water budget calculation.
- ☐ **Pool and spa covers** are highly recommended.

Soil Preparation, Mulch, and Amendments

- ☐ **Prior to the planting of any materials**, compacted soils shall be transformed into a friable condition.
  - On engineered slopes, only amended planting holes need meet this requirement.
- ☐ **Soil amendments shall be incorporated** according to recommendations of the soil management report and what is appropriate for the plants selected.
- ☐ **Compost** rate of **at least four (4) cubic yards per 1,000 square feet to a depth of six (6) inches** into the landscape area.
  - Soils with greater than 6% organic matter in the top six (6) inches of soil are exempt from adding compost and tilling.
- ☐ A **minimum three-inch (3) layer of organic mulch** shall be applied to all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeing applications where mulch is contra-indicated.
- ☐ The **mulching portion of the seed/mulch slurry** in hydro-seeded applications shall meet the mulching requirement in Section 493.2(d).
- ☐ **Stabilizing mulching products** shall be used on slopes that meet current engineering standards.
- ☐ **Organic mulch made from recycled materials** shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available.
  - Organic mulches are not required where prohibited by local Fuel Modification Plan.

IRRIGATION DESIGN PLAN

Design Plan

The irrigation design plan, at a minimum, shall contain the following:

- ☐ **Location and size of water meters** and submeters
- ☐ **Location, type, and size of all components of the irrigation system** including:
  - Controllers
  - Main and lateral lines
  - Valves
  - Emission devices
  - Moisture sensing devices
  - Rain sensors
  - Quick couplers
  - Pressure regulating devices
  - Backflow prevention devices
- ☐ **Water Measurements** including**:**
  - **Static water pressure** at the point of connection to the public water supply.
  - **Design operating pressure** (psi) for the emission devices controlled by each station.
  - **Flow rate** (gal/min)
  - **Application rate** (in/hr)
- ☐ **Identify** areas **using/irrigated with recycled water**
- ☐ **Identify** any **graywater** discharge piping, system components, and area(s) of distribution.
- ☐ **Identification of hydrozones** by the designation as identified on the landscape design plan.
  - **Designate the areas irrigated by each valve** and assign a number to each valve using the Water Efficient Landscape Worksheet.
  - **Each valve shall irrigate a hydrozone**, or part of a hydrozone, with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.

- ☐ The following statement: **"I have complied with the performance compliance option criteria of the MWELO and applied them accordingly for the efficient use of water in the irrigation design plan."**
- ☐ **The signature of the designer of record**.

General Design Criteria

Hydrozones

- ☐ **The design of the irrigation system** shall **conform to the hydrozones** of the landscape design plan.
  - Emission devices shall be selected based on the PF(s) within that hydrozone.
- ☐ **Where feasible, trees shall be placed on separate stations** from hydrozones that include shrubs, groundcovers, and turfgrass.
  - The mature size and extent of the root zone shall be considered when designing irrigation.
- ☐ **Individual hydrozones that use a mix of plants** with L/M or M/H plant factors, may be allowed if the plant factor used in the calculation of the estimated water use (EWU) is either:
  - Based on the proportions of the respective plant factors; or
  - The highest plant factor is used.
- ☐ **Individual hydrozones that use a mix of plants** with high and low PFs shall not be permitted.

Soil and Mulch

- ☐ **Relevant information from the soil management plan**, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
- ☐ **In mulched planting areas**, the use of low-pressure and low volume irrigation systems is required to maximize water infiltration into the root zone.

System Efficiency

- ☐ **The irrigation system must be designed** and installed to meet, at a minimum MAWA
- ☐ **Sprinkler head spacing** shall be head-to-head, designed to achieve the highest possible DU.

Irrigation System Components

Meters

- ☐ **A submeter or dedicated irrigation meter** shall be installed for:
  - Non-residential landscapes with an irrigated landscape between 1,000-5,0000 sq. ft.
  - Residential landscapes with an irrigated landscape of 5,000 sq. ft. or more.

Water Pressure

- ☐ **Pressure-regulating devices** such as inline pressure regulators, booster pumps etc. shall be installed if the static pressure is above or below the required dynamic pressure of the irrigation system.

Contamination

- ☐ **Backflow prevention devices** shall be required to protect the water supply from contamination

Water Waste Prevention Equipment

- ☐ **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.
- ☐ **Manual shut-off valves** (such as a gate, ball or butterfly valve) shall be installed as close as possible to the point of connection of the water supply.

- ☐ **Check valves** or anti-drain valves are required on all sprinkler heads where low point drainage could occur.
- ☐ **Swing joints** or other riser-protection components are required on all risers subject to damage that are adjacent to hardscapes or in high traffic areas of turfgrass.
- ☐ **Flow sensors are required** for all on non-residential landscapes and residential landscapes of 5000 sq. ft. or larger.

Emission Devices

- ☐ **Emission devices shall have matched precipitation rates.**
- ☐ **Areas less than 10 feet in width in any direction** shall be irrigated with subsurface irrigation or other means that produce no water waste, runoff, or overspray.
- ☐ **Overhead irrigation shall not be permitted within 24 inches of any non-pervious surface**.
  - Allowable irrigation within this setback may include drip irrigation, or other low flow non-spray technology.
  - The surfacing of the setback may be mulch, gravel, or other porous material.
- ☐ **Slopes greater than 25%** shall not be irrigated with an irrigation system using an application rate exceeding 0.75 inches per hour.
- ☐ **Non-rotating spray sprinkler bodies** are required to meet the standards described in the California Code of regulations, Title 20, Division 2, Chapter 4, Section 1605.3(x).
- ☐ **All irrigation emission devices** must meet the requirements set by ANSI in the 2020 ASABE/ICC 802 Landscape Irrigation Sprinkler and Emitter Standard
- ☐ **All sprinkler heads** installed in the landscape must document a low-quart distribution uniformity of 0.65 or higher using the protocol defined in 2020 ASABE/ICC 802 Standard

System Controls

- ☐ **Automatic irrigation controllers** are required and must use either **evapotranspiration** (weather-based) or **soil moisture** (sensor-based) data.
- ☐ **Irrigation controllers** shall be of a type that **does not lose memory** if the power source is interrupted.
- ☐ **Sensors (rain, freeze, wind, etc.)**, either integral or auxiliary shall be required on all irrigation systems.

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WATER EFFICIENT LANDSCAPE WORKSHEET

Date: _____ ***Current CIMIS Annual Long Beach **ET_o** (in/yr) _____

Project Address _____ **Email** _____
Project Applicant _____ **Phone** _____

Maximum Applied Water Allowance (MAWA):

The maximum ET_o Adjustment Factor (ETAF) allowed must be equal to or below:

- **0.55** - for **residential regular** landscape areas (RLA)
- **0.45** - for **non-residential regular** landscape areas (RLA)
- **1.0** - for **special** landscape areas (SLA)

MAWA = ET_o x 0.62 x [ETAF x RLA + 1.0 x SLA] = _____(Annual Gallons Allowed)

Hydrozone	**Plant Factor**[a] PF	**Irrigation Type**	**Irrigation Efficiency**[b] IE	**ET_o Adjustment Factor** ETAF = PF/IE	**Hydrozone Area** (sq.ft.)	**Estimated Water Use** EWU = **ET_o x 0.62 x ETAF x Area** (gal/yr)
SLA -				1.0		
SLA -				1.0		
SLA -				1.0		
				Totals		
					MAWA	

[a]Plant Factor (PF) from WUCOLS
Very Low = less than 0.1
Low = 0.1 - 0.3
Moderate = 0.4 - 0.6
High = 0.7 - 1.0

[b]Average Irrigation System Efficiency (IE)
Overhead Irrigation = 0.75
Drip Irrigation = 0.81

Part 3: CERTIFICATE OF COMPLETION PACKAGE - PERFORMANCE PATHWAY

The Certificate of Compliance Package certifies that the project is in accordance with MWELO, consists of the 6 components below and is **submitted at final inspection**.

SOIL MANAGEMENT REPORT

☐ Attach soil management report if not previously submitted (requirements listed on Page 2)

IRRIGATION SCHEDULING PARAMETERS

☐ All irrigation schedules shall be developed, managed, and evaluated to **utilize the minimum amount of water required** to maintain plant health and prevent water waste.
☐ Scheduling by **automatic irrigation controller using ET or soil moisture sensor data** is required.
☐ **No watering** of the landscape during the **first 48 hours after rainfall.**
☐ Overhead irrigation systems shall only be scheduled **between 4 p.m. and 9 a.m**.
☐ Total annual applied water shall be **less than or equal to MAWA.**
- For implementation of the irrigation schedule, carefully consider the irrigation run times, emission device, flow rate, and current reference ET, so that applied water does not exceed the ETWU.

☐ **Attach all required parameters used for each of the following:** the plant establishment period, the established landscape and temporarily irrigated areas.
- Irrigation Type
- Irrigation Interval (days)
- Irrigation Run Times (min)
- Number of Cycle Starts
- Application Rate (in/hr)
- Soil Type
- Root Depth setting
- Plant Type setting
- Amount of applied water in a month (gal)
- Slope Factor setting
- Shade Factor setting
- DU or IE setting

LANDSCAPE AND IRRIGATION MAINTENANCE SCHEDULE

☐ A regular maintenance schedule **shall include, but not be limited to:**
- Topdressing with compost
- Replenishing mulch
- Aerating and dethatching turfgrass areas
- Fertilizing, pruning, weeding in all landscape areas
- Removing obstructions to emission devices.

☐ Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
☐ Repair of all irrigation equipment shall be done with replacement parts for the originally installed components, their equivalents, or with components that improve the irrigation system efficiency.

IRRIGATION AUDIT REPORT

☐ All landscape irrigation **audits shall be conducted by a certified** landscape irrigation auditor.
☐ In large landscape projects an auditing rate of 1 in 7 individual lots or approximately 15% of the total number of individual lots will satisfy this requirement.
☐ The Irrigation Audit Report **shall include, but is not limited to**:
- Inspection
- System Tune-Up
- System test with distribution uniformity
- Reporting overland flow due to overspray/run off

Part 3: CERTIFICATE OF COMPLETION PACKAGE – PERFORMANCE PATHWAY

Include this sheet with your Certificate of Compliance Package at Final Inspection

PROJECT INFORMATION SHEET

Date: _____

APPLICANT INFORMATION

Project Name		Company			
Project Applicant		Street Address			
Email Address		City			
Phone		State		Zip Code	

PROJECT

Street Address		City	
State		Zip Code	
Parcel Number		Lat-Lon (optional)	
Water Purveyor		Water Supply Type	

PROPERTY OWNER or DESIGNEE

Name		Company			
Additional Name		Street Address			
Email Address		City			
Phone		State		Zip Code	

CERTIFICATE OF INSTALLATION

Landscape Documentation Package Date Submitted: _____ Date Approved: _____
Water Efficient Landscape Worksheet Date Submitted: _____ (to LB Utilities)

"I/we certify that based upon the periodic site observations, the work has been completed in accordance with MWELO and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package"

- ☐ Where there have been significant changes made I the field during construction, these "as-built" or record drawings shall be included in the Certificate of Completion package.
- ☐ A diagram of the irrigation plan showing hydrozones shall be kept with the automatic irrigation controller for subsequent management processes.

Primary Designer of Record Signature **Date**

Project Applicant Signature **Date**