

ORDINANCE NO. 15-1673

AN ORDINANCE OF THE CITY OF NORWALK AMENDING TITLE  
17 OF THE NORWALK MUNICIPAL CODE AS IT RELATES TO  
LANDSCAPE STANDARDS AND WATER EFFICIENT LANDSCAPE  
DESIGN

THE CITY COUNCIL OF THE CITY OF NORWALK DOES ORDAIN AS  
FOLLOWS:

**Section 1.** Article 1 ("Landscape Standards") of Chapter 17.03, Title 17, of the Norwalk Municipal Code, Section 17.03.010.C.3.c of the Norwalk Municipal Code is hereby amended to read as follows:

"Materials, such as stones, rocks, pebbles, gravel, pumice, mulch, shredded bark, sand, or decomposed granite, may be installed around live, natural plant materials. Loose stones, rocks or pebbles greater than 3/8 of an inch in diameter shall be prohibited within 5-feet of a front or side property line abutting a street; unless such materials are smaller than 3/8 of an inch in diameter."

**Section 2.** Article 1 ("Landscape Standards") of Chapter 17.03, Title 17, of the Norwalk Municipal Code, Section 17.03.010.D.3 of the Norwalk Municipal Code is hereby amended to read as follows:

"For projects not meeting thresholds as established in Section 17.03.020 of this chapter, a landscape and irrigation plan, in accordance with section 17.03.010.F, shall be submitted for replacement of 500 square feet or more of landscape materials for existing developments is proposed."

**Section 3.** Article 1 ("Landscape Standards") of Chapter 17.03, Title 17, of the Norwalk Municipal Code, Section 17.03.010.E.3 of the Norwalk Municipal Code is hereby amended to read as follows:

"For projects not meeting thresholds as established in Section 17.03.020 of this chapter, a landscape and irrigation plan, in accordance with section 17.03.010.F, shall be submitted for replacement of 500 square feet or more of landscape materials for existing developments is proposed."

**Section 4.** Article 1 ("Landscape Standards") of Chapter 17.03, Title 17, of the Norwalk Municipal Code, Section 17.03.010.H.8 of the Norwalk Municipal Code is hereby amended to read as follows:

"Artificial turf must be replaced or repaired at first sign of fading, tearing, stains, holes, indentation, deterioration, or notification by the City regarding deteriorated conditions constituting a property nuisance, as set forth in Title 8."

**Section 5.** Article 1 ("Landscape Standards") of Chapter 17.03, Title 17, of the Norwalk Municipal Code, Section 17.03.010.F of the Norwalk Municipal Code is hereby amended to read as follows:

"Landscape and Irrigation Plans. Landscape and irrigation plans, prepared by a registered landscape architect, are required for all new developments or for replacement of 500 square feet or more of landscape materials for existing developments, except single-family dwellings in the R-1 zone. Landscape projects meeting the thresholds as established in 17.03.020.C must comply with additional requirements as contained Section 17.03.020."

**Section 6.** Article 1 ("Landscape Standards") of Chapter 17.03, Title 17, of the Norwalk Municipal Code, Section 17.03.020 of the Norwalk Municipal Code is hereby amended in its entirety to read as follows:

**"17.03.020 Water Efficient Landscape Ordinance**

- A. Purpose. Water is a precious commodity of limited supply. In accordance with the Water Conservation in Landscaping Act ("Act"), the purpose and intent of this ordinance is to:
1. Promote the values and benefits of landscaping practices that integrate and go beyond the conservation and efficient use of water;
  2. Establish a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction and rehabilitated projects by encouraging the use of a watershed approach that requires cross-sector collaboration of industry, government, and property owners to achieve the many benefits possible;
  3. Establish provisions for water management practices and water waste prevention for existing landscapes; and
  4. Use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount.

Accordingly, this Section is intended to be as effective in conserving water as is the Department of Water Resources State Model Landscaping Ordinance set forth in Government Code Section 65595 and shall be known as the "Water Efficient Landscape Ordinance.

- B. Definitions. Unless the context otherwise requires, the following definitions and those set forth in the Water Efficient Landscape Ordinance shall govern the construction of this Section:

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

"Automatic irrigation controller" means a timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers are able to self-adjust and schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.

"Backflow prevention device" means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

"Certificate of Completion" means the document required under subsection J of this Section.

"Certified irrigation designer" means 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" means 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" means 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" means community apartment projects, condominium projects, planned developments, and stock cooperatives per California Civil Code Section 1351.

"Compost" means the safe and stable product of controlled biologic decomposition of organic materials that is beneficial to plant growth.

"Distribution uniformity" means the measure of the uniformity of irrigation water over a defined area.

"Drip irrigation" means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

"Ecological restoration project" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

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

"Established landscape" means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth. Native habitat mitigation areas and trees may need three to five years for establishment.

"Establishment period of the plants" means 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)" means the total water used for the landscape calculated based on the plants used and irrigation method selected for the landscape design as described in subsection I of this Section.

"Evapotranspiration 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" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time. The ETo shall be updated from time to time and kept on file with the Department of Community Development.

"Flow rate" means 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.

"Flow sensor" means an inline device installed at the supply point of the irrigation system that produces a repeatable signal proportional to flow rate. Flow sensors must be connected to an automatic irrigation

controller, or flow monitor capable of receiving flow signals and operating master valves. This combination of flow sensor/controller may also function as a landscape water meter or submeter.

"Friable" means a soil condition that is easily crumbled or loosely compacted down to a minimum depth per planting material requirements, whereby the root structure of newly planted material will be allowed to spread unimpeded.

"Graywater" means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. Graywater includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.

"Hardscapes" means any durable material (pervious and non-pervious).

"Hydrozone" means a portion of the landscaped area having plants with similar water needs and rooting depth. A hydrozone may be irrigated or non-irrigated.

"Infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).

"Invasive plant species" means 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. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.

"Irrigation audit" means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule. The audit must be conducted in a manner consistent with the Irrigation Association's Landscape Irrigation Auditor Certification program or other U.S. Environmental Protection Agency "Watersense" labeled auditing program.

"Irrigation efficiency (IE)" means 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 irrigation efficiency for purposes of this Section is 0.75 for overhead spray devices and 0.81 for drip systems.

"Irrigation survey" means 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.

"Irrigation water use analysis" means an analysis of water use data based on meter readings and billing data.

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

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

"Landscape contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

"Landscape Documentation Package" means the documents required under subsection D of this Section.

"Landscape project" means total area of landscape in a project as defined in landscape area for the purposes of this Section, meeting requirements under subsection C of this Section.

"Landscape water meter" means an inline device installed at the irrigation supply point that measures the flow of water into the irrigation system and is connected to a totalizer to record water use.

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

"Local agency" means a city or county, including a charter city or charter county, that is responsible for adopting and implementing this Section. The local agency is also responsible for the enforcement of this Section,

including but not limited to, approval of a permit and plan check or design review of a project.

"Local water purveyor" means any entity, including a public agency, city, county, or private water company that provides retail water service.

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

"Main line" means the pressurized pipeline that delivers water from the water source to the valve or outlet.

"Master shut-off valve" means an automatic valve installed at the irrigation supply point which controls water flow into the irrigation system. When this valve is closed water will not be supplied to the irrigation system. A master valve will greatly reduce any water loss due to a leaky station valve.

"Maximum Applied Water Allowance (MAWA)" means the upper limit of annual applied water for the established landscaped area. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants 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.  $MAWA = (ET_o) (0.62) [(ETAF \times LA) + ((1-ETAF) \times SLA)]$ .

"Median" means an area between opposing lanes of traffic that may be unplanted or planted with trees, shrubs, perennials, and ornamental grasses.

"Mulch" means 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" means, for the purposes of this Section, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.

"Non-residential landscape" means landscapes in commercial, institutional, industrial and public settings that may have areas designated for recreation or public assembly. It also includes portions of common areas of common interest developments with designated recreational areas.

"Operating pressure" means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

"Overhead sprinkler irrigation systems" means systems that deliver water through the air (e.g., spray heads and rotors).

"Overspray" means the irrigation water which is delivered beyond the target area.

"Permit" means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.

"Pervious" means 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" means a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this Section, the plant factor range for very low water use plants is 0 to 0.1, the plant factor range for low water use plants is 0.1 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this ordinance are derived from the publication "Water Use Classification of Landscape Species". Plant factors may also be obtained from horticultural researches from academic institutions or professional associations as approved by the California Department of Water Resources (DWR).

"Project applicant" means the individual or entity submitting a Landscape Documentation Package required under subsection D of this Section, to request a permit, plan check, or design review from the local agency. A project applicant may be the property owner or his or her designee.

"Record drawing or as-builts" means 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" means areas, excluding private single family residential areas, designated for active play, recreation, or public



assembly in parks, sports fields, picnic grounds, amphitheaters, or golf course tees, fairways, roughs, surrounds, and greens.

"Recycled water" means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.

"Reference evapotranspiration or reference ETo" means a standard measurement of environmental parameters which affect the water use of plants. Reference ETo is expressed in inches per day, month, or year as represented in date kept on file with the City, 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" means any re-landscaping project that requires a permit, plan check, or design review, meets the requirements of subsection C of this Section, and the modified landscape area is equal to or greater than 2,500 square feet.

"Residential landscape" means landscapes surrounding single or multifamily homes.

"Runoff" means 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 sensor" means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.

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

"Special Landscape Area (SLA)" means an area of the landscape dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or water features using recycled.

"Sprinkler head" means a device which delivers water through a nozzle.

"Static water pressure" means the pipeline or municipal water supply pressure when water is not flowing.

"Station" means an area served by one valve or by a set of valves that operate simultaneously.

"Swing joint" means 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" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses.

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

"Water feature" means 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" means the time of day irrigation is allowed.

"WUCOLS" means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension and the Department of Water Resources and the Bureau of Reclamation, 2014.

C. Applicability.

1. Except as set forth in Paragraph 2 of this Section, this Section shall apply to all of the following landscape projects:
  - a. New development projects with an aggregate landscape area equal to or greater than 500 square feet requiring a building or landscape permit, plan check, or design review;
  - b. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review;
  - c. Existing landscapes installed before December 1, 2015, and over one acre in size; and
  - d. Cemeteries.

2. This Section shall not apply to:
  - a. Landscaping that is part of a property listed on any applicable local, state or national register of historic places;
  - b. Existing plant collections as part of botanical gardens and arboretums open to the public;
  - c. Ecological restoration projects that do not require a permanent irrigation system; or
3. Projects using treated or untreated graywater or rainwater captures on-site, any lot or parcel within the project that has less than 2,500 square feet and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with treated or untreated graywater or through stored rainwater captures on-site is subject only to the Water Efficient Landscape Worksheet.

D. Review and Approval Requirements.

1. Prior to issuance of a discretionary or building permit for any project that involves Landscaped Areas subject to this Section, the Project Applicant must submit a Landscape Documentation Package for review and approval by the Director of Community Development. The Landscape Documentation Package shall include the following:
  - a. Project information
    - i. Date;
    - ii. Project applicant;
    - iii. Project address (if available, parcel and/or lot numbers(s));
    - iv. Total landscape area (square feet);
    - v. Project type (e.g. new, rehabilitated, public, private, cemetery, home-owner installed);
    - vi. Water supply type (e.g. potable, recycled) and identify the local retail water purveyor;
    - vii. Checklist of all documents in Landscape Documentation Package;
    - viii. Project contacts to include contact information for the project applicant and property owner; and
    - ix. Applicant signature and date with statement "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package."

- b. Landscape design plan as described in subsection E of this Section;
- c. Irrigation design plan as described in subsection F of this Section;
- d. Water Efficient Landscape Worksheet as described in subsection I of this Section;
- e. A soils management report as described in subsection H of this Section;
- f. Grading design plan as described in subsection G of this Section; and
- g. Payment of the fee as prescribed by City Council upon submittal of the Landscape Documentation Package.

If the Landscaped Area subject to this Section is a stand-alone project or does not otherwise require a building permit or formal planning or other commission approval or review, the Landscape Documentation Package shall be submitted to the Director of Community Development for review and approval prior to the commencement of landscape improvements.

2. The documents listed in Paragraph 1 shall be prepared and signed by a landscape architect, landscape designer, or irrigation designer, as appropriate, except that the soils report shall be prepared by a qualified soil and plant laboratory.

- E. Landscape Design Plan. Landscaped Areas subject to this Section shall be carefully designed and planned to ensure the efficient use of water. The Project Applicant shall submit to the Department a landscape design plan that meets the criteria set forth in this section.

The landscape design plan shall comply with or include the following:

1. A description of the plant material. Any plant may be selected for the landscape provided that the Estimated Applied Water Use in the Landscaped Area does not exceed the Maximum Applied Water Allowance.
  - a. Methods to achieve water efficiency shall include one or more of the following:
    - i. Protection and preservation of native species and natural vegetation;
    - ii. Selection of water-conserving plant, tree and turf species, especially local native plants;

- iii. Selection of plants based on local climate suitability, disease and pest resistance;
  - iv. Selection of trees based on applicable local tree ordinances or tree shading guidelines, and size at maturity as appropriate for the planting area; and
  - v. Selection of plants from local and regional landscape program plant lists.
- b. Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use, as specified in 17.03.020.F.1.b.iv.
- c. 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 efficient shall include one or more of the following:
- i. Use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;
  - ii. 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) and allow for adequate soil volume for healthy root growth; and
  - iii. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.
- d. Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 + slope percent).
- e. High water use plants, characterized by a plant factor of 0.7 to 1.0 are prohibited in street medians.
- f. The use of invasive plant species, such as those listed by the California Invasive Plant Council, is strongly discouraged.
- g. The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock

cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

2. Water Features shall be designed as follows:
  - a. Recirculating water systems shall be used as a source for water features.
  - b. Where available, recycled water shall be used as a source for decorative water features.
  - c. The surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.
  - d. Pool and spa covers are highly recommended.
3. Soil Preparation, Mulch and Amendments shall be included for use as follows:
  - 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 6 inches of soil are exempt from addition compost and tilling.
  - d. A minimum three inch (3") layer of Mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers or direct seeding applications where Mulch is contraindicated. To provide habitat for beneficial insects and other wildlife, up to 5% of the landscape area may be left without mulch. Designated insect habitat must be included in the landscape design plan as such.
  - 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 the mulching requirement.
- g. Organic mulch materials made from recycled or post-consumer shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available.

F. Irrigation Design Plan

1. An irrigation system and its related components for Landscaped Areas subject to this Section shall be carefully designed and planned to allow for proper installation, management, and maintenance. The Project Applicant shall submit to the Department an irrigation design plan that meets the criteria set forth in this Paragraph and the criteria set forth in this Section.

a. System

- i. Landscape water meters, defined as either a dedicated water service meter or private submeter, shall be installed for all non-residential irrigated landscapes of 1,000 square feet, but not more than 5,000 square feet and residential irrigated landscapes of 5,000 square feet or greater. A landscape water meter may be either
  - 1. A customer service meter dedicated to landscape use provided by the local water purveyor; or
  - 2. A privately owned meter or submeter.
- ii. Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems.
- iii. Water pressure below or exceeding the recommended pressure of the specified irrigation device will require the installation of a pressure regulating device to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range or optimal performance.
  - 1. 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.

2. Static water pressure, dynamic or operating pressure and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage, the measurements shall be conducted at installation.
- iv. Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.
- v. Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.
- vi. Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the applicable local agency code (i.e., public health) for additional backflow prevention requirements.
- vii. Flow sensors that detect high flow conditions created by system damage or malfunction are required for all on non-residential landscapes and residential landscapes of 5,000 square feet or larger.
- viii. 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.
- ix. 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.



- x. Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
- xi. The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
- xii. The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Water Efficient Landscape Worksheet regarding the Maximum Applied Water Allowance.
- xiii. All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, 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.
- xiv. The project applicant shall inquire with the local water purveyor about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.
- xv. In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
- xvi. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- xvii. Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
- xviii. 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.
- xix. Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.
- xx. Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or volume irrigation system.

- xxi. Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:
  - 1. The landscape area is adjacent to permeable surfacing and no runoff occurs; or
  - 2. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
  - 3. The irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package and clearly demonstrates strict adherence to irrigation system design criteria in that prevents runoff, low head drainage, overspray or other similar conditions. Prevention of overspray and runoff must be confirmed during the irrigation audit.
- xxii. Slopes greater than 25% shall not be irrigated with an irrigation system with an application rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

b. Hydrozone

- i. Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.
- ii. Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
- iii. Where feasible, trees shall 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.

- iv. Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:
- v. Plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
- vi. The plant factor of the higher water using plant is used for calculations.
- vii. Individual hydrozones that mix high and low water use plants shall not be permitted.
- viii. On the landscape design plan and irrigation design plan, 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 in forms as provided by the City. This table can also assist with the irrigation audit and programming the controller.

2. The irrigation design plan, at a minimum, shall contain:

- a. Location and size of separate water meters for landscape;
- b. 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. Static water pressure at the point of connection to the public water supply;
- d. Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
- e. Recycled water irrigation systems as specified in subsection N of this Section;
- f. The following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan"; and
- g. The signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and

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Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code.)

G. Grading Design Plan

1. Grading of a project site that contains a Landscaped Area subject to this Section, shall be designed to minimize soil erosion, runoff and water waste. The Project Applicant shall submit to the Department a grading design plan that meets the criteria set forth in this section.
2. The landscape grading plan shall indicate finished configurations and elevations of the landscape area including:
  - a. Height of graded slopes;
  - b. Drainage patterns;
  - c. Pad elevations;
  - d. Finish grade; and
  - e. Stormwater retention improvements, if applicable.
3. To prevent excessive erosion and runoff, grading shall avoid disturbing natural drainage patterns and avoid soil compaction in Landscaped Areas subject to this Section. All irrigation and normal rainfall should remain within the property lines so as not to drain onto non-permeable hardscapes, avoid disruption of natural drainage patterns and undistributed soil, and avoid soil compaction in landscaped areas.
4. The grading design 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" and shall bear the signature of a licensed professional as authorized by law.

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

1. Submit soil samples to a laboratory for analysis and recommendations.
  - a. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.

- b. The soil analysis shall include:
        - i. Soil texture;
        - ii. Infiltration rate determined by laboratory test or soil texture infiltration rate table;
        - iii. Soil acidity level or soil pH;
        - iv. Total soluble salts;
        - v. Sodium;
        - vi. Percent organic matter; and
        - vii. Recommendations.
      - c. In projects with multiple landscape installations (i.e. production home developments) a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement. Large landscape projects shall sample at a rate equivalent to 1 in 7 lots.
    2. The project applicant, or his/her designee, shall comply with one of the following:
      - a. If significant mass grading is not planned, the soil analysis report shall be submitted to the local agency as part of the Landscape Documentation Package; or
      - b. If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.
    3. 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 design plans.
    4. 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.
  - I. Water Efficient Landscape Worksheet.
    1. The Project Applicant shall complete the Water Efficient Landscape Worksheet as provided by the Department which contains information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydrozone. Calculations are then made to show that the evapotranspiration adjustment factor (ETAF) for the landscape project does not exceed a factor of 0.55 for residential areas and 0.45 for non-residential areas,

exclusive of Special Landscape Areas. The ETAF for a landscape project is based on the plant factors and irrigation methods selected. The Maximum Applied Water Allowance (MAWA) is calculated based on the maximum ETAF allowed (0.55 for residential areas, 0.45 for non-residential areas) and expressed as annual gallons required. The Estimated Total Water Use (ETWU) is calculated based on the plants used and irrigation method selected for the landscape design. ETWU must be below the MAWA.

- a. In calculating the MAWA, and ETWU, a project applicant shall use the ETo values from the Reference Evapotranspiration Table on file with the Department of Community Development. For geographic areas not covered in the Reference Evapotranspiration Table, use data from other cities located nearby in the same reference evapotranspiration zone, as found in the CIMIS Reference Evapotranspiration Zones Map, Department of Water Resources, 1999.
2. Water budget calculations shall adhere to the following requirements:
    - a. The plant factor used shall be from WUCOLS or from horticultural researchers with academic institutions or professional associations as approved by the California Department of Water Resources (DWR). The plant factor ranges from 0 to 0.1 for very low water using plants, 0.1 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
    - b. All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.
    - c. All Special Landscape Areas shall be identified and their water use calculated as shown in on the Water Efficient Landscape Worksheet as furnished by the City.
    - d. ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

J. Certification of Completion

1. Upon completion of the installation of the Landscaped Areas subject to this Section, the Project Applicant shall submit a Certificate of Completion, in the form provided by the City, for review and approval by the Director of Community Development.

The Certificate of Completion shall be executed by either the licensed landscaped architect, licensed landscape contractor or the certified irrigation designer that signed any of the documents submitted as part of the Landscape Documentation Package.

2. The Certificate of Completion shall certify and/or include the following:
  - a. The Landscaped Areas subject to this Section has been installed in conformance with the Landscaped Documentation Package, the Water Efficient Landscaping Ordinance;
    - i. Where there have been significant changes made in the field during construction, these "as-built" or record drawings shall be included with the certification;
    - ii. A diagram of the irrigation plan showing hydrozones shall be kept with the irrigation controller for subsequent management purposes.
  - b. The automatic controller has been set according to the irrigation schedule described in subsection F of this Section;
  - c. Documentation that the soil management report recommendations, if any, have been implemented;
  - d. The Irrigation Audit Report; and
  - e. The landscape and irrigation maintenance schedule.
3. The Director of Community Development shall approve the Certificate of Completion if it is determined the project conforms to the provisions of this Section. If the Director of Community Development determines that the Certificate of Completion is incomplete or does not conform to the provisions of this Section, the Director of Community Development shall:
  - a. Notify the Project Applicant in writing that the Certificate of Completion has been denied and include a statement of reasons; or
  - b. Notify the Project Applicant in writing that the Certificate of Completion is incomplete with an indication of additional information necessary. The Project Applicant may re-submit the Certificate of Completion for review by the Director of Community Development.

K. Irrigation Schedule

1. For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:
  - a. Irrigation scheduling shall be regulated by automatic irrigation controllers
  - b. Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. If allowable hours of irrigation differ from the local water purveyor, the stricter of the two shall apply. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
  - c. For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to MAWA. Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.
  - d. Parameters used to set the automatic controller shall be developed and submitted for each of the following:
    - i. The plant establishment period;
    - ii. The established landscape; and
    - iii. Temporarily irrigated areas.
  - e. Each irrigation schedule shall consider for each station all of the following that apply:
    - i. Irrigation interval (days between irrigation);
    - ii. Irrigation run times (hours or minutes per irrigation event to avoid runoff);
    - iii. Number of cycle starts required for each irrigation event to avoid runoff;
    - iv. Amount of applied water scheduled to be applied on a monthly basis;
    - v. Application rate setting;
    - vi. Root depth setting;



- vii. Plant type setting;
- viii. Soil type;
- ix. Slope factor setting;
- x. Shade factor setting; and
- xi. Irrigation uniformity or efficiency setting.

L. Landscape and Irrigation Maintenance

1. Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.
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 turf areas; topdressing with compost replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing obstructions to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
3. Repair of all irrigation equipment shall be done with the originally installed components or their equivalents or with components with greater efficiency.
4. A project applicant is encouraged to implement established landscape industry sustainable Best Practices for all landscape maintenance activities.

M. Irrigation Audit, Survey, and Water Use Analysis

1. For Landscaped Areas subject to this Section, an Irrigation Audit Report shall be submitted to the local agency. Such report shall be conducted by a certified landscape irrigation auditor either by a local agency auditor or a third party certified landscape irrigation auditor. Irrigation audits shall not be conducted by the person who designed the landscape or installed the landscape.
2. In large projects or projects with multiple landscape installations (i.e. production home developments) an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.
3. For all new construction and rehabilitated landscape projects installed after December 1, 2015:

- a. The project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule, including configuring irrigation controllers with application rate, soils types, plant factors, slope, exposure and any other factors necessary for accurate programming.
- N. Irrigation Efficiency. For the purpose of determining Estimated Total Water Use, average irrigation efficiency is assumed to be 0.75 for overhead spray devices and 0.81 for drip system devices.
- O. Recycled Water
1. The installation of recycled water irrigation systems shall allow for the current and future use of recycled water.
  2. All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.
  3. Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.
- P. Graywater Systems. Graywater systems shall promote the efficient use of water and are encouraged to assist in on-site landscape irrigation. All graywater systems shall conform to the California Plumbing Code and any applicable local ordinance standards.
- Q. Stormwater Management and Rainwater Retention
1. Landscape and grading design plans shall be developed in accordance with the applicable provisions of the Stormwater and Urban Runoff Control provisions set forth in Chapter 18.04 of Title 18 of the Municipal Code.
  2. All planted landscape areas are required to have friable soil to maximize water retention and infiltration.
  3. Landscape areas shall be designed for capture and infiltration capacity that is sufficient to prevent runoff from impervious surfaces from either:
    - a. The one inch, 24-hour rain event; or
    - b. The 85<sup>th</sup> percentile, 24-hour rain event

4. As feasible, storm water projects should incorporate the following to improve on-site stormwater and dry weather runoff capture and use:
  - a. Grade impervious surfaces, such as driveways, during construction to drain to vegetated areas;
  - b. Minimize the area of impervious surfaces such as paved areas, roof, and concrete driveways;
  - c. Incorporate pervious or porous surfaces (e.g., gravel, permeable pavers or blocks, pervious or porous concrete) that minimize runoff;
  - d. Direct runoff from paved surfaces and roof areas into planting beds or landscaped areas to maximize the site water capture and reuse;
  - e. Incorporate rain gardens, cisterns, and other rain harvesting or catchment systems;
  - f. Incorporate infiltration beds, swales, basins, and drywells to capture storm water and dry weather runoff and increase percolation into the soil;
  - g. Consider constructed wetlands and ponds that retain water, equalize excess flow, and filter pollutants.

R. Existing Landscaping: Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.

1. This subsection shall apply to all existing landscapes that were installed before December 1, 2015 and over one acre in size.
2. For all landscapes that have a water meter, the City shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys, and irrigation audits to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the MAWA for existing landscapes. The MAWA for existing landscapes shall be calculated as:  $MAWA = (0.8)(ET_o)(LA)(0.62)$ .
3. For landscapes that do not have a meter, the City shall administer programs that may include, but not be limited to, irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.
4. All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

- S. Water Waste Prevention. Water waste resulting from inefficient landscape irrigation, such as runoff, low head drainage, overspray or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots or structures is prohibited.
- T. Authority to Promulgate Rules and Regulations. The Director of Community Development shall have the power and authority to promulgate rules and regulations for the implementation and enforcement of provisions of this Section, and when duly promulgated, such rules and regulations shall be in full force and effect.
- U. Administration and Appeal Process. The Director of Community Development shall have the duty and authority to administer and enforce this Section. The Project Applicant or property owner may appeal any decision made by the Director of Community Development to the Planning Commission, or the decision of the Planning Commission may be appealed to the City Council, which shall affirm, reverse, or modify such decisions. Appeals shall be filed in a written request with the Director of Community Development within 10 days of the date of written notification decision of the Director of Community Development is mailed or delivered. Notice of the appeal and hearing shall be pursuant to hearing and noticing requirements contained in Sections 17.02.050.A.4 and 17.02.090.F.”

**Section 7. CEQA.** The City Council has considered this Ordinance and finds that this project is exempt from the requirements of the California Environmental Quality Act (“CEQA”). The project is exempt pursuant to State CEQA Guidelines, 14 Cal. Code Regs. Sec. 15307 and 15308 as an action taken to assure the maintenance, restoration, or enhancement of a natural resource, specifically water, where the regulatory process involves procedures for protection of the environment. This Ordinance does not contemplate any construction activities and is limited to ensuring that landscaping is properly maintained and provides for water efficient landscaping options to preserve water. There is no evidence to suggest that the ordinance will result in a significant impact on the environment, including impacts due to unusual circumstances. The adoption of this Ordinance includes provisions that will result in the enhancement and protection of water resources in the City, and there is no evidence to suggest that the ordinance would in cumulative adverse environment impacts. Based on the foregoing and other substantial evidence in the record, the City Council hereby finds and determines that the Ordinance is exempt from the provisions of CEQA, pursuant to State CEQA Guidelines Section 15307 and 15308. As a separate and independent ground, the City Council finds that the Ordinance is covered by the general rule that CEQA applies only to projects that have the potential for causing a significant effect on the environment. Because it can be seen with certainty that there is no possibility that the Ordinance will have a significant effect on the environment, the Ordinance is not subject to CEQA pursuant to State CEQA Guidelines Section 15061 (b)(3).

**Section 8. Severability.** If any section, subsection, subdivision, sentence, clause, phrase, or portion of this ordinance or the application thereof to any person or place, is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remainder of this ordinance. The City Council hereby declares that it would have adopted this ordinance, and each and every section, subsection, subdivision, sentence, clause, phrase, or portion thereof, irrespective of the fact that any one or more sections, subsections, subdivisions, sentences, clauses, phrases, or portions thereof be declared invalid or unconstitutional.

**Section 9. Certification.** The City Clerk shall certify to the passage of this Ordinance and shall cause this Ordinance to be published or posted as required by law.

**PASSED, APPROVED and ADOPTED this 5th day of January 2016.**

  
LEONARD SHRYOCK  
MAYOR

**ATTEST:**

I, **Theresa Devoy**, City Clerk of the City of Norwalk, **DO HEREBY CERTIFY** that the foregoing Ordinance was introduced at a regular meeting of the City Council held December 15, 2015 and adopted as **Ordinance No. 15-1673** of the City of Norwalk at a regular meeting of the City Council held on January 5, 2016 and said Ordinance has been duly signed by the Mayor and attested by the City Clerk and that the same was approved and adopted by the following vote to wit:

**AYES:** Councilmembers Kelley and Rodarte, Vice Mayor Mendez and Mayor Shryock

**NOES:** None

**ABSENT:** Councilmember Vernola

  
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THERESA DEVOY, CMC  
CITY CLERK