

ORDINANCE NO. 15-

ORDINANCE REPEALING AND REPLACING CHAPTER 10  
ARTICLE 12 OF THE HAYWARD MUNICIPAL CODE  
RELATING TO LANDSCAPE REQUIREMENTS FOR NEW  
AND REHABILITATED DEVELOPMENT PROJECTS

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF HAYWARD  
DOES ORDAIN AS FOLLOWS:

Section 1. Upon the effective date of this ordinance, Chapter 10, Article 12, of the  
Hayward Municipal Code is hereby repealed and, in substitution thereof, a new Article 12 of  
Chapter 10 of the Hayward Municipal Code is hereby enacted to read in full as follows:

“ARTICLE 12

CITY OF HAYWARD  
BAY-FRIENDLY WATER EFFICIENT LANDSCAPE ORDINANCE

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## ARTICLE 12

CITY OF HAYWARD  
BAY-FRIENDLY WATER-EFFICIENT LANDSCAPE ORDINANCE  
(Added by Ordinance No. 15-XX, adopted October 27, 2015)

SEC. 10-12.01 AUTHORITY. This Article is enacted pursuant to California Government Code of Regulations, Title 23, Division 2, Chapter 2.7. Waters and is a “water-efficient landscape ordinance” adopted by a local agency under the provisions of said article.

SEC.10-12.02 PURPOSE. The City Council finds and declares that it is in the public interest to promote integrated landscape practices that go beyond the conservation and efficient use of water and to prevent the waste of this valuable resource while recognizing the values and benefits of landscapes as essential to the quality of life in California. Landscapes provide areas for active and passive recreation and enhance the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development. The purpose of the regulations set forth in this article is to establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitated projects by:

- (a) Utilizing the whole systems approach of Bay-Friendly Landscaping;
- (b) Encouraging the use of a watershed approach and reducing compaction, incorporating organic matter that increases water retention, and promoting productive plant growth that leads to more carbon storage, oxygen production, shade, habitat and esthetic benefits;
- (c) Establishing provisions for water management practices and water waste prevention for existing landscapes;
- (d) Setting a Maximum Applied Water Allowance as an upper limit for water use and reducing water use to the lowest practical amount;
- (e) Adopting the Bay-Friendly Landscape Guidelines, Bay-Friendly Landscape Scorecards and Bay-Friendly Gardening Guide, as they may be amended from time to time, as Agency reference documents.

This Article shall be applied in a manner that achieves the maximum consistency with the landscaping performance standards contained in the Hayward Zoning ordinance, Article 12 of Chapter 10 of the Hayward Municipal Code. To the extent that a conflict exists between this Article and the Zoning Ordinance, the requirements of this Article shall control.

SEC.10-12.03 APPLICABILITY.

- (a) After December 1, 2015, and consistent with Executive Order No. B-29-15, this ordinance shall apply to all of the following landscape projects:
  - (1) New construction 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;
  - (2) 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;
  - (3) Existing landscapes limited to Section 10-12.18; and
  - (4) Cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 10-12.05, 10-12.10, and 10-12.11; and existing cemeteries are limited to Section 10-12.18.
- (b) Any project with an aggregate landscape area of 2,500 square feet or less may comply with the performance requirements of this ordinance or conform to the prescriptive measures contained in Appendix D.
- (c) For projects using treated or untreated graywater or rainwater captured on site, any lot or parcel within the project that has less than 2500 square feet of landscape and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with treated or untreated graywater or through stored rainwater captured on site is subject only to Appendix D.
- (d) This ordinance does 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.

SEC.10-12.04 DEFINITIONS. The terms used in this ordinance have the meaning set forth below:

- (a) “applied water” means the portion of water supplied by the irrigation system to the landscape.

- (b) “automatic irrigation controller” means 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.
- (c) “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.
- (d) “Bay-Friendly Landscape Guidelines” means the most recent version of the guidelines developed by StopWaste.Org for use in the professional design, construction and maintenance of landscapes. Agency staff shall maintain the most recent version of the “Bay-Friendly Landscape Guidelines” at all times.
- (e) “Bay-Friendly Maintenance Manual” means the most recent version of the manual outlining Bay-Friendly maintenance practices administered by the Bay-Friendly Landscaping and Gardening Coalition.
- (f) “Bay-Friendly Rated Scorecard” means the most recent version of the Bay-Friendly points system for Landscaping administered by the Bay-Friendly Landscaping and Gardening Coalition.
- (g) “Certificate of Completion” means the document required under Section 492.9.
- (h) “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.
- (i) “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.
- (j) “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.
- (k) “common interest developments” means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
- (l) “compost” means the safe and stable product of controlled biologic decomposition of organic materials that is beneficial to plant growth.

- (m) “conversion factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year.
- (n) “distribution uniformity” means the measure of the uniformity of irrigation water over a defined area.
- (o) “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.
- (p) “ecological restoration project” means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- (q) “effective precipitation” or “usable rainfall” (Eppt) means the portion of total precipitation which becomes available for plant growth.
- (r) “emitter” means a drip irrigation emission device that delivers water slowly from the system to the soil.
- (s) “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.
- (t) “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. Native habitat mitigation areas and trees may need three to five years for establishment.
- (u) “Estimated Total Water Use” (ETWU) means the total water used for the landscape as described in Section 10-12.05.
- (v) “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.
- (w) “evapotranspiration rate” means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.
- (x) “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.

- (y) “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 flow sensor/controller may also function as a landscape water meter or submeter.
- (z) “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.
- (aa) “Fuel Modification Plan Guideline” means guidelines from a local fire authority to assist residents and businesses that are developing land or building structures in a fire hazard severity zone.
- (bb) "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. Health and Safety Code Section 17922.12.
- (cc) “hardscapes” means any durable material (pervious and non-pervious).
- (dd) “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.
- (ee) “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).
- (ff) “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.
- (gg) “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.
- (hh) “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 ordinance are 0.75 for overhead spray devices and 0.81 for drip systems.

- (ii) “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.
- (jj) “irrigation water use analysis” means an analysis of water use data based on meter readings and billing data.
- (kk) “landscape architect” means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.
- (ll) “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).
- (mm) “landscape contractor” means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
- (nn) “Landscape Documentation Package” means the documents required under Section 10-12.07.
- (oo) “landscape project” means total area of landscape in a project as defined in “landscape area” for the purposes of this ordinance, meeting requirements under Section 10-12.03
- (pp) “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.
- (qq) “land clearing debris” includes trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing. Exceptions are vegetation or soil contaminated by toxic substances.
- (rr) “lateral line” means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
- (ss) “local agency” means a city or county, including a charter city or charter county, that is responsible for adopting and implementing the ordinance. The local agency is also responsible for the enforcement of this ordinance, including but not limited to, approval of a permit and plan check or design review of a project.

- (tt) “local water purveyor” means any entity, including a public agency, city, county, or private water company that provides retail water service.
- (uu) “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.
- (vv) “main line” means the pressurized pipeline that delivers water from the water source to the valve or outlet.
- (ww) “master shut-off valve” is 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.
- (xx) “Maximum Applied Water Allowance” (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 10-12.05. 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.  $MAWA = (ET_o) (0.62) [(ETAF \times LA) + ((1-ETAF) \times SLA)]$
- (yy) “median” is an area between opposing lanes of traffic that may be unplanted or planted with trees, shrubs, perennials, and ornamental grasses.
- (zz) “microclimate” means 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.
- (aaa) “mined-land reclamation projects” means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.
- (bbb) “mulch” means any organic material such as leaves, arbor or wood chips, recycled wood waste, straw, compost, or inorganic mineral materials such as rocks, gravel, or 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.
- (ccc) “new construction” means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.

- (ddd) “non-residential landscape” means landscapes in multifamily with more than five or more units, 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.
- (eee) “operating pressure” means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.
- (fff) “overhead sprinkler irrigation systems” or “overhead spray irrigation systems” means systems that deliver water through the air (e.g., spray heads and rotors).
- (ggg) “overspray” means the irrigation water which is delivered beyond the target area.
- (hhh) “parkway” means the area between a sidewalk and the curb or traffic lane. It may be planted or unplanted, and with or without pedestrian egress.
- (iii) “permit” means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.
- (jjj) “pervious” means any surface or material that allows the passage of water through the material and into the underlying soil.
- (kkk) “plant factor” or “plant water use factor” is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, 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 researchers from academic institutions or professional associations as approved by the California Department of Water Resources (DWR).
- (lll) “project applicant” means the individual or entity submitting a Landscape Documentation Package required under Section 10-12.07, 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.
- (mmm) “rain sensor” or “rain sensing shutoff device” means a component which automatically suspends an irrigation event when it rains.
- (nnn) “record drawing” or “as-built” 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.
- (ooo) “recreational area” means areas, excluding private single family residential areas, designated for active play, recreation or public assembly in parks, sports fields, picnic

- grounds, pools or spas, amphitheaters or golf course tees, fairways, roughs, surrounds and greens.
- (ppp) “recycled water,” “reclaimed water,” or “treated sewage effluent water” means treated or recycled waste water of a quality suitable for nonpotable uses such as landscape irrigation and water features. This water is not intended for human consumption.
- (qqq) “reference evapotranspiration” or “ET<sub>o</sub>” means a standard measurement of environmental parameters which affect the water use of plants. ET<sub>o</sub> is expressed in inches per day, month, or year as represented in Appendix A, 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 Allowances so that regional differences in climate can be accommodated.
- (rrr) “rehabilitated landscape” means any re-landscaping project that requires a permit, plan check, or design review, meets the requirements of Section 10-12.03, and the modified landscape area is equal to or greater than 2,500 square feet.
- (sss) “residential landscape” means landscapes surrounding single or multifamily homes with four or less units.
- (ttt) “run off” means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, run off may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.
- (uuu) “sheet mulching” uses a layering system of cardboard, compost and mulch or other materials to enhance weed suppression and provide soil building benefits. (Source: A Bay-Friendly Guide to Mulch.)
- (vvv) “soil moisture sensing device” or “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.
- (www) “soil texture” means the classification of soil based on its percentage of sand, silt, and clay.
- (xxx) “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 water.
- (yyy) “sprinkler head” or “spray head” means a device which delivers water through a nozzle.
- (zzz) “static water pressure” means the pipeline or municipal water supply pressure when water is not flowing.

- (aaaa) “station” means an area served by one valve or by a set of valves that operate simultaneously.
- (bbbb) “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.
- (cccc) “subsurface irrigation” means irrigation placed either under the soil or under the mulch on top of the soil.
- (dddd) “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.
- (eeee) “valve” means a device used to control the flow of water in the irrigation system.
- (ffff) “water conserving plant species” means a plant species identified as having a very low or low plant factor.
- (gggg) “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.
- (hhhh) “watering window” means the time of day irrigation is allowed.
- (iiii) “WUCOLS” means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension and the Department of Water Resources 2014.

SEC.10-12.05 WATER EFFICIENT LANDSCAPE WORKSHEET.

- (a) A project applicant shall complete the Water Efficient Landscape Worksheet in Appendix B which contains information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydrozone. The ET Adjustment Factor (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 and 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.

- (1) 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.
  - (2) In calculating the MAWA and ETWU, a project applicant shall use the ETo values of 44.2 of Union City from the Reference Evapotranspiration Table in Appendix A.
- (b) Water budget calculations shall adhere to the following requirements:
- (1) The plant factor used shall be from any published plant reference book 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.
  - (2) Published plant reference books may include the following:
    - (A) California Native Plants for the Garden, Carol Bornstein, David Fross and Bart O'Brien, Cachuma Press, 2005. (CNP)
    - (B) Plants and Landscapes for Summer-Dry Climates, Nora Harlow (ed.), East Bay Municipal Utility District, 2004. (EBMUD)
    - (C) Landscape Plants for California Gardens, Robert C. Perry, Land Design Publisher, 2010.
    - (D) Sunset Western Garden Book, editors of Sunset Magazine, Oxmoor House, 2012.
    - (E) University of California Division of Agriculture and Natural Resources, Water Use Classification of Landscape Species (WUCOLS IV), [www.ucanr.edu/sites/WUCOLS](http://www.ucanr.edu/sites/WUCOLS)
  - (3) 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.
  - (4) All Special Landscape Areas shall be identified and their water use calculated as shown in Appendix B.
  - (5) ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

SEC.10-12.06 SOIL MANAGEMENT REPORT

- (a) 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:
      1. soil texture;
      2. infiltration rate determined by laboratory test or soil texture infiltration rate table;
      3. pH;
      4. total soluble salts;
      5. sodium;
      6. percent organic matter; and
      7. recommendations for amending the soil with organic compost to bring the soil organic matter to a minimum of 5% by dry weight and incorporating organic fertilizers to recommended levels for planting area. Acceptable organic fertilizers and amendment products are those allowed for use in crop production by at least one of the following:
        - i. Organic Materials Review Institute's Generic Materials List
        - ii. California Department of Food and Agriculture's Organic Input Materials Program
        - iii. U.S. Department of Agriculture's National Organic Program
    - (C) In projects with multiple landscape installations (i.e. production home developments) a soil sampling rate of one (1) in seven (7) lots or approximately fifteen percent (15%) will satisfy this requirement. Large landscape projects shall sample at a rate equivalent to one (1) in seven (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.

SEC.10-12.07 LANDSCAPE DESIGN PLAN.

- (a) For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.
- (1) Applicable projects are required to divert (reuse or recycle) 100% of excavated soil and plant and land clearing debris. Alternative Daily Cover is not an acceptable form of diversion for plant material.
- (2) Plant Material
- (A) The Estimated Total Water Use of selected plants in the landscape area shall not exceed the Maximum Applied Water Allowance. Methods to achieve water efficiency shall include one or more of the following:
1. protection and preservation of native species and natural vegetation;
  2. at least seventy five percent (75%) of the total number of water-conserving plants shall require occasional, little or no summer water, especially local native plants;
  3. selection of plants based on local climate suitability, disease and pest resistance;
  4. selection of trees based on applicable local tree ordinances or tree shading guidelines, and size at maturity as appropriate for the planting area;
  5. selection of plants from local and regional landscape program plant lists; and
  6. selection of plants from local Fuel Modification Plan Guidelines.
- (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 Section 10.12-08(a)(2).
- (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 efficiency shall include one or more of the following:
1. 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;



2. 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; plants located adjacent to buildings, sidewalks, roads or other obstructions are installed to accommodate their minimum spread, according to a published third-party reference; and
  3. consider the solar orientation for plant placement to maximize summer shade and winter solar gain.
- (D) Turf is not allowed on slopes greater than twenty five percent (25%) where the toe of the slope is adjacent to an impermeable hardscape and where twenty five percent (25%) means one (1) foot of vertical elevation change for every four (4) feet of horizontal length (vertical elevation change divided by horizontal length multiply by 100 = slope percent).
  - (E) Turf is not allowed in multifamily and non-residential areas unless it is a recreational area. Turf is allowed in single family residential areas as long as the water budget is met.
  - (F) High water use plants, characterized by a plant factor of 0.7 to 1.0, are prohibited in street medians.
  - (G) 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 per Public Resources Code Section 4291(a) and (b). Fire-prone plant materials and highly flammable mulches shall be prohibited. Refer to the local Fuel Modification Plan guidelines.
  - (H) The use of invasive plant species, such as those listed by the California Invasive Plant Council, shall be prohibited.
  - (I) 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.
- (3) Water Features
    - (A) Recirculating water systems shall be used for water features
    - (B) Where available, recycled water shall be used as a source for decorative water features.

- (C) 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 shall be required.
- (4) Soil Preparation, Mulch and Amendments
- (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 appropriateness for the plants selected (see Section 10-12.06).
  - (C) For landscape installations, organic compost at a rate of a minimum of four (4) cubic yards per 1,000 square feet shall be incorporated to a depth of six (6) inches into the soil in the landscape area. Soils with greater than five percent (5%) organic matter in the top six (6) inches of soil are exempt from adding compost and tilling. Organic matter must be confirmed by an accredited soil testing laboratory. Projects that incorporate sheet mulching may choose to install the compost above the cardboard layer instead of tilling it into the soil. Projects that are sheet mulching lawn in place are exempt from the tilling requirement.
  - (D) A minimum three inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, areas receiving closely spaced grass plugs as a lawn alternatives, or direct seeding applications where mulch is contraindicated. To provide habitat for beneficial insects and other wildlife, up to five percent (5%) of the landscape area may be left without mulch. Designated insect habitat must be included in the landscape design plan as such. Specifying organic recycled chipped wood mulch is strongly encouraged in the shade of Dark Brown color where arbor chip from the project site is unavailable.
  - (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. Organic mulches are not required where prohibited by local Fuel Modification Plan Guidelines or other applicable local ordinances.

- (b) The landscape design plan, at a minimum, shall:
- (1) delineate and label each hydrozone by number, letter, or other method;
  - (2) identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
  - (3) identify recreational areas;
  - (4) identify areas permanently and solely dedicated to edible plants;
  - (5) identify areas irrigated with recycled water;
  - (6) identify type of mulch and application depth;
  - (7) identify soil amendments, type, and quantity;
  - (8) identify slopes equal or greater than 3:1 to receive erosion control material
  - (9) identify type and surface area of water features;
  - (10) identify hardscapes (pervious and non-pervious);
  - (11) identify location, installation details, and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Project applicants shall refer to the local agency or regional Water Quality Control Board for information on any applicable stormwater technical requirements. Stormwater best management practices shall be incorporated in the landscape design plan;
  - (12) identify any applicable rain catchment technologies as discussed in Section 10-12.15 and their 24-hour retention or infiltration capacity;
  - (13) identify any applicable graywater discharge piping, system components and area(s) of distribution;
  - (14) identify landfill diversion verification requirement that Landscape Contractor shall be required to submit Appendix C. Certification of Completion, PART 7;
  - (15) contain the following statement: “I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan”; and

- (16) bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (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 Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code.)

SEC.10-12.08 IRRIGATION DESIGN PLAN.

- (a) This section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and 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.
- (1) System
- (A) Dedicated irrigation water service meters shall be installed for all non-residential irrigated landscapes of 1,000 square feet and residential irrigated landscapes of 5,000 square feet or greater.
- (B) 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.
- (C) If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for 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; and
  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. If the measurements are not available at the design stage, the measurements shall be conducted at installation.
- (D) 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.

- (E) 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.
- (F) Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall conform to the City Standard Detail.
- (G) 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 5000 sq. ft. or larger.
- (H) 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) 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) Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
- (K) The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
- (L) The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 10-12.05 regarding the Maximum Applied Water Allowance.
- (M) 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.
- (N) It is highly recommended that the project applicant inquire with Department of Utilities and Environmental Services about peak water

operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.

- (O) Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
  - (P) Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
  - (Q) 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 turf.
  - (R) Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.
  - (S) Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.
  - (T) Overhead irrigation shall not be permitted within twenty four inches (24") 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; or
    - 2. the adjacent non-permeable surfaces are designed and constructed to drain entirely back to landscaping.
  - (U) Slopes greater than twenty five percent (25%) shall not be irrigated with an irrigation system with an application rate exceeding 0.75 inches per hour. Prevention of runoff and erosion must be confirmed during the irrigation audit.
- (2) Hydrozone
- (A) Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.
  - (B) Bio-treatment area shall be on a separate valve.

- (C) Trees shall be on a separate valve. Trees with different watering requirements shall be on separate valves. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.
  - (D) Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
  - (E) Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be 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 higher water using plant is used for calculations.
  - (F) Individual hydrozones that mix high and low water use plants shall not be permitted.
  - (G) 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 Water Efficient Landscape Worksheet (see Appendix B). This table can also assist with the irrigation audit and programming the controller.
- (b) The irrigation design plan, at a minimum, shall contain:
- (1) location and size of separate water meters for landscape;
  - (2) 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;
  - (3) static water pressure at the point of connection to the public water supply;
  - (4) flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station (valve);
  - (5) recycled water irrigation systems as specified in Section 10-12.13;
  - (6) 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
  - (7) 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 Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code.)

SEC.10-12.09 CERTIFICATE OF COMPLETION.

- (a) The Certificate of Completion (see Appendix C) shall include the following seven (7) elements:
- (1) project information sheet that contains:
    - (A) date;
    - (B) project name;
    - (C) project applicant name, telephone, and mailing address;
    - (D) project address and location; and
    - (E) property owner name, telephone, and mailing address;
  - (2) certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed landscape contractor that the landscape project has been installed per the approved Landscape Documentation Package;
    - (A) where there have been significant changes made in the field during construction, these “as-built” or record drawings shall be included with the certification;
    - (B) A diagram of the irrigation plan showing hydrozones shall be kept with the irrigation controller for subsequent management purposes.
    - (B) irrigation scheduling parameters used to set the controller;
    - (C) landscape and irrigation maintenance schedule (see Section 10-12.10);
    - (D) irrigation audit report (see Section 10-12.11); and
    - (E) soil analysis report, if not submitted with Landscape Documentation Package, and documentation verifying implementation of soil report recommendations (see Section 10-12.06); and
    - (F) landfill diversion verification statement (see Appendix C. Part 7)
- (b) The project applicant shall:



- (1) submit the signed Appendix C - Certificate of Completion to the City for review;
  - (2) ensure that copies of the approved Certificate of Completion are submitted to the property owner or his or her designee.
- (c) The City shall:
- (1) receive the signed Appendix C - Certificate of Completion from the project applicant;
  - (2) perform a verification field inspection by City Landscape Architect upon receipt of the Certificate of Completion prior to issuance of Certificate of Occupancy. If the inspection fails, City Landscape Architect shall provide a correction list to the project applicant.

SEC.10-12.10 LANDSCAPE AND IRRIGATION MAINTENANCE SCHEDULE.

- (a) Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.
- (b) A regular maintenance schedule shall include, but not be limited to, routine inspection; auditing, 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.
- (c) Repair of all irrigation equipment shall be done with the originally installed components or their equivalents or with components with greater efficiency.
- (d) A project applicant is encouraged to implement established landscape industry sustainable Best Practices for all landscape maintenance activities:
  - (1) Use the “Bay-Friendly Landscape Model Maintenance Manual” as an official reference document in the landscape maintenance contract and/or with on-site landscape staff

SEC.10-12.11 IRRIGATION AUDIT, IRRIGATION SURVEY, AND IRRIGATION WATER USE ANALYSIS.

- (a) All landscape irrigation audits shall be conducted by a local agency landscape irrigation auditor or 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) In large projects or projects with multiple landscape installations (i.e. production home developments) an auditing rate of one (1) in seven (7) lots or approximately fifteen (15%) will satisfy this requirement.
- (c) For new construction and rehabilitated landscape projects installed after December 1, 2015, as described in Section 10-12.03:
  - (1) the project applicant shall submit an irrigation audit report with the Appendix C - Certificate of Completion to the City 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, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming;
  - (2) the City shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Allowance.

SEC.10-12.12 IRRIGATION EFFICIENCY.

- (a) 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.

SEC.10-12.13 RECYCLED WATER.

- (a) The installation of recycled water irrigation systems shall allow for the current and future use of recycled water.
- (b) All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.
- (c) 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.

SEC.10-12.14 GRAYWATER SYSTEMS.

- (a) Graywater systems promote the efficient use of water and are encouraged to assist in on-site landscape irrigation.
- (b) New single-family residential projects which meet the criteria of applicability as defined in Section 10-12.03 shall install basic “laundry to landscape” plumbing in each residence.
- (c) All graywater systems shall conform to the California Plumbing Code (Title 24, part 5, Chapter 16) and any applicable local ordinance standards.

- (d) Refer to Section 10-12.03(c) for the applicability of this ordinance to landscape areas less than 2,500 square feet with the Estimated Total Water Use met entirely by graywater.

SEC.10-12.15 STORMWATER MANAGEMENT, RAINWATER RETENTION, AND RAINWATER CATCHMENT.

- (a) Stormwater management practices 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 are encouraged.
- (b) Project applicants shall refer to the local agency or Regional Water Quality Control Board for information on any applicable stormwater technical requirements.
- (c) All planted landscape areas are required to have friable soil to maximize water retention and infiltration. Refer to Section 10.12.07(a)(4).
- (d) It is strongly recommended that landscape areas 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 85<sup>th</sup> percentile, 24-hour rain event, and/or additional capacity as required by any applicable local, regional, state or federal regulation.
- (e) It is recommended that storm water projects incorporate any of the following elements to improve on-site storm water and dry weather runoff capture and use:
- (1) Grade impervious surfaces, such as driveways, during construction to drain to vegetated areas.
  - (2) Minimize the area of impervious surfaces such as paved areas, roof and concrete driveways.
  - (3) Incorporate pervious or porous surfaces (e.g., gravel, permeable pavers or blocks, pervious or porous concrete) that minimize runoff.
  - (4) Direct runoff from paved surfaces and roof areas into planting beds or landscaped areas to maximize site water capture and reuse.
  - (5) 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) Consider constructed wetlands and ponds that retain water, equalize excess flow, and filter pollutants.

- (f) New single-family residential projects which meet the criteria of applicability as defined in Section 10-12.03 shall install a minimum fifty (50) gallon covered rain catchment device per residence.

SEC.10-12.16 PUBLIC EDUCATION.

- (a) Publications. Education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation, management and maintenance that save water is encouraged in the community.
  - (1) The City shall provide information to owners of permitted renovations and new, single-family residential homes regarding the design, installation, management, and maintenance of water efficient landscapes based on a water budget.
- (b) Model Homes. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this ordinance.
  - (1) 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 that contribute to the overall water efficient theme. Signage shall include information about the site water use as designed per the local ordinance; specify who designed and installed the water efficient landscape; and demonstrate low water use approaches to landscaping such as using native plants, graywater systems, and rainwater catchment systems.
  - (2) Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.

SEC.10-12.17 ENVIRONMENTAL REVIEW.

- (a) The City must comply with the California Environmental Quality Act (CEQA), as appropriate.

SEC.10-12.18 EXISTING LANDSCAPE IRRIGATION AUDIT, IRRIGATION SURVEY, AND IRRIGATION WATER USE ANALYSIS.

- (a) This section shall apply to all existing landscapes that were installed before December 1, 2015 and are over one acre in size.
  - (1) For all existing landscapes that have a water meter, the City shall may require, 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 Maximum Applied Water

Allowance for existing landscapes. The Maximum Applied Water Allowance for existing landscapes shall be calculated as:  $MAWA = (0.8) (ET_o)(LA)(0.62)$ .

- (2) For all existing landscapes that do not have a meter, the City may require, but not be limited to, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.
- (b) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

SEC.10-12.19 EFFECTIVE PRECIPITATION.

- (a) A local agency may consider Effective Precipitation (25% of annual precipitation) in tracking water use and may use the following equation to calculate Maximum Applied Water Allowance:  
 $MAWA = (ET_o - Eppt) (0.62) [(0.55 \times LA) + (0.45 \times SLA)]$  for residential areas.  
 $MAWA = (ET_o - EPPT) (0.62) [(0.45 \times LA) + (0.55 \times SLA)]$  for non-residential areas.

**Appendix A - Reference Evapotranspiration (ETo) Table\***

| <b>County and City</b> | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> | <b>Annual ETo</b> |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------------|
| <b>ALAMEDA</b>         |            |            |            |            |            |            |            |            |            |            |            |            |                   |
| Fremont                | 1.5        | 1.9        | 3.4        | 4.7        | 5.4        | 6.3        | 6.7        | 6.0        | 4.5        | 3.4        | 1.8        | 1.5        | 47.0              |
| Livermore              | 1.2        | 1.5        | 2.9        | 4.4        | 5.9        | 6.6        | 7.4        | 6.4        | 5.3        | 3.2        | 1.5        | 0.9        | 47.2              |
| Oakland                | 1.5        | 1.5        | 2.8        | 3.9        | 5.1        | 5.3        | 6.0        | 5.5        | 4.8        | 3.1        | 1.4        | 0.9        | 41.8              |
| Oakland Foothills      | 1.1        | 1.4        | 2.7        | 3.7        | 5.1        | 6.4        | 5.8        | 4.9        | 3.6        | 2.6        | 1.4        | 1.0        | 39.6              |
| Pleasanton             | 0.8        | 1.5        | 2.9        | 4.4        | 5.6        | 6.7        | 7.4        | 6.4        | 4.7        | 3.3        | 1.5        | 1.0        | 46.2              |
| Union City **          | 1.4        | 1.8        | 3.1        | 4.2        | 5.4        | 5.9        | 6.4        | 5.7        | 4.4        | 3.1        | 1.5        | 1.2        | 44.2              |

\* The values in this table were derived from:

- 1) California Irrigation Management Information System (CIMIS);
- 2) Reference EvapoTranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept of Water Resources 1999; and
- 3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922;
- 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426

\*\*ETo of Union City shall be used for City of Hayward.

**Appendix B – Water Efficient Landscape Worksheet.**

**WATER EFFICIENT LANDSCAPE WORKSHEET**

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package.

**City of Hayward Reference Evapotranspiration (ETo) 44.2**

| Hydrozone # /Planting Description <sup>a</sup> | Plant Factor (PF) | Irrigation Method <sup>b</sup> | Irrigation Efficiency (IE) <sup>c</sup> | ETAF (PF/IE)  | Landscape Area (sq. ft.) | ETAF x Area | Estimated Total Water Use (ETWU) <sup>e</sup> |
|--|-------------------|--------------------------------|---|---|--------------------------|-------------|---|
| <b>Regular Landscape Areas</b>                 |                   |                                |   |   |                          |             |   |
|  |                   |                                |   |   |                          |             |   |
|  |                   |                                |   |   |                          |             |   |
|  |                   |                                |   |   |                          |             |   |
|  |                   |                                |   |   |                          |             |   |
|  |                   |                                |   | Totals  | (A)                      | (B)         |   |
| <b>Special Landscape Areas</b>                 |                   |                                |   |   |                          |             |   |
|  |                   |                                |   | 1   |                          |             |   |
|  |                   |                                |   | 1   |                          |             |   |
|  |                   |                                |   | 1   |                          |             |   |
|  |                   |                                |   | Totals  | (C)                      | (D)         |   |
|  |                   |                                |   | <b>ETWU Total</b>   |                          |             |   |
|  |                   |                                |   | <b>Maximum Allowed Water Allowance (MAWA)<sup>e</sup></b> |                          |             |   |

<sup>a</sup>**Hydrozone #/Planting Description**  
 E.g  
 1.) front lawn  
 2.) low water use plantings  
 3.) medium water use planting

<sup>b</sup>**Irrigation Method**  
 overhead spray or drip  
 or drip

<sup>c</sup>**Irrigation Efficiency**  
 0.75 for spray head  
 0.81 for drip

<sup>d</sup>**ETWU (Annual Gallons Required) =**  
 $Eto \times 0.62 \times ETAF \times Area$   
 where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

<sup>e</sup>**MAWA (Annual Gallons Allowed) =**  
 $(Eto) ( 0.62) [ (ETAF \times LA) + ((1-ETAF) \times SLA)]$   
 where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

**ETAF Calculations  
 All Landscape Areas**

|                      |                      |
|----------------------|----------------------|
| Total ETAF x Area    | (B+D)                |
| Total Area           | (A+C)                |
| <b>Sitewide ETAF</b> | <b>(B+D) ÷ (A+C)</b> |

**Regular Landscape Area**

|                      |              |
|----------------------|--------------|
| Total ETAF x Area    | (B)          |
| Total Area           | (A)          |
| <b>Sitewide ETAF</b> | <b>B ÷ A</b> |

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas and 0.45 or below for non-residential areas.

**Appendix C – Certificate of Completion.**

**PART 1. CERTIFICATE OF COMPLETION**

This certificate is filled out by the project applicant upon completion of the landscape project.

|                         |                         |           |
|-------------------------|-------------------------|-----------|
| Project Street Address: | Building Permit Number: |           |
| City:                   | State:                  | Zip Code: |

**Property Owner:**

|          |                 |           |
|----------|-----------------|-----------|
| Name:    | Telephone No.:  |           |
|          | Fax No.:        |           |
| Title:   | Email Address:  |           |
| Company: | Street Address: |           |
| City:    | State:          | Zip Code: |

**Property Owner**

“I/we certify that I/we have received copies of all the documents within the Landscape Documentation Package and the Certificate of Completion and that it is our responsibility to see that the project is maintained in accordance with the Landscape and Irrigation Maintenance Schedule.”

\_\_\_\_\_

Property Owner Signature

Date



**PART 2. CERTIFICATION OF INSTALLATION**

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

|                                  |                |          |
|----------------------------------|----------------|----------|
| Signature*                       | Date           |          |
| Name (print)                     | Telephone No.  |          |
|                                  | Fax No.        |          |
| Title                            | Email Address  |          |
| License No. or Certification No. |                |          |
| Company                          | Street Address |          |
| City                             | State          | Zip Code |

\*Signer of the landscape design plan, signer of the irrigation plan, or a licensed landscape contractor.

**PART 3. IRRIGATION SCHEDULING**

Attach parameters for setting the irrigation schedule on controller per ordinance Section 10.12-08.

**PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE**

Attach schedule of Landscape and Irrigation Maintenance per ordinance Section 10.12-10.

**PART 5. LANDSCAPE IRRIGATION AUDIT REPORT**

Attach Landscape Irrigation Audit Report per ordinance Section 10-12.11.

**PART 6. SOIL MANAGEMENT REPORT**

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package per ordinance Section 10-12.07.

Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 10-12-06.

**PART 7. LANDFILL DIVERSION VERIFICATION**

Attach Landfill Diversion Verification Statement per ordinance Section 10-12.07



**APPENDIX C - PART 7  
LANDFILL DIVERSION VERIFICATION STATEMENT**

**100% of excavated soil and plant and land clearing debris are required to divert for reuse or recycled purposes, and shall be delivered to an authorized facility to maximize recycling. Contaminated materials shall not be calculated as a part of the diversion. Be sure to share this information with your contractor, as s/he shall be required to submit the lower half of this form as a part of Certificate of Completion before scheduling a final inspection by City Landscape Architect.**

Permit Number: \_\_\_\_\_ Project Address: \_\_\_\_\_  
\_\_\_\_\_

**Check the boxes and sign below:**

- I understand that debris may only be removed from the project site per the requirements on the back of this form.
- If I use a roll-off container, I understand that it must be from Waste Management of Alameda County.
- I understand that if debris is not hauled by Waste Management of Alameda County<sup>1</sup>, an authorized hauler and facility must be used.

**Applicant Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**CONTRACTOR: Prior to requesting a final inspection, submit all weigh tags and this form documenting tons recycled or landfilled to:**

Mail: Department of Development Services, Hayward City Hall, 777 B Street, Hayward, CA 94541  
 Fax: 510-583-3649;  
 Email: [landscape@hayward-ca.gov](mailto:landscape@hayward-ca.gov)

Contractor Name: \_\_\_\_\_ Phone: \_\_\_\_\_ Email: \_\_\_\_\_

| Vehicle <sup>1</sup> | Material <sup>2</sup>  | Tons or Cubic Yards |            | Name of Facility(s) <sup>3</sup>   | Weigh Tags <sup>4</sup><br>(Y/N) |
|----------------------|--|---------------------|------------|------------------------------------|----------------------------------|
|                      |  | Recycled            | Landfilled |                                    |                                  |
|                      | <b>Mixed Debris</b>  |                     |            |                                    |                                  |
|                      | <b>Separated Recyclable Materials</b><br><i>(Asphalt, concrete, bricks, doors, fixtures, cardboard, dirt, unpainted drywall&amp; wood, pallets, scrap metal, plant debris)</i> |                     |            |                                    |                                  |
|                      | <b>Garbage</b><br><i>(must be less than 5% recyclable material)</i>  | N/A                 |            | Waste Management of Alameda County |                                  |

<sup>1</sup> For "Vehicle", please indicate one of the following: roll-off container, pick-up truck, stake-side truck, or end-dump truck.

<sup>2</sup> Plant debris must be separated and taken to designated facility, in accordance with the Alameda County Landfill Ban of 2009.

<sup>3</sup> If you indicated "Roll-Off" in the first column, then you must indicate "**Waste Management of Alameda County**" or "**WMAC**" as the name of the facility.

<sup>4</sup> Weigh tags must be provided and must indicate City of Hayward as the jurisdiction of origin.

|   |
|---|
| <b>APPROVAL TO SCHEDULE FINAL INSPECTION</b>                      |
| <b>Appendix</b>   City Staff Initials: _____ Date Approved: _____ |

- (a) This appendix contains prescriptive requirements which may be used as a compliance option to the Model Water Efficient Landscape Ordinance.
- (b) Compliance with the following items is mandatory and must be documented on a landscape plan in order to use the prescriptive compliance option:
- (1) Submit a Landscape Documentation Package which includes the following elements:
    - (A) date
    - (B) project applicant
    - (C) project address (if available, parcel and/or lot number(s))
    - (D) total landscape area (square feet), including a breakdown of turf and plant material
    - (E) project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)
    - (F) water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well
    - (G) contact information for the project applicant and property owner
    - (H) applicant signature and date with statement, "I agree to comply with the requirements of the prescriptive compliance option to the MWELO".
  
  - (2) Incorporate compost at a rate of at least four cubic yards per 1,000 square feet to a depth of six (6) inches into landscape area (unless contra-indicated by a soil test).
  
  - (3) Plant material shall comply with all of the following:
    - (A) For residential areas, install climate adapted and native plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for seventy five percent (75%) of the plant area excluding edibles and areas using recycled water; For non-residential areas, install climate adapted and native plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for 100% of the plant area excluding edibles and areas using recycled water;
    - (B) A minimum three inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, groundcover areas receiving closely spaced grass plugs as a lawn alternative, or direct seeding applications where mulch is contraindicated.
  
  - (4) Turf shall comply with all of the following:
    - (A) Turf shall not exceed twenty five percent (25%) of the landscape area in residential areas, and there shall be no turf in non-residential areas;
    - (B) Turf shall not be planted on sloped areas which exceed twenty five percent (25%), a slope of one (1) foot vertical elevation change for every four (4) feet of horizontal length; and
    - (C) Turf is prohibited in parkways less than ten feet (10') wide, unless the parkway is adjacent to a parking strip and used to enter and exit vehicles. Any turf in parkways must be irrigated by sub-surface irrigation or by other technology that creates no overspray or runoff.

- (5) Irrigation systems shall comply with the following:
  - (A) Automatic irrigation controllers are required and must use evapotranspiration or soil moisture sensor data and utilize a rain sensor.
  - (B) Irrigation controllers shall be of a type which does not lose programming data in the event the primary power source is interrupted.
  - (C) Pressure regulators shall be installed on the irrigation system to ensure the dynamic pressure of the system is within the manufacturers recommended pressure range.
  - (D) Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be installed as close as possible to the point of connection of the water supply.
  - (E) All irrigation emission devices must meet the requirements set in the ANSI standard, 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.
  - (F) Areas less than ten feet (10') in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.
  
- (6) For non-residential projects with landscape areas of 1,000 square feet or more, shall be installed.
  
- (7) Alameda County law prohibits disposal of plant debris in county landfills. ACWMA Plant Debris Landfill Ban Ordinance 2008-01 requires landscape professionals, to separate all plant debris from garbage. <http://www.recyclingrulesac.org/docs/Landfill-Ban-WMA-Ordinance2008-01.pdf>
  
- (c) At the time of final inspection, the permit applicant must provide the owner of the property with a certificate of completion, certificate of installation, irrigation schedule and a schedule of landscape and irrigation maintenance.

INTRODUCED at a regular meeting of the City Council of the City of Hayward, held the \_\_\_\_ day of \_\_\_\_, 2015, by Council Member \_\_\_\_\_.

ADOPTED at a regular meeting of the City Council of the City of Hayward, held the \_\_\_\_ day of \_\_\_\_, 2015, by the following votes of members of said City Council.

AYES: COUNCIL MEMBERS:

MAYOR:

NOES: COUNCIL MEMBERS:

ABSTAIN: COUNCIL MEMBERS:

ABSENT: COUNCIL MEMBERS:

APPROVED: \_\_\_\_\_  
Mayor of the City of Hayward

DATE: \_\_\_\_\_

ATTEST: \_\_\_\_\_  
City Clerk of the City of Hayward

APPROVED AS TO FORM:

\_\_\_\_\_  
City Attorney of the City of Hayward