PLANNING COMMISSION STAFF REPORT

Date: January 19, 2016

To: Planning Commission

Location: City-wide

Project: **Municipal Code Amendment 15-05**; A City-initiated request to amend Chapter 19.40 (Landscaping) of the Duarte Development Code in its entirety to revise regulations, primarily related to water efficient landscaping, in compliance with new State requirements promulgated by Governor's Executive Order B-29-15. The Planning Commission's action will be to make a recommendation to the City Council related to an amended Chapter 19.40.

Furthermore, the Commission is being asked to adopt the Water Efficient Landscape Ordinance Guidelines, subject to City Council approval of the revised Chapter 19.40 of the Duarte Development Code.

SUMMARY

Prompted by several years of drought, Governor Brown signed Executive Order B-29-15 on April 1, 2015. The executive order directed the State Department of Water Resources (DWR) to update the State's Model Water Efficient Landscape Ordinance (MWELO) through expedited regulation. DWR allowed municipalities the opportunity to adopt either the State's MWELO or to adopt their own ordinance, which must be as effective as the State Ordinance.

Municipal Code Amendment (MCA) 15-05 requests the Planning Commission recommend to the City Council an amendment in its entirety of Chapter 19.40 (Landscaping) of the Duarte Development Code (DDC). A majority of Chapter 19.40 was modified, primarily related to language associated with the new State water efficiency requirements. Other subchapters of Chapter 19.40, unrelated to water efficiency, were generally maintained as currently written. Another major modification to Chapter 19.40 was the removal of detailed submittal requirements, technical details and water calculations associated with compliance of the 2010 water efficiency requirements. These details were updated to meet the new 2015 DWR requirements and assembled into a new Water Efficient Landscape Ordinance Guidelines (Guidelines), which is a practical supplement to the Landscape Chapter. MCA 15-05 also contains language that allows the Planning Commission to adopt the Guidelines by a Planning Commission Resolution. As such, Staff is presenting the Commission with the Guidelines and asking that they adopt them, subject to approval of MCA 15-05 by the City Council.

BACKGROUND

One of the first efforts made by the State to address water conservation occurred in 1992, when the State enacted the Water Conservation in Landscaping Act (AB 325), requiring the adoption of a water efficient landscape ordinance by cities and counties throughout the state. The City Council adopted Ordinance 697 in 1993, which created the City's first landscape chapter that addressed water

conservation efforts. An update of the State's original Model Water Efficient Landscape Ordinance was adopted as AB 1881, the Water in Conservation Act of 2006. The Act required DWR to update the Model Water Efficient Landscape Ordinance to achieve greater landscape water use efficiency, and for cities to adopt the updated Model Water Efficient Landscape Ordinance, no later than January 1, 2010. The City Council adopted Ordinance 822 in 2010, which included a revision to the Landscape Chapter and was part of the Comprehensive Zoning (Development) Code update, bringing the City into compliance with the State's water efficiency mandate.

With the drought conditions at emergency levels, Governor Brown, earlier this year, signed an Executive Order (B-29-15) directing: 1) DWR to update the original Model Water Efficient Landscape Ordinance of 2009; and 2) local agencies to update their local Landscape Ordinances by December 1, 2015, or by February 1, 2016 if working collaboratively with other jurisdictions to create a regional ordinance, so they are "at least as effective as" DWR's updated Model Ordinance. Although Duarte will not have a Landscape Ordinance adopted by February 1, the State's Model Water Efficient Landscape Ordinance will be in effect in the interim.

In response to this mandate, a stakeholder group was formed under the San Gabriel Valley Council of Governments Planning Director's Technical Advisory Committee. A number of San Gabriel Valley cities participated in this group and decided to use a MWELO being developed by the Municipal Water District of Orange County. The Orange County stakeholder group included representatives from Orange County, cities, local water agencies, Building Industries Association (BIA), irrigation consultants, landscape architects, and other industry professionals. The goal of the stakeholder group was to develop a locally-crafted update to Orange County's Model Water Efficient Landscape Ordinance. The group was charged with meeting the "at least as effective as" requirement, minimizing the complexity, streamlining compliance, and providing consistency between local jurisdictions. Using this baseline document, the City of San Dimas and Duarte partnered on the further development of the Ordinance and Guidelines to address particular issues and concerns related to our environment here in the San Gabriel Valley. The model Ordinance and Guidelines are complete, meet the requirements of DWR and have been reviewed extensively by the Orange County stakeholder group, the City of San Dimas and our Community Development Staff.

ANALYSIS

The current Landscape Ordinance (DDC Chapter 19.40) was organized to address many aspects of landscape regulation, including: landscape design standards for residential, non-residential, and hillside properties; landscape and irrigation maintenance provisions; general landscape standards; modification processes; in addition to the 2009 State Water Efficient Landscape requirements (Exhibit A).

This has lead to a very cumbersome development code chapter that requires action by both the Planning Commission and City Council for every modification, including those changes that are more practical in nature, very detailed or technical, or may be subject to more frequent change by the State.

Staff has taken this current State mandate as an opportunity to reorganize the Landscape chapter. The proposed MCA places regulations and critical standards within Chapter 19.40 of the Development Code (Exhibit B) and separates the technical, procedural and submittal-based requirements into a separate Water Efficient Landscape Ordinance Guidelines (Exhibit C). The Guidelines have also been augmented to incorporate forms, checklists and easy-to use guides to assist applicants in complying with the new requirements. In order to more quickly react to changes in water efficiency requirements, DWR regulations, and technical adjustments, Staff is recommending that the City Council approve the proposed Ordinance to allow the Planning Commission to adopt and amend the Guidelines through the use of a PC Resolution. In anticipation of the Council making the required changes to the Landscape Ordinance, Staff is also recommending that the Planning Commission adopt the attached Guidelines, subject to City Council approval of MCA 15-05.

The following represent the major changes to the 2015-16 MWELO:

Project Size Applicability

New development projects that include landscape areas of 500 sq. ft. or more are subject to the Ordinance. This applies to residential, commercial, industrial and institutional projects that require a permit, plan check or design review. The previous landscape size threshold for new development projects ranged from 2500 sq. ft. to 5000 sq. ft. The size threshold for existing landscapes that are being rehabilitated has not changed, remaining at 2500 sq. ft. Only rehabilitated landscapes that are associated with a building or landscape permit, plan check, or design review are subject to the Ordinance.

To reduce the complexity and costs for the smaller landscapes now subject to ordinance, the revised MWELO has a prescriptive compliance approach for landscapes between 500 and 2500 sq. ft. Landscapes within this size range can comply either through meeting the traditional MWELO approach or through the prescriptive approach provided in the Guidelines. The size threshold for existing landscapes that are being rehabilitated has not changed, remaining at 2500 square feet.

More Efficient Irrigation Systems

- Dedicated landscape water meters or submeters are required for residential landscape areas over 5,000 s.f. and non-residential areas over 1,000 s.f. (This requirement brings the landscape ordinance into alignment with CalGreen requirements).

- All new irrigation systems will be required to have pressure regulators and master valves.

- Irrigation systems must be designed so that a precipitation rate of 1.0 inch per hour is not exceeded in any portion of the landscape area.

- Flow sensors are required that detect and report high flow conditions due to broken pipes and/or popped sprinkler heads.

- Increased the minimum width of turf from eight (8) feet to ten (10) feet that can be irrigated with overhead irrigation (sprinklers). Areas of turf below this threshold must provide irrigation with a subsurface drip or other technology that produces no overspray or runoff. There are limited exceptions where turf strips can be irrigated with overhead irrigation, subject to provisions listed in the Guidelines.

Limiting the Portion of Landscapes that can be Planted with High Water Use Plants (Water Budgets)

The maximum amount of water that can be applied to a landscape is reduced from 70% of the reference evapotranspiration (ETo) to 55% for residential landscape projects, and to 45% of ETo for non-residential projects. This water allowance reduces the landscape area that can be planted with high water use plants such as cool season turf. For residential projects, the coverage of high water use plants is reduced from 33% to 25% of the landscaped area. In nonresidential landscapes, planting with high water use is limited to special landscape areas. However, unchanged in the Ordinance is the extra water allowance made for non-residential areas when used for specific functional areas, such as recreation and edible gardens. Extra water allowance is also made for landscapes irrigated with recycled water, as was the case in the previous ordinance.

MWELO continues to use a water budget approach where areas of high water use plants can be installed if the water use is reduced in other areas provided the overall landscape stays within budget. This budget approach is carried out though irrigation efficiency calculations to estimate total water use by hydrozone. Worksheets for water allowances and estimated water use have combined into tables provided in the Guidelines.

The revised ordinance also precludes the use of high water use plants in street median strips. Also because of the requirement to irrigate areas less than ten feet wide with subsurface irrigation or other means that produces no runoff or overspray, except in limited circumstances, the use of cool season turf in parkways is limited.

Incentives for Graywater Usage

Landscapes under 2500 sq. ft. that are irrigated entirely with graywater or captured rainwater are subject only to the irrigation system requirements provided in the Prescriptive Compliance Option. Any graywater system shall also comply with the California Plumbing Code and any applicable local ordinances.

On-Site Stormwater Capture

All applicable landscape areas are required to have friable soil to maximize water retention and infiltration. Friable soil is required in planted areas to maximize water retention and infiltration. Friable soil is a soil condition that is easily crumbled or loosely compacted down to a minimum depth per

planting requirement, whereby the root structure of newly planted material will be allowed to spread unimpeded. Four yards of compost per 1000 sq. ft. of area must be incorporated. Other recommended measures for increasing onsite stormwater retention are listed in the Guidelines.

Reporting Requirements

All local agencies are required to report on the implementation and enforcement of their ordinances to DWR by December 31, 2015. Staff provided a report to DWR on the progress being made to implement the new MWELO changes. Local agencies developing a regional ordinance, such as Duarte, will report on their adopted regional ordinance by March 1, 2016. Reporting for all agencies will be due by January 31st of each year thereafter.

Definition Changes

Several new words have been included and defined that will enhance understanding of the changes to the ordinance, including, but not limited to, Certificate of Completion, Effective Precipitation, Flow Rate, Flow Sensor, Friable, Graywater, Landscape Contractor, Landscape Water Meter, Recreational Area, Soil Moisture Sensing Device, and Submeter.

The proposed ordinance combines all landscape, irrigation and water efficiency definitions, from both the 2009 and 2015 MWELO, into subchapter 19.40.020. The words defined in this subchapter will be consistent with the definitions contained in the Guidelines.

CONCLUSION

The Duarte Landscape Ordinance and associated Guidelines have been developed to reorganize the most important standards and regulations for inclusion in DDC Chapter 19.40, while providing more technical details, submittal requirements, water budgets, worksheets and guides within the Guidelines. By working collaboratively with the City of San Dimas using the Orange County Model, in addition to crafting specific guidelines and regulations unique to our community, we have developed a custom set of regulations that maintains some degree of local control. Like the current ordinance, this proposed update retains the "self-certification" process allowing a design professional preparing an applicant's plans to "certifies" compliance with the necessary standards, similar to a professional engineer's certification of structural construction plans. The new Ordinance reduces the threshold to 500 square feet for new residential landscapes but retains the existing threshold for landscape rehabilitation projects of 2,500 square feet, only when a permit, plan check or design review process is required. Finally, adoption of the revised Water Efficient Landscape Ordinance ensures the City is compliant with the state mandate, meets the "at least as effective" test and provides additional resources for applicants and staff in implementing the new efficiency requirements.

RECOMMENDATION

Staff recommends that the Planning Commission: (1) review and approve PC Resolution 16-01 (Exhibit D) amending Chapter 19.40 (Landscaping) of the Duarte Development Code in its entirety; and (2) review

and approve PC Resolution 16-02 (Exhibit E) adopting the Water Efficient Landscape Ordinance Guidelines, subject to City Council approval of the revised Chapter 19.40 of the Duarte Development Code.

Respectfully Submitted,

Jason Golding
City Planner

ATTACHMENTS

Exhibit A – Current Landscaping Chapter (DDC 19.40)
Exhibit B – Proposed Landscaping Chapter (DDC 19.40)
Exhibit C – Water Efficient Landscape Ordinance Guidelines
Exhibit D – PC Resolution 16-01
Exhibit E – PC Resolution 16-02

EXHIBIT A

Chapter 19.40 - LANDSCAPING

Sections:

19.40.010 - Purpose and applicability.

A. *Purpose.* The City promotes the value and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible. In compliance with applicable State standards and guidelines, and to promote the City's goals and standards regarding sustainable development set forth in Chapter 19.52 (Sustainable Development Practices), this Chapter establishes minimum landscape standards for all uses for the purpose of enhancing the appearance of developments, reducing heat and glare, controlling soil erosion, conserving water, establishing a buffer and/or screen between residential and nonresidential land uses, and ensuring the ongoing maintenance of landscape areas. Water conservation measures shall be addressed through landscape and irrigation design.

B. *Applicability.* The provisions of this Chapter shall apply to all of the following landscape projects:

1. New construction and rehabilitated landscapes for public agency projects and nonresidential private development projects with a landscape area equal to or greater than 2,500 square feet, and requiring a building, plumbing, or landscape permit, plan check, or site plan and design review.

2. New construction and rehabilitated landscapes which are developer-installed in single-family and multi-family residential projects with a landscape area equal to or greater than 2,500 square feet,

and requiring a building, plumbing, or landscape permit, plan check, or site plan and design review.

3. New construction landscapes which are homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet, and requiring a building, plumbing, or landscape permit, plan check, or site plan and design review.

C. *Exempt activities.* The provisions of this Chapter do not apply to:

1. Registered local, State, or federal historical sites.

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

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

4. Plant collections as part of botanical gardens and arboretums open to the public.

D. *Relationship to private covenants.* The architectural guidelines of a common interest development, which includes 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.

19.40.020 - General landscape standards.

These standards shall apply to all parcels within the City.

A. A Landscape Design Manual and a Design Guidelines Manual, adopted by resolution of the City Council, shall together establish criteria for the design and review of landscape and irrigation plans, and such criteria shall be adhered to in the design of landscape and irrigation plans.

B. Trees may be planted in any required yard area. All required trees shall be of a minimum size of 15 gallons, unless a larger size is specified in project conditions of approval. In limited cases, smaller tree sizes may be approved if the Director determines that long-term tree growth potential is improved by smaller specimens.

C. Landscaping shall be maintained in the area between the front property line and the dwelling, building, or structure. In all zones except the R-1 zones (inclusive), a permanent irrigation system shall also be maintained in the same front-yard area.

D. Landscape planting shall emphasize drought-tolerant and native species, complement the architectural design of structures on the site, and be suitable for the soil and climatic conditions of the site. Consistent with the purposes of California Government Code Section 65591 (Water Conservation in Landscaping Act), all new and rehabilitated landscape projects shall comply with the following water-conserving landscape requirements.

1. To the greatest extent possible, landscape material shall consist of drought-tolerant plants. Low-water-use plants shall be used in at least 50 percent of the total planted area. Plant material selected shall be suitable for the given soil and climate conditions. Plant selection shall take into consideration water conservation through appropriate use and groupings of plants that are well adapted to particular sites and to particular watering needs, climatic, geological, and

topographical conditions.

2. The maximum area permitted for turf shall be 50 percent of the total landscaped area on the site. Higher percentages may be permitted when sod is an essential part of the development such as playing fields for schools or parks and residential model units. Turf usage shall only be permitted for highly visual and functional use areas. Turf shall not be permitted in areas difficult to irrigate, such as sidewalk strips, slopes over 15 percent, or narrow pathways.

3. Where decorative water features such as pools, ponds, and waterfalls are used in landscaped areas, such features shall incorporate recycling of water and where available, use of reclaimed water. Decorative water features shall be designed to minimize water loss.

E. Transformers shall be screened with dense landscaping or walls similar to those required for trash enclosures, and shall not be located within open space recreation areas. They shall be located away from public view wherever possible and shall not impede pedestrian or vehicular circulation. Where feasible, transformers should be placed underground.

19.40.030 - Landscape of unused and undeveloped portions of a site.

All areas of a site not intended for a specific use or purpose in conjunction with a current application, including vacant or undeveloped pad sites in shopping centers held for future development, shall be fully landscaped and irrigated with an automatic irrigation system. Landscaping shall include a combination of trees, shrubs, ground cover, turf, and/or approved decorative landscape materials, as approved by the Director.

19.40.040 - Residential landscape standards.

The following standards shall apply to all parcels in all residential zones.

A. A minimum of 20 percent of the entire parcel shall be fully landscaped with plant materials.

B. A minimum of 50 percent of the front yard area between the street and dwelling unit shall be f ully landscaped.

C. A minimum of 50 percent of the street side yard areas between the street and dwelling unit shall be fully landscaped.

D. Parking lots for multi-family developments providing 10 or more parking spaces shall be landscaped per the requirements of Section 19.38.200 (Parking Lot Landscaping).

19.40.050 - Nonresidential landscape standards.

All new and rehabilitated landscaping plans undertaken in conjunction with any private development project on commercial, industrial, mixed-use, and other nonresidential properties, or those projects requiring a grading, building, use permit, or site plan and design review shall comply with the following standards.

A. All unpaved areas, including those portions of required yard areas not utilized for vehicular and pedestrian access, shall be landscaped with plant material, including some combination of trees, shrubs, groundcover, and turf. Mulch, bark, and similar landscaping materials may be incorporated into the landscape design.

B. A minimum of 15 percent of the parcel area shall be landscaped, exclusive of the parking lot area and any landscaping required within the parking lot.

C. All landscaped areas shall be provided with an automatic irrigation system, unless the Director finds that such an irrigation system, due to the size, location, or configuration of the landscaped area, cannot reasonably be installed and maintained.

D. To achieve an immediate effect of a landscape installation and to allow sustained growth of planting materials, plant material sizes and plant spacing shall comply with the following standards, unless the Director finds that alternative sizes and planting will achieve the same or similar desired effects:

1. The minimum plant size for trees shall be 15 gallons, unless otherwise specified by the provisions of this Chapter. Trees planted within 10 feet of a street, sidewalk, paved trail, or walkway shall be a deep-rooted species or shall be separated from paved surfaces by a root barrier to prevent physical damage to public improvements. A minimum distance of 15 feet is required between the center of trees to street light standards, water meters, back-flow prevention systems, sewer cleanouts, and fire hydrants.

2. The minimum plant size for shrubs shall be five gallons.

3. Groundcover, including turf, shall be planted in a manner to provide 100 percent coverage within one year of initial planting.

E. Lots with freeway frontage shall provide and maintain freeway frontage landscaping.

F. Parking lot landscaping shall be provided per the requirements of Section 19.38.180 (Parking Lot Landscaping).

19.40.060 - Hillside landscaping standards.

Landscaping standards for properties in hillside areas, as defined in Chapter 19.46 (Hillside Development Standards), in addition to the standards in this Chapter, shall comply with the standards set forth in 19.46.120 (Landscaping and Irrigation Standards).

19.40.070 - Landscape plan approval required.

A. *Required landscape plan.* Except as otherwise specified in this Section, any application for any development that requires a grading permit, building permit, use permit, or site plan and design review shall include landscape and irrigation plans which provide for the utilization of low-water-usage irrigation systems and a landscape design consistent with the requirements of this Chapter. The plans shall be prepared by a licensed landscape architect.

B. *Review required.* The plan shall contain the information described in Section 19.40.080 (Elements of a Landscape Documentation Package) and shall be subject to review and approval by the Director for compliance with the landscape design criteria contained in this Chapter. The review process represents the basis for approval or denial of a landscape design proposal. No grading, building, use permit, or site plan and design approval can be issued until a project has received approval from the Director.

C. *Full construction drawings required.* Following the granting of all required planning and subdivision

approvals, full construction drawings shall be submitted to the Building Division for plan check approval. Drawings submitted for plan check shall include the entire Landscape Documentation Package described in Section 19.40.080, including the approved Preliminary Landscape Design Plan. The Landscape Design Plan shall be in substantial conformity with the approved Preliminary Landscape Design Plan prior to issuance of building permits.

19.40.080 - Elements of a landscape documentation package.

A Landscape Documentation Package shall be provided to include the elements listed in this Section or as provided in the Landscape and Irrigation Design Manual.

A. *Project information.*

1. Date.

2. Project applicant.

3. Project address (if available, parcel and/or lot number(s)).

4. Total landscape area (square feet).

5. Project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed).

6. Water supply type (e.g., potable, recycled, well) and identify the local water purveyor.

7. Checklist of all documents in Landscape Documentation Package.

8. Project contacts to include contact information for the project applicant and property owner.

9. 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. *Water efficient landscape worksheet.*

1. Hydrozone information table.

2. Water budget calculations, including Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use (ETWU).

C. *Other requirements.* Also included shall be a soil management plan, landscape design plan, irrigation design plan, and grading design plan.

19.40.090 - Preliminary landscape and irrigation design plan.

A. *Landscape details required.* A Preliminary Landscape Design Plan shall be required and shall specify the items detailed below. Special design attributes may require detail drawings and/or the submittal of manufacturer's literature.

1. Locate and identify all landscape planting material, including trees, shrubs, groundcover, and turf. Planting symbols shall be clearly drawn. Tree staking, plant installation, soil preparation details, and

any other applicable planting and installation details shall be provided

2. Reference planting symbols, specifying botanical name, common name, container size, spacing, and quantities.

3. Locate all existing mature trees, noting biological name, common name, and approximate trunk size, measured at four feet above existing grade. Note trees to be removed, relocated on-site, or maintained in place.

4. Express variation in water need. Designate hydrozones as low, moderate or high water usage. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation. Delineate and label each hydrozone by number, letter, or other method.

5. Locate and identify all paving and hardscape material.

6. Locate and identify the height of all walls, fences, and gates.

7. Locate and identify all outdoor amenity features, including but not limited to pools, spas, various water features, trellises, gazebos, play equipment, picnic tables, and benches.

8. Locate property lines, streets, street names, driveways, walkways, and other paved areas.

9. Locate existing and proposed buildings and structures, including pad elevations, if applicable.

10. Identify natural features including but not limited to rock outcroppings, existing trees, shrubs that will remain.

11. Provide a calculation of the total landscaped area and percentage of turf area.

12. Designate recreational areas.

13. Identify areas permanently and solely dedicated to edible plants.

14. Identify areas irrigated with recycled water.

15. Identify type of mulch and application depth.

16. Identify soil amendments, type, and quantity.

17. Identify location and installation details of any applicable stormwater Best Management Practices that encourage on-site retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:

    a. Infiltration beds, swales, and basins that allow water to collect and soak into the ground.

    b. Constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants.

    c. Pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.

18. Identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.).

19. 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."

20. 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 Title16 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code.)

B. *Irrigation plan content.* The irrigation plan shall be drawn on project base sheets. It shall be separate from but use the same format and scale as the landscape plan. The irrigation plan shall accurately and clearly identify the following:

1. Location and size of separate water meters for the landscape.

2. Location, type and size of all components of the irrigation system, including but not limited to automatic controllers, main and lateral lines, valves, sprinkler heads, moisture-sensing devices, rain switches, quick couplers 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 hours), and design operating pressure (psi) for each station.

5. Estimated annual water use expressed in inches per square foot of landscaped area per year.

6. Identification of self-adjusting controllers and moisture sensors to be used that conform to performance standards and labeling requirements established by the State Department of Water Resources.

19.40.100 - Landscape design requirements.

A. *General.* 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.

B. *Plant material.*

1. Any plant may be selected for the landscape, providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance. To encourage the efficient use of water, the following are highly recommended:

a. Protection and preservation of native species and natural vegetation.

b. Selection of water-conserving plant and turf species.

c. Selection of plants based on disease and pest resistance.

d. Selection of native and native-compatible plants.

e. Use of plants suggested in the City's Landscape and Irrigation Design Manual.

2. Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use.

3. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following are highly recommended:

   a. 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.

   b. 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.

   c. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

4. Turf is not allowed on slopes greater than 25 percent where the toe of the slope is adjacent to an impermeable hardscape and where 25 percent means one foot of vertical elevation change for every four feet of horizontal length (rise divided by run × 100 = slope percent).

5. 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). Avoid fire-prone plant materials and highly flammable mulches.

6. The use of invasive and/or noxious plant species is strongly discouraged.

C. *Water features.*

1. Recirculating water systems shall be used for water features.

2. Where available, recycled water shall be used as a source for decorative water features.

3. Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.

D. *Mulch and amendments.*

1. A minimum three-inch 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.

2. Stabilizing mulching products shall be used on slopes.

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

4. Soil amendments shall be incorporated according to recommendations of the soil report and what is

appropriate for the plants selected.

19.40.110 - Irrigation design requirements.

A. *General.* 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.

B. *System.*

1. Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.

2. Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data shall be required for irrigation scheduling in all irrigation systems.

3. The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

    a. 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.

    b. 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.

4. 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.

5. 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.

6. Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system.

7. High flow sensors that detect and report high flow conditions created by system damage or malfunction are recommended.

8. 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.

9. Relevant information from the soil management plan, such as soil type and infiltration rate, shall be

utilized when designing irrigation systems.

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

11. The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 19.40.120 (Water-Efficient Landscape Worksheet) regarding the Maximum Applied Water Allowance.

12. It is highly recommended that the project applicant 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.

13. In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.

14. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.

15. Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.

16. Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.

17. Check valves or anti-drain valves are required for all irrigation systems.

18. Narrow or irregularly shaped areas, including turf, less than eight feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system.

19. 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:

    a. The landscape area is adjacent to permeable surfacing and no runoff occurs

    b. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping

    c. 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 Section 19.40.120 (Water-Efficient Landscape Worksheet). Prevention of overspray and runoff must be confirmed during the irrigation audit.

20. Slopes greater than 25 percent shall not be irrigated with an irrigation system with a precipitation 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.

C. *Hydrozone.*

1. Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.

2. Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.

3. Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf.

4. Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:

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

   b. The plant factor of the higher water using plant is used for calculations.

5. Individual hydrozones that mix high- and low-water-use plants shall not be permitted.

6. 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. This table can also assist with the irrigation audit and programming the controller.

D. *Additional requirements.* The irrigation design plan, at a minimum, shall contain:

1. The point of connection to the public water supply, and location and size of separate water meters for landscape.

2. Location, type, size, and manufacturer 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.

5. Recycled water irrigation systems as specified in Section 19.40.20 (Recycled Water).

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."

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).

19.40.120 - Water-efficient landscape worksheet.

A. *Worksheet required.* A project applicant shall complete the Water-Efficient Landscape Worksheet which contains two sections:

1. A hydrozone information table for the landscape project.

2. A water budget calculation for the landscape project. For the calculation of the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use the ETo values from the Reference Evapotranspiration Table contained in the water-efficient landscape packet available from the Community Development Director. Because the City of Duarte is not covered the Reference Evapotranspiration Table, projects shall use data from other cities located nearby in the same reference evapotranspiration zone, such as the city of Monrovia, as found in the CIMIS Reference Evapotranspiration Zones Map, Department of Water Resources, 1999.

B. *Water budget calculations.* Water budget calculations shall adhere to the following requirements:

1. The plant factor used shall be from the Water Use Classification of Landscape Species (WUCOLS). The plant factor ranges from 0 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. 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.

3. All Special Landscape Areas shall be identified and their water use calculated as described below.

4. ETAF for Special Landscape Areas shall not exceed 1.0.

C. *Maximum applied water allowance calculation.* The Maximum Applied Water Allowance shall be calculated using the equation:

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]

MAWA = Maximum Applied Water Allowance (gallons per year)

ETo = Reference Evapotranspiration (inches per year)

0.62 = Conversion Factor (to gallons)

0.7 = ET Adjustment Factor (ETAF)

LA = Landscape Area including SLA (square feet)

0.3 = Additional Water Allowance for SLA

SLA = Special Landscape Area (square feet)

D. *Estimated total water use calculation.* The Estimated Total Water Use shall be calculated using the equation below. The sum of the Estimated Total Water Use calculated for all hydrozones shall not exceed the MAWA.

$$ETWU = (ETo)(0.62)\left(\frac{PF\ x\ HA}{IE} + SLA\right)$$

Where:

ETWU = Estimated Total Water Use per year (gallons)

ETo = Reference Evapotranspiration (inches)

PF = Plant Factor from WUCOLS

HA = Hydrozone Area [high, medium, and low water use areas] (square feet)

SLA = Special Landscape Area (square feet)

0.62 = Conversion Factor

IE = Irrigation Efficiency (minimum 0.71)

19.40.130 - Soil management report.

A. *General.*

1. To reduce runoff and encourage healthy plant growth, a soil analysis and management report shall be completed by the project applicant.

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

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 shall submit documentation verifying implementation of soil analysis report recommendations with Certificate of Completion.

B. *Parameters.* The soil analysis may include soil texture, infiltration rate determined by laboratory test or soil texture infiltration rate table, pH, total soluble salts, sodium, percent organic matter, and recommendations for ensuring soil conditions to achieve the purposes of this Chapter.

C. *Grading considerations.* The project applicant shall comply with one of the following:

1. If significant mass grading is not planned, the soil analysis report shall be submitted as part of the Landscape Documentation Package.

2. If significant mass grading is planned, the soil analysis report shall be submitted as part of the Certificate of Completion.

19.40.140 - Grading design plan.

A. *General.* For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading plan, prepared by a civil engineer, shall be submitted as part of the Landscape Documentation Package.

B. *Required contents.* The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area, including:

1. Height of graded slopes.

2. Drainage patterns.

3. Pad elevations.

4. Finish grade.

5. Stormwater retention improvements, if applicable.

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.

C. *Recommended practices.* To prevent excessive erosion and runoff, it is highly recommended that project applicants:

1. Grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes.

2. Avoid disruption of natural drainage patterns and undisturbed soil.

3. Avoid soil compaction in landscape areas.

19.40.150 - Certificate of completion.

Upon receipt of the permit for the Landscape Documentation Package and completion of the landscaping and irrigation system, the developer shall submit a Certificate of Completion to the Director of Community Development for review. The following details apply to the Certificate of Completion:

A. The Certificate of Completion shall be on a standard form approved by the Director.

B. The Certificate of Completion shall include a statement that the landscaping and irrigation system have been installed in substantial compliance with the approved Landscape Documentation Package. It shall acknowledge the evaluation of the landscape and irrigation system by a California licensed landscape architect, landscape contractor, or other individual deemed qualified by the Director.

C. The Certificate of Completion shall include the irrigation scheduling parameters used to set t he controller, per Section 19.40.160 (Irrigation Schedule).

D. The Certificate of Completion shall include a landscape and irrigation maintenance schedule, per Section 19.40.170 (Landscape and Irrigation Maintenance Schedule).

E. The Certificate of Completion shall include an irrigation audit report, per Section 19.40.180 (Irrigation Audit Report).

F. The Certificate of Completion shall include a soils analysis report if not previously submitted with the Landscape Documentation Package, per Section 19.40.080 (Elements of a Landscape Documentation Package).

G. The developer shall submit the Certificate of Completion to the Director prior to the issuance of occupancy permits or final approval of other applicable permits.

19.40.160 - Irrigation scheduling.

A. *General.* 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:

1. Irrigation scheduling shall be regulated by automatic irrigation controllers.

2. 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 or other agency, the stricter schedule shall apply. Operation of the irrigation system outside the normal watering window is only allowed for auditing and system maintenance.

3. 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 Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.

B. *Parameters for automatic controllers.* Parameters used to set the automatic controller shall be developed and submitted for each of the following:

1. The plant establishment period

2. The established landscape

3. Temporarily irrigated areas.

C. *Schedule considerations.* Each irrigation schedule shall consider for each station all of the following that apply:

1. Irrigation interval (days between irrigation).

2. Irrigation run times (hours or minutes per irrigation event to avoid runoff).

3. Number of cycle starts required for each irrigation event to avoid runoff.

4. Amount of applied water scheduled to be applied on a monthly basis.

5. Application rate setting.

6. Root depth setting.

7. Plant type setting.

8. Soil type.

9. Slope factor setting.

10. Shade factor setting.

11. Irrigation uniformity or efficiency setting.

19.40.170 - 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; adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; 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.

D. A project applicant is encouraged to implement sustainable or environmentally friendly practices for overall landscape maintenance.

19.40.180 - Irrigation audit report.

A. All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

B. For new construction and rehabilitated landscape projects installed after January 1, 2010, the following shall apply:

1. The project applicant shall submit an irrigation audit report with the Certificate of Completion 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

2. The City may require an irrigation water use analysis, irrigation audits, or irrigation surveys to ensure compliance with the Maximum Applied Water Allowance.

19.40.190 - Irrigation efficiency.

For the purpose of determining Maximum Applied Water Allowance, average irrigation efficiency is assumed to be 0.71. Irrigation systems shall be designed, maintained, and managed to meet or exceed an average landscape irrigation efficiency of 0.71.

19.40.200 - Recycled water.

A. The installation of recycled water irrigation systems shall allow for the current and future use of recycled water, unless a written exemption has been granted by the Director in the review of the landscape and irrigation plans.

B. Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the local water purveyor stating that recycled water meeting all public health codes and standards is not available and will not be available for the foreseeable future.

C. All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.

D. Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for Special Landscape Areas shall not exceed 1.0.

19.40.210 - Stormwater management.

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 retention and infiltration are encouraged.

B. Project applicants shall refer to the Regional Water Quality Control Board for information on any applicable stormwater ordinances and stormwater management plans.

C. Rain gardens, cisterns, and other landscapes features and practices that increase rainwater capture and create opportunities for infiltration and/or onsite storage are recommended.

19.40.220 - Landscape irrigation and maintenance.

A. *Landscape maintenance.* Landscaping and vegetation shall be maintained as follows:

1. All landscaped areas shall be kept and maintained in a manner that does not detract from the appearance of the immediate neighborhood, and that protects the health, safety, and welfare of the user, occupants, and general public.

2. Landscaped areas shall be kept and maintained in a neat and clean condition, free of weeds, debris and dead, diseased, or dying vegetation, and broken or defective decorative elements.

3. Vegetation in landscaped areas shall be mowed, groomed, trimmed, pruned, and watered to maintain a healthy, growing condition.

4. Irrigation systems shall be kept in good working condition and repair to prevent leaks or public health hazards.

5. Vegetative overgrowth shall not be permitted in a manner that is likely to harbor rodents, vermin, insects, or other nuisances; or impedes, obstructs, or denies pedestrian or other lawful travel on sidewalks, walkways, or other public rights-of-way.

6. All property owners shall water, prune, weed, and otherwise maintain landscaping in the parkway

portions of adjoining streets, including street trees.

B. *Irrigation systems.* Irrigation systems shall be maintained as follows:

1. Water waste resulting from inefficient landscape irrigation leading to excessive runoff, low-head drainage, overspray, and other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, or structures, shall be minimized.

2. Irrigation systems and their components shall be maintained in a fully functional manner consistent with the originally approved design and the provisions of this Chapter.

3. Landscapes shall be maintained to ensure water efficiency. A regular maintenance schedule should include but not be limited to checking, adjusting and repairing irrigation equipment; resetting the automatic controller; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; and weeding in all landscaped areas.

19.40.230 - Provisions for existing landscapes.

This section shall apply to all existing landscapes that were installed before January 1, 2010, are over one acre in size, and for which an application has been submitted to modify the development for which the landscaping is provided.

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

B. For all landscapes that do not have a meter, the City shall administer programs that may include, 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.

C. All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

19.40.240 - Minor modifications to approved landscape and irrigation plans.

The Director may approve minor changes to approved landscape, irrigation, and related plans, subject to the provisions of Chapter 19.122 (Site Plan and Design Review) and the following criteria:

A. Minor modifications to approved landscaping and irrigation, or grading plans which comply with the spirit and intent of this Chapter, including but not limited to, revising or substituting plant varieties, container sizes, plant locations, irrigation specifications, hardscape components, berm heights, berm locations, slope features, and the like.

B. Modifications of planting, installation, and/or soil preparation details.

EXHIBIT B

Chapter 19.40 – LANDSCAPING

Sections:

19.40.010 - Purpose, intent and applicability.

A. *Purpose*. The City promotes the value and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible. In compliance with applicable State standards and guidelines, and to promote the City's goals and standards regarding sustainable development set forth in Chapter 19.52 (Sustainable Development Practices), this Chapter establishes minimum landscape standards for all uses for the purpose of enhancing the appearance of developments, reducing heat and glare, controlling soil erosion, conserving water, establishing a buffer and/or screen between residential and nonresidential land uses, and ensuring the ongoing maintenance of landscape areas. Water conservation measures shall be addressed through landscape and irrigation design.

B. *Intent*. The intent of the water-efficient landscape chapter is:

1. That this Chapter be at least as effective in conserving water as the State Model Water Efficient Landscape Ordinance and consistent with Governor Brown's April 1, 2015 Drought Executive Order B-19-25;

2. Establish a structure for planning, designing, installing, and maintaining and managing water efficient landscapes in new construction and rehabilitated projects;

3. Establish provisions for water management practices and water waste prevention for existing landscapes;

4. To assure beneficial, efficient, and responsible use of water resources;

5. To retain the land's natural hydrological role and promote the infiltration of surface water into the groundwater;

6. To recognize that landscapes enhance the aesthetic appearance of developments and communities;

7. To encourage the appropriate design, installation, maintenance, and management of landscapes so that water demand can be decreased, runoff can be retained, and flooding can be reduced without a decline in the quality or quantity of landscapes; and

8. To reduce or eliminate water waste.

C. *Applicability*. Beginning March 24, 2016, all landscaping projects subject to this Chapter shall obtain a permit from the Community Development Department prior to installation of any landscaping. All planting, irrigation, and landscape related improvements required by this Chapter shall apply to the flowing landscape projects:

1. New landscape 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. New or rehabilitated landscape projects between 500 and 2,500 square feet may comply with the performance requirements of this ordinance or conform to the prescriptive measures contained in Appendix A of the Guidelines;

4. New or rehabilitated projects using treated or untreated graywater or rainwater capture on site, any lot or parcels within the project that has less than 2,500 square feet of landscape area and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with the treated or untreated graywater or though stored rainwater capture on site is subject only to Appendix A of the Implementation Guidelines;

5. Special Landscaped Areas, such as areas dedicated to edible plants, irrigated with recycled water, or dedicated to active play and/or a Recreational Area, shall prepare a water efficient landscape worksheet and landscape documentation package according to specifications for Special Landscaped Areas;

6. Cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 2.2 and 2.9 of the Guidelines; and existing cemeteries are limited to Section 3 of the Guidelines.

D. *Exempt activities*. The provisions of this Chapter do not apply to:

1. Registered local, State, or federal historical sites.

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

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

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

E. *Project Continuation*. Any landscape project(s) conducted on the same parcel of land within a 12-month period from the first landscape project submittal shall be aggregated for the purposes of determining a project's applicability to the requirements of this Chapter.

F. *Relationship to private covenants*. The architectural guidelines of a common interest development, which includes 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.

19.40.020 – Definitions

Aggregate. A concept that pertains to production home neighborhoods, common interest developments, or other situations where multiple parcels are undergoing landscape development as one project, but may eventually be individually owned or maintained.

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

Artificial Turf. A man-made material which simulates the appearance of live turf, organic turf, grass, sod, or lawn.

Automatic irrigation controller. See *Automatic Controller* under Chapter 19.160.030.

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

Certification of Completion. The certification included as Exhibit E of the Implementation Guidelines that shall be provided to the City prior to Planning and Building Divisions final inspection pursuant to Section 2.7 of the Guidelines.

Certification of Design. The certification included as Exhibit B of the Implementation Guidelines that shall be included in the *Landscape Documentation Package* pursuant to Section 2.1 of the Guidelines.

Certified Landscape Irrigation Auditor. A person(s) 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.

Chapter. Refers to Chapter 19.40 of the Duarte Development Code.

Check valve or ***anti-drain valve***. A valve or valves 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.

City. Refers to the City of Duarte.

Common interest developments. Refers to community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.

Conversion factor. The number that converts acre-inches per acre per year to gallons per square foot per year.

Drip irrigation. See definition under Chapter 19.160.050.

Drought-tolerant landscaping. Landscaping that utilizes little or no irrigation through the use of water-conserving materials and techniques, including but not limited to, native drought-tolerant plants, mulch and efficient irrigation.

Drought-tolerant Plants. See definition under Chapter 19.160.050.

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

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

Estimated Applied Water Use (EAWU). The annual total amount of water estimated to keep plants in a healthy state. It is based on factors such as reference evapotranspiration rate, the size of the landscaped area, plant water use factors, and the irrigation efficiency within each hydrozone.

Evapotranspiration. See definition under Chapter 19.160.060.

Evapotranspiration adjustment factor (ETAF). A factor of.55 for residential areas and 0.45 for non-residential areas, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape The ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0. The ETAF for existing non-rehabilitated landscapes is 0.8.

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

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

Front yard. For purposes of this Chapter and the Guidelines, shall mean the required front yard setback and any area between the street and the outline of the main building line. For other unique lot configurations, the Director of Development Services shall determine front yard.

Front yard landscaped area. The Front Yard Area that is not occupied by driveways, hardscape or other pervious or non-pervious surfaces and that is required to be landscaped with live vegetation, artificial turf, drought tolerant landscaping or a combination of all three, as further described in this Chapter and the Implementation Guidelines.

Graywater. A system containing 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 unhealthy 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 as per the Health and Safety Code (Section 17922.12). Graywater systems 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 (Title 24, Part 5, Chapter 16) and any applicable local ordinance standards.

Hardscape. See definition under Chapter 19.160.090.

***Hydrozone*.** See definition under Chapter 19.160.090.

Implementation Guidelines or Guidelines. Refers to the Water Efficient Landscape Ordinance Guidelines which shall be adopted by resolution of the Planning Commission. The purpose of the Guidelines is to provide procedural and design guidance for applicants proposing new landscape or landscape rehabilitation projects that are subject to Chapter 19.40 of the City of Duarte Development Code.

Infiltration rate. See definition under Chapter 19.160.100.

Invasive and/or noxious plants species. Species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive plant species may be regulated by county agricultural agencies as *noxious species*.

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

Irrigation efficiency (IE). The measurement of the amount of water beneficially used divided by the amount of water applied to a landscaped area. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this Chapter and the Guidelines is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems. The following irrigation efficiency may be obtained for the listed irrigation heads with an IME of 90%:

Irrigation Method	**DU_{LQ}**	**DU_{LH}***	**EU**	**IE****
Spray nozzles	65%	79%		71%
High efficiency spray nozzles	75%	82%		73%
Multi stream/Multi trajectory rotary (MSMT) nozzles	75%	85%		76%
Stream rotor nozzle	70%	82%		73%
Microspray	75%	85%		76%
Bubblers			85%	77%
Drip emitter			90%	81%
Subsurface drip			90%	81%

*DU_{LH} = .386 + (.614)(DU_{LQ})

** IE (spray) = (DU_{LH})(IME)

** IE (drip) = Emission uniformity (EU)(IME)

Irrigation Management Efficiency (IME). *T*he measurement used to calculate the irrigation efficiency of the irrigation system for a landscaped project. A 90% IME can be achieved by using evapotranspiration controllers, soil moisture sensors, and other methods that will adjust irrigation run times to meet plant water needs.

Landscape coefficient **(K_L)**. The product of a plant factor multiplied by a density factor and a microclimate factor. The landscape coefficient is derived to estimate water loss from irrigated landscaped areas and special landscaped areas.

Landscape documentation package. The package of documents that a project applicant is required to submit to the City pursuant to Section 2.1 of the Guidelines.

Landscape professional. A licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape pursuant to Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the California Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the California Food and Agriculture Code.

Landscaped area. Refers to all planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance and Estimated Applied Water Use calculations. The landscaped 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).

Landscaping. See definition under Chapter 19.160.130.

Lateral line. A water delivery pipeline that supplies water to the emitters or sprinklers from the *valve*.

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

Low volume overhead irrigation. Aboveground irrigation heads with an upper flow limit of 0.5 GPM.

Main line. A pressurized pipeline that delivers water from the water source to the *valve* or outlet.

Manual isolation valve. A valve such as a gate valve, ball valve, or butterfly valve installed downstream of the point of connection of the water supply to shutdown water flow through mainline piping for routine maintenance and emergency repair.

Master shut-off valve. An electronic valve such as a solenoid valve installed as close as possible to the point of connection and is used in conjunction with a flow sensor and flow monitoring controller technology to automatically shutdown system wide water flow in the event of high flow conditions such

as mainline pipe break.

Maximum applied water allowance (MAWA). Refers to the upper limit of annual applied water for the established *landscaped area,* as specified in Section 2.2 of the Guidelines. It is based upon the area's *reference evapotranspiration*, the *ETAF*, and the size of the *landscaped area*. The *Estimated Applied Water Use* shall not exceed the *Maximum Applied Water Allowance*.

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

Mined-land reclamation projects. Any surface mining operation with a reclamation plan approved in accordance with the Surface mining and Reclamation Act of 1975.

Mulch. Any organic material such as leaves, bark, straw or 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.

Non-pervious or impervious. Any surface or material that does not allow for the passage of water through the material and into the underlying soil.

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

Overspray. The irrigation water which is delivered beyond the target area.

Parkway. See definition under Chapter 19.160.170.

Person. Any natural person, firm, joint venture, joint stock company, partnership, public or private association, club, company, corporation, business trust, organization, public or private agency, government agency or institution, school district, college, university, any other user of water provided by the City or the local water purveyor, or the manager, lessee, agent, servant, officer, or employee of any of them or any other entity which is recognized by law as the subject of rights or duties.

Pervious. *M*eans 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. A factor, when multiplied by *ETo*, that estimates the amount of water needed by plants. For purposes of this *Water Efficient Landscape 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 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 the Guidelines are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species."

Precipitation rate. The rate of application of water measured in inches per hour.

Project applicant. The individual or entity submitting a Landscape Documentation Package required under Section 2.1 to request a permit, plan check, or design review from the City. A project applicant may be the property owner or his or her designee.

Property owner. The record owner of real property as shown on the most recently issued equalized assessment roll.

Rain sensor or rain sensing shutoff device. A component, which automatically suspends irrigation when it rains.

Recreational area. An area(s), excluding private single family residential areas, designated for active play; recreation or public assembly in parks, sports fields, picnic grounds, amphitheaters; golf course tees, fairways, roughs, surrounds and greens; private recreational or assembly space as part of a comprehensive project that otherwise meets the intent of this Chapter, and other active or recreational play areas as determined by the Community Development Director.

Recycled water or Reclaimed water. 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 (ETo). A standard measurement of environmental parameters which affect the water use of plants. ETo is given expressed in inches per day, month, or year as represented in Appendix C of the Guidelines, 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.

Rehabilitated landscape. Any re-landscaping project that requires a permit, plan check, or design review, meets the requirement of Section 1.2 of the Guidelines, and the modified landscape area is equal to or greater than 2,500 square feet.

Runoff. See definition under Chapter 19.160.190

SMART irrigation controller or Soil moisture sensor. A weather-based or soil moisture-based irrigation controller that monitors and uses information about the environmental conditions at a specific location and landscape to automatically adjust watering schedules.

Soil texture. The classification of soil based on its percentage of sand, silt, and clay.

Special Landscaped Areas (SLA). Area(s) of the landscape dedicated solely to edible plants such as orchards and vegetable gardens, areas irrigated with recycled water, water features using recycled water, and areas designated as a Recreational Area.

Sprinkler head. A device which delivers water through a nozzle.

Static water pressure. See definition under Chapter 19.160.200.

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

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

Turf. See definition under Chapter 19.160.210.

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

Visible street side yard. For purposes of this Chapter and the Guidelines, means any street side yard that is visible from the public right of way, that shall be improved as further described in this Chapter and the Implementation Guidelines..

Water-Efficient Irrigation System. See definition under Chapter 19.160.240.

Water-Efficient Landscape. See definition under Chapter 19.160.240.

Water Efficient Landscape Ordinance. Refers to Chapter 19.40 of the City of Duarte Development Code.

Water Efficient Landscape Worksheet. The worksheet required to be completed pursuant to Section 2.2 of the Guidelines and which are included in Appendix C of the Guidelines.

Water feature. A design element or elements 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 landscaped area. Constructed wetlands used for on-site wastewater treatment, habitat protection, or storm water best management practices that are not irrigated and used solely for water treatment or storm water retention are not water features and, therefore, are not subject to the water budget calculation.

Watering window. The time of day irrigation is allowed on landscaped surfaces.

WUCOLS. Refers to the Water Use Classification of Landscape published by the University of California Cooperative Extension, the Department of Water Resources, and the Bureau of Reclamation, 2000. *www.owue.water.ca.gov/docs/wucols00*

19.40.030 - Implementation Guidelines

Water Efficient Landscape Ordinance Guidelines shall be adopted by resolution of the Planning Commission.

19.40.040 - General landscape standards.

These standards shall apply to all parcels within the City.

A. Water Efficient Landscape Ordinance Guidelines (Implementation Guidelines), adopted by resolution of the City of Duarte Planning Commission, shall establish criteria for the design and

review of landscape and irrigation plans, and such criteria shall be adhered to in the design of landscape and irrigation plans as required by this Chapter.

B. Trees may be planted in any required yard area. All required trees shall be of a minimum size of 15 gallons, unless a larger size is specified in project conditions of approval. In limited cases, smaller tree sizes may be approved if the Director determines that long-term tree growth potential is improved by smaller specimens.

C. Landscaping shall be maintained in the area between the front property line and the dwelling, building, or structure. In all zones except the R-1 zones (inclusive), a permanent irrigation system shall also be maintained in the same front-yard area.

D. Landscape planting shall emphasize drought-tolerant and native species, complement the architectural design of structures on the site, and be suitable for the soil and climatic conditions of the site, consistent with the requirement of this Chapter.

E. Transformers shall be screened with dense landscaping or walls similar to those required for trash enclosures, and shall not be located within open space recreation areas. They shall be located away from public view wherever possible and shall not impede pedestrian or vehicular circulation. Where feasible, transformers should be placed underground.

F. Use of artificial turf is regulated by both standards within this Chapter and in the Implementation Guidelines. The use of artificial turf requires Community Development Department approval before installation.

19.40.050 - Landscape of unused and undeveloped portions of a site.

All areas of a site not intended for a specific use or purpose in conjunction with a current application, including vacant or undeveloped pad sites in shopping centers held for future development, shall be fully landscaped and irrigated with an automatic irrigation system. Landscaping shall include a combination of trees, shrubs, ground cover, turf, and/or approved decorative landscape materials, as approved by the Director, and in compliance with this Chapter.

19.40.060 - Residential landscape standards.

The following standards shall apply to all parcels in all residential zones.

A. A minimum of 20 percent of the entire parcel shall be fully landscaped with plant materials.

B. At least 50% of the Front Yard Landscaped Area and 50% of the Visible Street Side Yard shall be landscaped with live vegetation, artificial turf, drought-tolerant landscaping or a combination of the three, as further described below:

    1. Live vegetation may include turf, trees, shrubs, groundcover, flowers, or other similar vegetation.

2. Artificial turf is limited to no more than 40% coverage of the Front Yard Landscaped Area and shall include a minimum of 60% of live vegetation. Artificial turf is limited to no more than 40% coverage of the Visible Street Side Yard and shall include a minimum of 60% of live vegetation. (See Section 4.2 of the Guidelines)

3. Drought tolerant landscaping shall include native water conserving plants. (See Section 4.3 of the Guidelines)

C. Artificial turf is not permitted within the parkway.

D. Bare dirt is not permitted within the front yard, visible street side yard or within the parkway. All bare dirt areas shall be finished with a minimum three inch thick layer of mulch, organic bark or earth-toned colored rubber bark.

E. Parking lots for multi-family developments providing 10 or more parking spaces shall be landscaped per the requirements of Section 19.38.200 (Parking Lot Landscaping).

19.40.070 - Nonresidential landscape standards.

All new and rehabilitated landscaping plans undertaken in conjunction with any private development project on commercial, industrial, mixed-use, and other nonresidential properties, or those projects requiring a grading, building, use permit, or site plan and design review, as required by this Chapter, shall comply with the following standards.

A. All unpaved areas, including those portions of required yard areas not utilized for vehicular and pedestrian access, shall be landscaped with plant material, including some combination of trees, shrubs, groundcover, and turf. Mulch, bark, and similar landscaping materials may be incorporated into the landscape design.

B. A minimum of 15 percent of the parcel area shall be landscaped, exclusive of the parking lot area and any landscaping required within the parking lot.

C. A minimum of 75% of the landscape area must be landscaped with live plants. The remaining area may utilize boulder, rocks, decomposed granite, water features or other hardscapes, subject to approval from the Community Development Department.

D. All landscaped areas shall be provided with an automatic irrigation system, unless the Director finds that such an irrigation system, due to the size, location, or configuration of the landscaped area, cannot reasonably be installed and maintained.

E. To achieve an immediate effect of a landscape installation and to allow sustained growth of planting materials, plant material sizes and plant spacing shall comply with the following standards, unless the Director finds that alternative sizes and planting will achieve the same or similar desired effects:

1. The minimum plant size for trees shall be 15 gallons, unless otherwise specified by the provisions of this Chapter. Trees planted within 10 feet of a street, sidewalk, paved trail,

or walkway shall be a deep-rooted species or shall be separated from paved surfaces by a root barrier to prevent physical damage to public improvements. A minimum distance of 15 feet is required between the center of trees to street light standards, water meters, back-flow prevention systems, sewer cleanouts, and fire hydrants.

2. The minimum plant size for shrubs shall be five gallons.

3. Groundcover, including turf, shall be planted in a manner to provide 100 percent coverage within one year of initial planting.

F. Lots with freeway frontage shall provide and maintain freeway frontage landscaping.

G. Parking lot landscaping shall be provided per the requirements of Section 19.38.180 (Parking Lot Landscaping).

H. Artificial turf is not permitted within in the parkway.

I. Artificial turf is discouraged on non-residential properties. Use of artificial turf is only allowed in special circumstances as approved in writing by the Community Development Director.

J. Bare dirt is not permitted within the front yard, visible street side yard or within the parkway. All bare dirt areas shall be finished with a minimum three inch thick layer of mulch, organic bark or earth-toned colored rubber bark.

19.40.080 - Hillside landscaping standards.

Landscaping standards for properties in hillside areas, as defined in Chapter 19.46 (Hillside Development Standards), in addition to the standards in this Chapter, shall comply with the standards set forth in 19.46.120 (Landscaping and Irrigation Standards).

19.40.090 - Landscape plan approval required.

A. Required landscape plan. Except as otherwise specified in this Section, any application for any development that requires a grading permit, building permit, use permit, or site plan and design review shall include landscape and irrigation plans which provide for the utilization of low-water-usage irrigation systems and a landscape design consistent with the requirements of this Chapter. The plans shall be prepared by a licensed landscape architect, licensed landscape contractor or any other person authorized to design a landscape plan.

B. Review required. The plan shall contain the information described in the Implementation Guidelines and shall be subject to review and approval by the Director for compliance with the landscape design criteria contained in this Chapter. The review process represents the basis for approval or denial of a landscape design proposal. No grading, building, use permit, or site plan and design approval can be issued until a project has received approval from the Director.

C. Full construction drawings required. Following the granting of all required planning and subdivision approvals, full construction drawings shall be submitted to the Building Division for plan check

approval. Drawings submitted for plan check shall include the entire Landscape Documentation Package described in the Implementation Guidelines, including the approved Preliminary Landscape Design Plan. The Landscape Design Plan shall be in substantial conformity with the approved Preliminary Landscape Design Plan prior to issuance of building permits.

19.40.100 - Landscape and irrigation maintenance.

A. Landscape maintenance. Landscaping and vegetation shall be maintained as follows:

1. All landscaped areas shall be kept and maintained in a manner that does not detract from the appearance of the immediate neighborhood, and that protects the health, safety, and welfare of the user, occupants, and general public.

2. Landscaped areas shall be kept and maintained in a neat and clean condition, free of weeds, debris and dead, diseased, or dying vegetation, and broken or defective decorative elements.

3. Vegetation in landscaped areas shall be mowed, groomed, trimmed, pruned, and watered to maintain a healthy, growing condition.

4. Vegetative overgrowth shall not be permitted in a manner that is likely to harbor rodents, vermin, insects, or other nuisances; or impedes, obstructs, or denies pedestrian or other lawful travel on sidewalks, walkways, or other public rights-of-way.

5. All property owners shall water, prune, weed, and otherwise maintain landscaping in the parkway portions of adjoining streets, including street trees.

B. Irrigation systems. Irrigation systems shall be maintained as follows:

1. Irrigation systems shall be kept in good working condition and repair to prevent leaks or public health hazards.

2. Water waste resulting from inefficient landscape irrigation leading to excessive runoff, low-head drainage, overspray, and other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, or structures, shall be minimized.

3. Irrigation systems and their components shall be maintained in a fully functional manner consistent with the originally approved design and the provisions of this Chapter.

4. Landscapes shall be maintained to ensure water efficiency. A regular maintenance schedule should include but not be limited to checking, adjusting and repairing irrigation equipment; resetting the automatic controller; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; and weeding in all landscaped areas.

C. Artificial turf. Artificial turf shall be maintained as follows:

1. All artificial turf areas shall be kept and maintained in a manner that does not detract from the appearance of the immediate neighborhood, and that protects the health, safety, and welfare of the user, occupants, and general public.

2. Artificial turf areas shall be kept free of animal waste, rubbish, leaves, sand, rocks, algae, mold, fungi, natural grass and/or weeds.

3. Artificial turf seams, joints and edges shall be inconspicuous and not allowed to cause tripping or other hazards.

4. Artificial turf that is discolored, deteriorated, matted, torn, stained, shows excess wear or is otherwise unsightly or neglected shall be repaired or replaced to the satisfaction of the City.

5. Artificial turf infill material shall be maintained at adequate levels to allow proper use of the turf. Infill materials shall not be allowed to accumulate within the artificial turf area or otherwise be visible from the public right-of-way. Sweeping, raking or otherwise redistributing infill material on a regular basis is required.

19.40.110 - Cooperation with Water Purveyor(s).

A local agency may by mutual agreement, designate another agency, such as a water purveyor, to implement some or all of the requirements contained in this ordinance. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this ordinance.

19.40.120 - Minor modifications to approved landscape and irrigation plans.

The Director may approve minor changes to approved landscape, irrigation, and related plans, subject to the provisions of Chapter 19.122 (Site Plan and Design Review) and the following criteria:

A. Minor modifications to approved landscaping and irrigation, or grading plans which comply with the spirit and intent of this Chapter, including but not limited to, revising or substituting plant varieties, container sizes, plant locations, irrigation specifications, hardscape components, berm heights, berm locations, slope features, and the like.

B. Modifications of planting, installation, and/or soil preparation details.

EXHIBIT C

GUIDELINES

FOR IMPLEMENTATION OF THE CITY OF DUARTE MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO)

EFFECTIVE MARCH 24, 2016

TABLE OF CONTENTS

1. Purpose and Applicability

1.1 Purpose

A. The primary purpose of these Guidelines is to provide procedural and design guidance for applicants proposing new landscape or landscape rehabilitation projects that are subject to Chapter 19.40 of the City of Duarte Development Code. This document is also intended for use and reference by City staff in reviewing and approving designs and verifying compliance with Chapter 19.40.

B. Other regulations affecting landscape design and maintenance practices are potentially applicable and should be consulted for additional requirements. These regulations include but may not be limited to:

1. State of California Assembly Bill 1881;

2. State of California Executive Order B-29-15;

3. National Pollutant Discharge Elimination Permit(s) for the Municipal Separate Storm Sewer System;

4. Los Angeles County Fire Code Regulations for fuel modification in landscapes;

5. Water Conservation, Water Supply Shortage, and Drought Response Regulations of the Local Water Purveyor(s);

6. Local and State Regulations governing use of Recycled Water;

7. City of Duarte Municipal Code;

8. City of Duarte Development Code;

9. Building Code;

10. Specific Plans, Master Plans, General Plan, or similar land use and planning documents; and

11. Conditions of approval for a specific project.

1.2 Applicability

A. Beginning March 24, 2016, and consistent with Executive Order No. B-29-15, this ordinance shall apply to all of the following landscape projects:

1. New landscape 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. New or rehabilitated landscape projects between 500 and 2,500 square feet may comply with the performance requirements of this ordinance or conform to the prescriptive measures contained in Appendix A of the Guidelines.

4. New or rehabilitated projects using treated or untreated greywater or rainwater capture on site, any lot or parcels within the project that has less than 2,500 square feet of landscape area and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with the treated or untreated greywater or though stored rainwater capture on site is subject only to Appendix A Section (5);

5. Special Landscaped Areas, such as areas dedicated to edible plants, irrigated with recycled water, or dedicated to active play and/or a Recreational Area, shall prepare a water efficient landscape worksheet and landscape documentation package according to specifications for Special Landscaped Areas;

6. Cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 2.2 and 2.9 of these Guidelines; and existing cemeteries are limited to Section 3 of these Guidelines.

B. The requirements of the Guidelines may be partially or wholly waived, at the discretion of the Director of Development Services or his/her designee, for landscape rehabilitation projects that are limited to replacement plantings with equal or lower water needs and where the irrigation system is found to be designed, operable and programmed consistent with minimizing water waste in accordance with local water purveyor regulations.

C. Unless otherwise determined by the City, the Water Efficient Landscape Ordinance and these Guidelines do not apply to:

1. Registered local, state, or federal historical sites;

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

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

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

2. Submittal Requirements for New Landscape Installations or Landscape Rehabilitation Projects

A. Discretionary approval is typically required for landscape projects that are subject to site plan reviews or other procedural processes apply such that standard or special conditions of approval may be required by the City. Discretionary projects with conditions of approval may be approved administratively by city staff, or acted on formally by the Planning Commission, City Council, or other jurisdictional authority. A typical standard condition of approval reads:

"*Landscaping for the project shall be designed to comply with the City's Water Efficient Landscape Ordinance and with the Guidelines for Implementation of the Water Efficient Landscape Ordinance."*

Landscape or water features that typically require a ministerial permit (i.e., a building, plumbing, electrical, or other similar permit), thereby triggering compliance with the Water Efficient Landscape Ordinance requirements independently of the need for discretionary approval include, but are not limited to, swimming pools, fountains or ponds, retaining walls, and overhead trellises.

2.1 Landscape Documentation Package

A. A Landscape Documentation Package is required to be submitted by the applicant for review and approval prior to the issuance of ministerial permits and prior to the start of construction. Unless otherwise directed by the City, the Landscape Documentation Package shall include the following elements either on plan sheets or supplemental pages as directed by the City:

1. Project Information, including, but not limited to, the following:

a. Date;

b. Project name;

c. Project address, parcel, and/or lot number(s);

d. Total landscaped area (square feet) and rehabilitated landscaped area (if applicable);

e. Project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed);

f. Water supply type (e.g., potable, recycled, or well) and identification of the local retail water purveyor if the project applicant is not served by a private well;

g. Checklist or index of all documents in the Landscape Documentation Package;

h. Project contacts, including contact information for the project applicant and property owner;

i. Certification of Design in accordance with Appendix B of these Guidelines that includes a landscape professional's professional stamp, as applicable, signature, contact information (including email and telephone number), license number, and date, certifying the statement that "The design of this project complies with the requirements of the City's Water Efficient Landscape Ordinance" and shall bear the signature of the landscape professional as required by law; and

j. Any other information the Director of Community Development or his or her designee deems relevant for determining whether the landscape project complies with the Water Efficient Landscape Ordinance and these Guidelines.

2. Maximum Applied Water Allowance (MAWA) and Estimated Applied Water Use (EAWU) expressed as annual totals including, but not limited to, the following:

a. Water Efficient Landscape Worksheet for the landscape project;

b. Water budget calculations for the landscape project; and

c. Hydrozone information table for the landscape project.

3. A soil management report or specifications, or specification provision requiring soil testing and amendment recommendations and implementation to be accomplished during construction of the landscape project.

4. A landscape design plan for the landscape project.

5. An irrigation design plan for the landscape project.

6. A grading design plan, unless grading information is included in the landscape design plan for the landscape project or unless the landscape project is limited to replacement planting and/or irrigation to rehabilitate an existing landscaped area.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

2.2 Water Efficient Landscape Calculations and Alternatives

A. The applicant shall provide the calculated Maximum Applied Water Allowance (MAWA) and Estimated Applied Water Use (EAWU) for the landscaped area as part of the Landscape Documentation Package submittal to the City. The MAWA and EAWU shall be calculated based on completing the Water Efficient Landscape Worksheets (in accordance with the sample worksheets in Appendix C) which contain 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 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 EAWU is calculated based on the plants used and irrigation method selected for the landscape design.

B. The EAWU allowable for the landscaped area may not exceed the MAWA. The MAWA shall be calculated using an evapotranspiration adjustment factor (ETAF) of 0.55 for residential areas and 0.45 for nonresidential areas, except for the portion of the MAWA applicable to any special landscaped areas within the landscape project, which shall be calculated using an ETAF of 1.0. Where the design of the landscaped area can otherwise be shown to be equivalently water-efficient, the applicant may submit alternative or abbreviated information supporting the demonstration that the annual EAWU is less than the MAWA, at the discretion of and for the review and approval of the City.

C. Water budget calculations shall adhere to the following requirements:

1. The MAWA shall be calculated using the Water Efficient Landscape Worksheets and equation presented in Appendix C on page C-1.

2. The EAWU shall be calculated using the Water Efficient Landscape Worksheets and equation presented in Appendix C on page C-1.

3. For the calculation of the *MAWA* and *EAWU*, a *project applicant* shall use the *ETo* values from the closest location listed in the Reference Evapotranspiration Table in Appendix D. For geographic areas not covered in Appendix D, data from other cities located nearby in the same reference evapotranspiration zone may be used.

4. For calculation of the EAWU, the plant water use factor shall be determined as appropriate to the project location from the Water Use Efficiency of Landscape Species (WUCOLS) Species Evaluation List 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 use plants, 0.1 to 0.3 for low water use plants, 0.4 to 0.6 for moderate water use plants, and 0.7 to 1.0 for high water use plants.

5. For calculating the EAWU, the plant water use factor shall be determined for each valve hydrozone based on the highest-water-use plant species within the zone. The plant factor for each hydrozone may be required to be further refined as a "landscape coefficient," according to protocols defined in detail in the WUCOLS document, to reflect planting density and microclimate effects on water need at the option of the applicant or the City.

6. For calculation of the EAWU, the area of a water feature is defined as a high water use hydrozone with a plant factor of 1.0.

7. For calculation of the EAWU, a temporarily irrigated hydrozone area, such as an area of highly drought-tolerant native plants that are not intended to be irrigated after they are fully established, is defined as a very low water use hydrozone with a plant factor of 0.1.

8. For calculation of the MAWA, the ETAF for special landscaped areas is set at 1.0. For calculation of the EAWU, the ETAF for special landscaped areas is calculated as the special landscaped area (SLA) plant factor divided by the SLA irrigation efficiency factor.

9. Irrigation efficiency (IE) of the irrigation heads used within each hydrozone shall be assumed to be as follows, unless otherwise indicated by the equipment manufacturer's specifications or demonstrated by the project applicant:

Irrigation Method	DU_{LQ}	DU_{LH}*	EU	IE**
Spray nozzles	65%	79%		71%
High efficiency spray nozzles	70%	82%		73%
Multi stream/Multi trajectory rotary (MSMT) nozzles	75%	85%		76%
Stream rotor nozzle	70%	82%		73%
Microspray	75%	85%		76%
Bubblers			85%	77%
Drip emitter			90%	81%
Subsurface drip			90%	81%

*$DU_{LH} = .386 + (.614)(DU_{LQ})$

** IE (spray) = (DU_{LH})(IME)

** IE (drip) = Emission uniformity (EU)(IME)

D. The Maximum Applied Water Allowance shall adhere to the following requirements:

1. The Maximum Applied Water Allowance shall be calculated using the equation presented in Appendix C. The reference evapotranspiration (ETo) values used in this calculation are from the Reference Evapotranspiration Table in Appendix D and are for planning purposes only. For actual irrigation scheduling, automatic irrigation controllers are required and shall use current ETo data, such as from the California Irrigation Management Information System (CIMIS), other equivalent data, or soil moisture sensor data.

2.3 Soil Management Report

A. All planted landscape areas are required to have friable soil to maximize retention and infiltration. On engineered slopes, only amended planning holes need to meet this requirement.

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

1. Submit soil samples to a certified agronomic soils 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 may 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.

2. In projects with multiple landscape installations (i.e. production home developments that are installing landscaping) a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement; evenly disbursed throughout the development. Large landscape projects shall sample at a rate equivalent to 1 in 7 lots or approximately 15% landscaped area. The 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 City as part of the Certification of Completion.

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

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

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

C. It is recommended that landscape areas be considered for capture and infiltration capacity, amongst other storm water retention methods and systems, that is sufficient to prevent runoff from impervious surfaces (i.e. roof and paved areas) from additional capacity as required by any applicable local, regional, state, or federal regulation and/or one of the following: the one inch, 24-hour rain event or the 85th percentile, 24-hour rain event.

D. It is recommended that storm water projects incorporate any of the following elements to improve on-site stormwater and dry weather runoff capture and use:

1. Grade impervious surfaces, such as driveways, during construction to drain into 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 landscape 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, cisterns, subterranean storm water capture/detention systems, and drywells to capture stormwater 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.

[Note: Authority cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

2.4 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. The following design criteria shall be submitted as part of the Landscape Documentation Package.

1. Plant Material

a. Any plant may be selected for the landscaped area provided the EAWU in the landscaped area does not exceed the MAWA. Methods to achieve water efficiency shall include one or more of the following:

1. Protection and preservation of non-invasive water-conserving plant, tree and turf species;

2. Selection of water-conserving plant, tree, and turf species;

3. Selection of plants based on local climate suitability, disease and pest resistance;

4. Selection of trees based on applicable City and 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 Los Angeles County Fire Fuel Modification 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 2.5(a)(2)(d) of these Guidelines.

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, and power lines); allow for adequate soil volume for healthy root growth; and

3. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

D. Turf is discouraged 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. A landscape design plan for projects in fire-prone areas and fuel modification zones shall comply with requirements of Los Angeles County, where applicable. When conflicts between water conservation and fire safety design elements exist, the fire safety requirements have priority.

G. The use of invasive plant species, such as those listed by the California Invasive Plant Council, is strongly discouraged.

H. The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, may not prohibit or include conditions that have the effect of prohibiting the use of water efficient plant species as a group.

1. Water Features

a. Recirculating water systems shall be used for water features.

b. Where available and consistent with public health guidelines, 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.

2. Soil Preparation, Mulch and Amendments

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

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

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

d. A minimum 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 shall be included in the landscape design plan as such.

e. Stabilizing mulching products shall be used on slopes that meet current engineering standards such as those detailed in the USDA/USAID Low-Volume Roads Engineering Best Management Practices Field Guide.

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

g. Organic mulch materials 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.

I. 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 landscaped area 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 type and surface area of water features;

9. Identify hardscapes (pervious and non-pervious);

10. Identify location and installation details, and 24-hour retention or infiltration capacity of any applicable storm water best management practices that encourage on-site retention and infiltration of storm water. Project applicants shall refer to the local agency or regional Water Quality Control Board for information on any applicable stormwater technical requirements. Storm water best management practices are encouraged in the landscape design plan and examples are provided in Section 2.3 (c)-(d).

11. Identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.);

12. Identify any applicable graywater discharge piping, system components and area(s) of distribution;

13. Contain the following statement: "I have complied with the criteria of the City of Duarte Water Efficient Landscape Ordinance (Duarte Development Code Chapter 19.40) and applied them for the efficient use of water in the landscape design plan;" and

14. Bear the signature of a California-licensed landscape professional.

[Note: Authority Cited: Section 65595, Reference: Section 65596, Government Code and Section 1351, Civil Code.]

2.5 Irrigation Design Plan

A. This section applies to landscape 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 manufacturer's 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. Landscape water meters, defined as either a dedicated water service meter of private sub meter, shall be installed for all nonresidential irrigated landscapes of 1,000 square feet but not more than 5,000 square feet (the level at which Water Code 535

applies) and residential irrigated landscapes of 5,000 square feet or greater. A landscape meter may be either:

1. A customer service meter dedicated to landscape use provided by the local water purveyor; or

2. A private owned meter or sub meter.

b. Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data with non-volatile memory shall be required for irrigation scheduling in all irrigation systems, recommending U.S. EPA WaterSense labeled devices as applicable.

c. Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions are required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.

d. 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.

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.

e. Backflow prevention devices are required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the applicable City code (i.e., public health) for additional backflow prevention requirements.

f. A master shutoff valve shall be as close as possible to the point of connection and is required on all projects: with the exception for 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.

g. Flow sensors that detect high flow conditions created by system damage or malfunction are required for all non-residential landscapes and residential landscapes of 5,000 square feet or larger. The flow sensor shall be in combination with a master shut-off valve.

h. Manual isolation valves (such as a gate valve, ball valve, or butterfly valve) shall be required downstream of 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.

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. All irrigation emission devices shall 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 shall document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASBE/ICC 802-2014.

m. Average irrigation efficiency for the project shall be determined in accordance with the EAWU calculation sheet in Appendix C. Unless otherwise indicated by the irrigation equipment manufacturer's specifications or demonstrated by the project applicant**,** the irrigation efficiency of the irrigation heads used within each hydrozone shall be as listed in Section 2.2. (c)(9).

n. It is highly recommended that the project applicant or local agency 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.

o. In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone; with the exception of areas with fuel modification requirements and/or those that require plan establishment to comply with local grading ordinances.

p. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.

q. Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.

r. Swing joints components are required on all sprinklers subject to damage that are adjacent to hardscapes or in high traffic areas of turf grass.

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

t. 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. Overhead irrigation may be only be considered if such irrigation complies with Section 2.A.1.u of the Implementation Guidelines.

u. Overhead irrigation is not 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 landscaped 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 for the landscape project specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates strict adherence to the irrigation system design criteria in Section 2.5 (a)(1)(I) hereof. Prevention of overspray and runoff shall be confirmed during an irrigation audit.

4. Slopes greater than 25% may 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 of the landscape project 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 shall 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. Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.

c. 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.

d. Individual hydrozones that mix plants of moderate and low water use or moderate and high water use may be allowed if:

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

2. The plant factor of the higher water using plant is used for the calculations.

e. Individual hydrozones that mix high and low water use plants are not permitted.

f. 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.

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

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

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

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;

5. Irrigation schedule parameters necessary to program smart timers specified in the landscape design. Irrigation between the hours of 9:00 a.m. to 5:00 p.m. is prohibited, except for hand-watering;

6. The following statement: "I have complied with the criteria of the City of Duarte Water Efficient Landscape Ordinance (Duarte Development Code Chapter 19.40) and applied them accordingly for the efficient use of water in the irrigation design plan;" and

7. The signature of a California-licensed landscape professional.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

2.6 Grading Design Plan

A. For the efficient use of water, grading of a landscape project site shall be designed to minimize soil erosion, runoff, and water waste. Finished grading configuration of the landscaped area, including pads, slopes, drainage, post-construction erosion control, and storm water control Best Management Practices, as applicable, shall be shown on the Landscape Plan unless this information is fully included in separate Grading Plans for the project, or unless

the project is limited to replacement planting and/or irrigation to rehabilitate an existing landscaped area. The Landscape Grading Design Plan shall be prepared in compliance with the City of Duarte Public Works Division requirements and standards or comply with Section 2.6 (b) and (c).

B. The applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscaped area including:

1. Height of graded slopes;

2. Drainage patterns;

3. Pad elevations;

4. Finish grade; and

5. Storm water retention improvements, if applicable.

C. To prevent excessive erosion and runoff, it is highly recommended that the project applicant:

1. Grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;

2. Avoid disruption of natural drainage patterns and undisturbed soil; and

3. Avoid soil compaction in landscaped areas.

D. The Grading Design Plan shall contain the following statement: "I have complied with the criteria of the City of Duarte Water Efficient Landscape Ordinance (Duarte Development Code Chapter 19.40) 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 required by law.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

2.7 Certification of Completion

A. Landscape project installation may not proceed until the Landscape Documentation Package has been approved by the City and any ministerial permits required are issued.

B. The project applicant shall notify the City at the beginning of the installation work and at intervals, as necessary, for the duration of the landscape project work to schedule all required inspections.

C. Certification of Completion of the landscape project shall be submitted to the City prior to Planning and Building Department final inspection approvals. The requirements for the Final Inspection and Permit Closure include submittal of:

1. A Landscape Installation Certificate of Completion in the form included as Appendix E of these Guidelines, which shall include: (i) certification by a landscape professional that the landscape project has been installed per the approved Landscape Documentation Package; and (ii) the following statement: "The landscaping has been installed in substantial conformance to the design plans, and complies with the provisions of the Water Efficient Landscape Ordinance for the efficient use of water in the landscape."

a. Where there have been significant changes (as deemed by the City) made in the field during construction, "as-built' or record drawings shall be included with the certificate.

b. A laminated or otherwise waterproofed diagram of the irrigation plan showing hydrozones shall be kept with the irrigation controller for subsequent management purposes.

2. A laminated or otherwise waterproofed document of the irrigation scheduling parameters used to set the controller(s) shall be kept with the irrigation controller for subsequent management purposes;

3. An irrigation audit report from a certified irrigation auditor, as certified by one of the U.S. EPA WaterSense labeled auditing programs; documentation of enrollment in regional or local water purveyor(s)' water conservation programs; and/or documentation that the MAWA and EAWU information for the landscape project has been submitted to the local water purveyor, may be required at the option of the City. Example Inspection Affidavit is included in Appendix H.

a. Landscape audits shall not be conducted by the person who designed or installed the landscape.

b. In large projects or projects with multiple landscape installations (i.e. production home developments or common interest developments) an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

2.8 Post-Installation Irrigation Scheduling

A. 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:

1. Irrigation scheduling shall be regulated by automatic irrigation controllers.

2. Overhead irrigation shall be in accordance with Chapter 19.40 of the Duarte Development Code and the local water purveyor(s)' Water Conservation Ordinance, if applicable. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

3. Use of an automated irrigation system between the hours of 9:00 a.m. to 5:00 p.m. is prohibited.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

2.9 Post-Installation Landscape and Irrigation Maintenance

A. Landscapes shall be maintained to ensure water use efficiency in accordance with existing local agency code.

3. Provisions for Existing Landscapes

A. Irrigation of all landscaped areas shall be conducted in a manner conforming to the rules and requirements and shall be subject to penalties and incentives for water conservation and water waste prevention, as determined and implemented by the local water purveyor and as may be mutually agreed upon by the City.

B. The City and/or the regional or local water purveyor may administer programs such as irrigation water use analyses, irrigation surveys and/or irrigation audits, tiered water rate structures, water budgeting by parcel, or other approaches to achieve landscape water use efficiency community-wide to a level equivalent to or less than would be achieved by applying a MAWA calculated with an ETAF of 0.8 to all landscape areas in the City over one acre in size.

C. The architectural guidelines of a common interest development, including apartments, condominiums, planned developments, and stock cooperatives, may not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

4. Additional Residential Landscape Requirements

4.1 Front Yard and Street-Side Yard Landscape Requirements

A. In addition to requirements in this Section, landscape projects shall also be subject to requirements of Section 1.2 of these Guidelines.

B. At least 50% of the Front Yard Landscaped Area and 50% of the Visible Street Side Yard shall be landscaped with live vegetation, artificial turf, drought-tolerant landscaping or a combination of the three, as further described below:

1. Live vegetation may include turf, trees, shrubs, groundcover, flowers, or other similar vegetation.

2. Artificial turf is limited to no more than 40% coverage of the Front Yard Landscaped Area and shall include a minimum of 60% of live vegetation. Artificial turf is limited to no more than 40% coverage of the Visible Street Side Yard and shall include a minimum of 60% of live vegetation. (See Section 4.2 of these Guidelines)

3. Drought tolerant landscaping shall include native water conserving plants. (See Section 4.3 of these Guidelines)

C. Bare dirt is not permitted within the front yard, visible street side yard or within the parkway. All bare landscaped areas shall be finished with a minimum three inch thick layer of mulch, organic bark or earth-toned colored rubber bark.

D. A maximum 50% of the front yard may be covered in materials including, but are not limited to, concrete, pavers and step stones (driveways and walkways shall be included in the 50% coverage). Driveways shall be constructed of concrete or paver stones. The 50% coverage shall comply with the requirements set forth in these Guidelines and shall require City approval. The 50% maximum is not automatic and will vary on site conditions.

E. Exceptions to these provisions may be permitted on a case by case basis, to be reviewed by Planning Staff, to address R/V access, circular driveways, irregular shaped lots and any other situations not addressed in these Guidelines.

4.2 Artificial Turf Landscape Standards - Artificial or synthetic turf is an appropriate substitute, in some cases, for natural turf for the purposes of water conservation.

A. In addition to requirements in this Section, landscape projects shall also be subject to requirements of Section 1.2 of these Guidelines.

B. The use and maintenance of artificial turf shall be governed by the following standards as set forth in Chapter 19.40.100.C.

1. Artificial turf may be installed in the front yard landscaped area and in visible street-side yards, not to exceed 40% coverage per yard area. Front Yard Landscaped Area means 50% of the front yard area that is required to be landscaped.

2. Artificial turf is not permitted within the parkway.

3. Artificial turf shall be installed in combination with a minimum 60% of natural plant materials (i.e. trees, shrubs or groundcover) to enhance the overall landscaping design.

4. Artificial turf shall be natural in appearance and color.

5. Artificial turf should have two colors of blades.

6. Artificial turf should have a UV protection.

7. Pile height shall be at least 1 ¾ inches and shall be installed in a manner where top of piles are not flush with adjacent surfaces and are a minimum of ½" above adjacent surfaces.

8. Artificial turf shall be professionally installed by a licensed company.

9. Artificial turf shall be installed in a manner where there are no visible seams, patterns or change in color. Seams shall be installed per manufacturer's standards which may include glue, sod-staples of other methods of attachment to prevent future separation.

10. A weed barrier shall be installed to protect against weeds.

11. Artificial turf shall be prepared in a manner that allows water to permeate and pass through the turf so as not to cause runoff onto adjacent properties, flooding, or pooling of water.

12. Artificial turf shall be installed and maintained to effectively simulate the appearance of a well-maintained lawn.

13. Artificial turf should not be installed directly on top of existing grass, dirt or paved surfaces.

14. Artificial turf uniformity must be maintained for all areas that are visibly linked.

15. Artificial turf area shall be kept free of weeds, debris, tears, stains, holes, mildew and impressions.

16. The use of indoor or outdoor plastic or nylon carpeting for installation or as a replacement for artificial turf or natural turf shall be prohibited.

17. The use of artificial turf requires Community Development Department approval before installation.

18. Inspection by City Staff is required upon installation to ensure compliance with City Standards.

C. Recommended installation standards

1. A sub-base of infill of three inches of compacted aggregate material should be installed under the artificial surface.

2. Lose infill material is not recommended.

3. Artificial turf should be concealed by a hard edge material.

4. Pile weight should be at least 40 ounces per square yard.

5. Artificial turf should have a minimum of an eight year product warranty.

6. Artificial turf should have a minimum one year installation/workmanship warranty.

7. Artificial turf edges should be finished.

8. Remove organic material from the surface with a leaf blower or rake.

9. If you have animals that will use the turf, remove the animal feces on a frequent basis, and wash the area. Urine should flow through the turf like rainwater.

10. Artificial turf should be cleaned and the pile fluffed periodically to maintain its appearance.

11. Artificial turf should not be installed within 48 inches of trees or 36 inches of any native shrubs.

12. Artificial turf should not contain lead or any substance with the potential to leach elements and/or compounds that could come in contact with ground water or any other ecologically sensitive area.

13. Artificial turf should not have a felt backing.

D. Materials to be submitted to the Planning Department for Approval.

1. A sample of the turf to be installed and the manufacturer's product information sheet.

2. A scaled site plan which shall include the following:

a. Dimensions of the entire yard.

b. Dimensions and percentage of the area being covered with artificial turf (40% maximum).

c. Location and identification of natural vegetation (60% minimum).

d. Location and identification of hardscape material, including driveways and walkways (50% maximum).

3. Irrigation plan, which shall include but not be limited to:

a. Type of irrigation system.

b. Location of all irrigation emission devices such as sprinkler heads or low volume irrigation devices.

4. Contact information and license number for the company installing the artificial turf.

4.3 Drought Tolerant Landscape Standards - Drought tolerant landscapes may be an appropriate substitute, in some cases, for natural turf for the purposes of water conservation. When installed correctly, drought tolerant landscapes can provide aesthetic curb appeal and provide an appealing community environment, while utilizing little to no water consumption.

A. In addition to requirements in this Section, landscape projects shall also be subject to requirements of Section 1.2 of these Guidelines.

B. The use and maintenance of drought tolerant landscapes shall be governed by the following standards:

1. Plants and landscape materials, except trees, should not be spaced less than five feet on center.

2. Decorative rocks may be utilized, but shall consist of earth-toned colored rocks and shall not exceed 20% of the Landscaped Area.

3. Decomposed granite may be utilized only in combination with plant material.

4. Bare areas shall be covered with mulch, bark or wood chips to a depth of three inches. Ground cover shall also be installed to minimize the amount of mulch, bark or wood chips during the interim time in which the plants are established.

5. Bare dirt is not permitted.

C. Drought Tolerant Care Standards

1. Removing weeds is imperative as they compete for water and can harbor pests and diseases.

2. Remove broken and crossing branches and pest riddled or infested plant material.

3. Pest and disease monitoring is critical.

4. Diseased plants shall be removed immediately.

5. Trim plant material to reduce overcrowding.

6. Routine and thoughtful maintenance will keep the landscape looking at its best.

7. Perform routine maintenance of the irrigation system.

D. Materials to be submitted to the Planning Department for Approval

1. A scaled site plan which shall include the following:

a. Dimensions of the entire yard;

b. Location, spacing, size and identification of plant material proposed ; and

c. Dimensions and percentages of area covered with decorative rocks (20% maximum) if proposed.

2. Irrigation plan, which shall include but not be limited to:

a. Type of irrigation system.

b. Location of all irrigation emission devices such as sprinkler heads or low volume irrigation devices.

E. Suggested plant material

1. See Appendix I – City of Duarte California Drought Tolerant Landscape Guide.

4.4 Parkway Landscape Standards

A. Parkways must be landscaped with live vegetation such as drought-tolerant landscaping, turf, trees, shrubs, groundcover, flowers, or other similar vegetation.

B. The use of mulch, rocks, stones, decomposed granite or other hardscapes within the Parkway shall be reviewed on a case-by-case basis. maximum 50% of the parkway may be covered in organic bark, rubber bark, and/or hardscape materials including, but not limited to, concrete, pavers, step stones, and compressed granite. Water runoff must remain the same or decrease in volume.

C. Artificial turf is not permitted within the parkway.

D. Parkway trees shall not be removed by anyone not authorized by the City. Any questions pertaining to street trees shall be referred to the Community Development Department.

E. General Requirements

1. An encroachment permit from Public Works is required for any structures, hardscape, rocks, stones, decomposed granite, or pavement installed within the public right-of-way.

2. Materials used in the parkway must not be a tripping hazard. Step stones, pavers, bricks, and other walkway materials shall be installed in a manner where the materials are flush with the adjacent sidewalk, upon approval from the Public Works Division.

3. No bare dirt or asphalt shall be permitted within the parkway.

4. Small rocks and pebbles are not permitted within the parkway.

5. Plant materials must not obscure the line of sight for traffic or obstruct the sidewalk.

6. Noxious plants that are a threat to the public health, safety, or welfare shall not be permitted. These may include, but are not limited to, plants that are diseased, pointed, thorny, poisonous, food bearing, or attract pets and/or vermin.

7. Elevated planters are not permitted within the parkway.

8. Electrical lighting within the parkway is discouraged, but may be considered on a case-by case basis contingent upon Public Works Division approval.

9. Mulch, decomposed granite and plant materials must be maintained at all times and kept off the street, curb and sidewalk.

5. 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.

B. Model Homes. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes as described.

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 site water efficient landscape; and demonstrate low water use approaches to landscaping such as using appropriate plants, alternative water sources, or rainwater catchment systems.

2. Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

Appendix A

PRESCRIPTIVE COMPLIANCE OPTION

A. This appendix contains prescriptive requirements which may be used as a compliance option to the Ordinance.

B. Compliance with the following items is mandatory and shall be documented in 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 inches into landscaped area (unless contradicted by a soil test);

3. Plant material shall comply with all of the following:

a. For residential areas, install climate adapted plants that require occasional, little or no summer water (average WUCOLS plan factor 0.3) for 75% of the plant area excluding edibles and areas using recycled water; For nonresidential areas, install climate adapted plants that require occasional, little or no summer water (average WUCOLS plan 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, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.

4. Turf shall comply with all of the following:

a. Turf shall not exceed 25% of the landscaped area in residential areas, and there shall be no turf in nonresidential areas

b. Turf shall not be planted on sloped areas which exceed a slope of 1 foot vertical elevation change for every 4 feet of horizontal length;

c. Turf is prohibited in parkways less than 10 feet wide, unless the parkway is adjacent to a parking strip and used to enter and exit vehicles. Any turf in parkways shall be irrigated by sub-surface irrigation or by other technology that creates no overspray or runoff, unless overhead irrigation complies with Section 2.A.1.u.

5. Irrigation systems shall comply with the following:

a. Automatic irrigation controllers are required and shall use evapotranspiration or soil moisture sensor data

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 shall meet the requirements set in the ANSI standard, ASABE/ICC802-2014, "Landscape irrigation Sprinkler and Emitter Standard." All Sprinkler heads installed in the landscape shall document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.

C. At the time of final inspection, the permit applicant shall provide the owner of the property with a Certificate of Completion, Certificate of Installation, Irrigation Schedule and a Schedule of Landscape and Irrigation Maintenance.

Appendix B

CERTIFICATION OF LANDSCAPE DESIGN

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide professional landscape design services.

(2) The landscape design and water use calculations for the property located at _____

_____

(provide street address or parcel number(s)) were prepared by me or under my supervision.

(3) The landscape design and water use calculations for the identified property comply with the requirements of the City of Duarte Water Efficient Landscape Ordinance (Development Code Chapter 19.40) and the City of Duarte Guidelines for Implementation of the City of Duarte Water Efficient Landscape Ordinance.

(4) The information I have provided in this Certificate of Landscape Design is true and correct and is hereby submitted in compliance with the City of Duarte Guidelines for Implementation of the City of Duarte Water Efficient Landscape Ordinance.

_____ _____

Print Name Date

_____ _____

Signature License Number

_____

Address

_____ _____

Telephone E-mail Address

Landscape Design Professional's Stamp
(If applicable)

Appendix C

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

Reference Evapotranspiration (ETo) [a]**: _____** **Landscape Area Sector Type** [ ] Residential [ ] Non-Residential

	Hydrozone #/Planting Description	Location	Plant Factor[b] (PF)	Irrigation Method[c]	Irrigation Efficiency[c] (IE)	ETAF (PF/IE)	Landscape Area (sq-ft)	ETAF x Area	Estimated Total Water Use[d] (ETWU)
Regular Landscape Area									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Average	***Total***	***Total***

Average ETAF for Regular Landscape Areas[e] (circle one): **In Compliance** **Not In Compliance**

Special Landscape Area

SLA-1							
SLA-2							
SLA-3							
SLA-4							
SLA-5							

Totals		

Total Landscape Area	
Site wide ETAF	
ETWU Total	
Maximum Allowed Water Allowance (MAWA)[f]	

WORKSHEET INFORMATION & EQUATIONS

[a] Local monthly evapotranspiration rates are listed in Appendix D.

[b] The following table can be used for common plant factors:

Plant Factor	PF
Very low water use plant	0.1
Low water use plant	0.2
Medium water use plant	0.5
High water use plant	0.8
Lawn	0.8
Pool, spa, or other water feature	1.0

[c] *Irrigation efficiency* is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average *irrigation efficiency* for purposes of these *Guidelines* is 0.71. The following *irrigation efficiency* may be obtained for the listed irrigation heads with an *Irrigation Management Efficiency* of 90%:

Irrigation Method	IE
Spray nozzles	71%
High efficiency spray nozzles	73%
Multi stream/Multi trajectory rotary (MSMT) nozzles	76%
Stream rotor nozzle	73%
Microspray	76%
Bubblers	77%
Drip emitter	81%
Subsurface drip	81%

[d] Estimated Total Water Use (ETWU) is the annual gallons required

$$ETWU = (ETo) \times (0.62) \times (ETAF \times Area)$$

where, ETo = annual evapotranspiration rate in inches per year
0.62 = factor used to convert inches per year to gallons per square foot
ETAF = plant factor ÷ irrigation efficiency

[e] Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for nonresidential areas.

[f] Maximum Allowed Water Allowance (MAWA) is the annual gallons allowed

$$MAWA = (ETo) \times (0.62) \times [(ETAF \times LA) + ((1\text{-}ETAF) \times SLA)]$$

where, ETo = annual evapotranspiration rate in inches per year
0.62 = factor used to convert inches per year to gallons per square foot
ETAF = plant factor ÷ irrigation efficiency
LA = total (site wide) landscape area in square feet
SLA = total special landscape area

Appendix D

REFERENCE EVAPOTRANSPIRATION (ETO) TABLE

LOS ANGELES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Burbank	2.1	2.8	3.7	4.7	5.1	6.0	6.6	6.7	5.4	4.0	2.6	2.0	51.7
Claremont	2.0	2.3	3.4	4.6	5.0	6.0	7.0	7.0	5.3	4.0	2.7	2.1	51.3
El Dorado	1.7	2.2	3.6	4.8	5.1	5.7	5.9	5.9	4.4	3.2	2.2	1.7	46.3
Glendale	2.0	2.2	3.3	3.8	4.7	4.8	5.7	5.6	4.3	3.3	2.2	1.8	43.7
Glendora	**2.0**	**2.5**	**3.6**	**4.9**	**5.4**	**6.1**	**7.3**	**6.8**	**5.7**	**4.2**	**2.6**	**2.0**	**53.1**
Gorman	1.6	2.2	3.4	4.6	5.5	7.4	7.7	7.1	5.9	3.6	2.4	1.1	52.4
Hollywood Hills	2.1	2.2	3.8	5.4	6.0	6.5	6.7	6.4	5.2	3.7	2.8	2.1	52.8
Lancaster	2.1	3.0	4.6	5.9	8.5	9.7	11.0	9.8	7.3	4.6	2.8	1.7	71.1
Long Beach	1.8	2.1	3.3	3.9	4.5	4.3	5.3	4.7	3.7	2.8	1.8	1.5	39.7
Los Angeles	2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	50.1
Monrovia	2.2	2.3	3.8	4.3	5.5	5.9	6.9	6.4	5.1	3.2	2.5	2.0	50.2
Palmdale	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
Pasadena	2.1	2.7	3.7	4.7	5.1	6.0	7.1	6.7	5.6	4.2	2.6	2.0	52.3
Pearblossom	1.7	2.4	3.7	4.7	7.3	7.7	9.9	7.9	6.4	4.0	2.6	1.6	59.9
Pomona	1.7	2.0	3.4	4.5	5.0	5.8	6.5	6.4	4.7	3.5	2.3	1.7	47.5
Redondo Beach	2.2	2.4	3.3	3.8	4.5	4.7	5.4	4.8	4.4	2.8	2.4	2.0	42.6
San Fernando	2.0	2.7	3.5	4.6	5.5	5.9	7.3	6.7	5.3	3.9	2.6	2.0	52.0
Santa Clarita	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Santa Monica	1.8	2.1	3.3	4.5	4.7	5.0	5.4	5.4	3.9	3.4	2.4	2.2	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 Department of Water Resources 1999; and
3. Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922, Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and
4. Natural Resources (1987), Publication Leaflet 21426

Appendix E

LANDSCAPE INSTALLATION CERTIFICATE OF COMPLETION

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide professional landscape design services for _____ (project name, mailing address, and telephone).

(2) The landscape project for the property located at _____ _____ (provide street address or parcel number(s)) was installed by me or under my supervision.

(3) The landscaping for the identified property has been installed in substantial conformance with the approved Landscape Documentation Package and complies with the requirements of the City of Duarte Water Efficient Landscape Ordinance (Development Code Chapter 19.40 and the City of Duarte Guidelines for Implementation of the City of Duarte Water Efficient Landscape Ordinance for the efficient use of water in the landscape.

(4) The following elements are attached hereto:

a. Irrigation scheduling parameters used to set the controller;

b. Landscape and irrigation maintenance schedule;

c. Irrigation audit report; and

d. Soil analysis report, if not submitted with Landscape Document Package, and documentation verifying implementation of the soil report recommendations.

(5) The site installation complies with the following:

a. The required irrigation system has been installed according to approved plans and specifications and if applicable, any prior approved irrigation system alternatives.

_____ Yes _____ No

b. Sprinklers comply with ASABE/ICC 802-2014 Landscape Irrigation Sprinkler & Emitter Standard.

_____ Yes _____ No

(6) The information I have provided in this Landscape Installation Certificate of Completion is true and correct and is hereby submitted in compliance with the City of Duarte Guidelines for Implementation of the City of Duarte Water Efficient Landscape Ordinance.

Print Name	Date
Signature	License Number
Address	
Telephone	E-mail Address

Landscape Design Professional's Stamp
(If Appropriate)

Appendix F

DEFINITIONS

The terms used in these ***Guidelines*** have the meaning set forth below:

Aggregate. A concept that pertains to production home neighborhoods, common interest developments, or other situations where multiple parcels are undergoing landscape development as one project, but may eventually be individually owned or maintained.

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

Artificial Turf. A man-made material which simulates the appearance of live turf, organic turf, grass, sod, or lawn.

Automatic irrigation controller. See *Automatic Controller* under Chapter 19.160.030.

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

Certification of Completion. The certification included as Exhibit E of the Implementation Guidelines that shall be provided to the City prior to Planning and Building Divisions final inspection pursuant to Section 2.7 of the Guidelines.

Certification of Design. The certification included as Exhibit B of the Implementation Guidelines that shall be included in the *Landscape Documentation Package* pursuant to Section 2.1 of the Guidelines.

Certified Landscape Irrigation Auditor. A person(s) 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.

Chapter. Refers to Chapter 19.40 of the Duarte Development Code.

Check valve or ***anti-drain valve***. A valve or valves 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.

City. Refers to the City of Duarte.

Common interest developments. Refers to community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.

Conversion factor. The number that converts acre-inches per acre per year to gallons per square foot per year.

Drip irrigation. See definition under Chapter 19.160.050.

Drought-tolerant landscaping. Landscaping that utilizes little or no irrigation through the use of water-conserving materials and techniques, including but not limited to, native drought-tolerant plants, mulch and efficient irrigation.

Drought-tolerant Plants. See definition under Chapter 19.160.050.

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

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

Estimated Applied Water Use (EAWU). The annual total amount of water estimated to keep plants in a healthy state. It is based on factors such as reference evapotranspiration rate, the size of the landscaped area, plant water use factors, and the irrigation efficiency within each hydrozone.

Evapotranspiration. See definition under Chapter 19.160.060.

Evapotranspiration adjustment factor (ETAF). A factor of.55 for residential areas and 0.45 for non- residential areas, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape The ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0. The ETAF for existing non-rehabilitated landscapes is 0.8.

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

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

Front yard. For purposes of this Chapter and the Guidelines, shall mean the required front yard setback and any area between the street and the outline of the main building line. For other unique lot configurations, the Director of Development Services shall determine front yard.

Front yard landscaped area. The Front Yard Area that is not occupied by driveways, hardscape or other pervious or non-pervious surfaces and that is required to be landscaped with live vegetation, artificial turf, drought tolerant landscaping or a combination of all three, as further described in this Chapter and the Implementation Guidelines.

Graywater. A system containing 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 unhealthy 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 as per the Health and Safety Code (Section 17922.12). Graywater systems 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 (Title 24, Part 5, Chapter 16) and any applicable local ordinance standards.

Hardscape. See definition under Chapter 19.160.090.

***Hydrozone*.** See definition under Chapter 19.160.090.

Implementation Guidelines or Guidelines. Refers to the Water Efficient Landscape Ordinance Guidelines which shall be adopted by resolution of the Planning Commission. The purpose of the Guidelines is to provide procedural and design guidance for applicants proposing new landscape or landscape rehabilitation projects that are subject to Chapter 19.40 of the City of Duarte Development Code.

Infiltration rate. See definition under Chapter 19.160.100.

Invasive and/or noxious plants species. Species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive plant species may be regulated by county agricultural agencies as *noxious species*.

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

Irrigation efficiency (IE). The measurement of the amount of water beneficially used divided by the amount of water applied to a landscaped area. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this Chapter and the Guidelines is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems. The following irrigation efficiency may be obtained for the listed irrigation heads with an IME of 90%:

Irrigation Method	DU_{LQ}	DU_{LH}*	EU	IE**
Spray nozzles	65%	79%		71%
High efficiency spray nozzles	75%	82%		73%
Multi stream/Multi trajectory rotary (MSMT) nozzles	75%	85%		76%
Stream rotor nozzle	70%	82%		73%
Microspray	75%	85%		76%
Bubblers			85%	77%
Drip emitter			90%	81%
Subsurface drip			90%	81%

*DU_{LH} = .386 + (.614)(DU_{LQ})

** IE (spray) = (DU_{LH})(IME)

** IE (drip) = Emission uniformity (EU)(IME)

Irrigation Management Efficiency (IME). *T*he measurement used to calculate the irrigation efficiency of the irrigation system for a landscaped project. A 90% IME can be achieved by using evapotranspiration controllers, soil moisture sensors, and other methods that will adjust irrigation run times to meet plant water needs.

Landscape coefficient **(K_L)**. The product of a plant factor multiplied by a density factor and a microclimate factor. The landscape coefficient is derived to estimate water loss from irrigated landscaped areas and special landscaped areas.

Landscape documentation package. The package of documents that a project applicant is required to submit to the City pursuant to Section 2.1 of the Guidelines.

Landscape professional. A licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape pursuant to Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the California Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the California Food and Agriculture Code.

Landscaped area. Refers to all planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance and Estimated Applied Water Use calculations. The landscaped 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).

Landscaping. See definition under Chapter 19.160.130.

Lateral line. A water delivery pipeline that supplies water to the emitters or sprinklers from the *valve*.

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

Low volume overhead irrigation. Aboveground irrigation heads with an upper flow limit of 0.5 GPM.

Main line. A pressurized pipeline that delivers water from the water source to the *valve* or outlet.

Manual isolation valve. A valve such as a gate valve, ball valve, or butterfly valve installed downstream of the point of connection of the water supply to shutdown water flow through mainline piping for routine maintenance and emergency repair.

Master shut-off valve. An electronic valve such as a solenoid valve installed as close as possible to the point of connection and is used in conjunction with a flow sensor and flow monitoring controller technology to automatically shutdown system wide water flow in the event of high flow conditions such as mainline pipe break.

Maximum applied water allowance (MAWA). Refers to the upper limit of annual applied water for the established *landscaped area,* as specified in Section 2.2 of the Guidelines. It is based upon the area's *reference evapotranspiration*, the *ETAF*, and the size of the *landscaped area*. The *Estimated Applied Water Use* shall not exceed the *Maximum Applied Water Allowance*.

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

Mined-land reclamation projects. Any surface mining operation with a reclamation plan approved in accordance with the Surface mining and Reclamation Act of 1975.

Mulch. Any organic material such as leaves, bark, straw or 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.

Non-pervious or impervious. Any surface or material that does not allow for the passage of water through the material and into the underlying soil.

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

Overspray. The irrigation water which is delivered beyond the target area.

Parkway. See definition under Chapter 19.160.170.

Person. Any natural person, firm, joint venture, joint stock company, partnership, public or private association, club, company, corporation, business trust, organization, public or private agency, government agency or institution, school district, college, university, any other user of water provided by the City or the local water purveyor, or the manager, lessee, agent, servant, officer, or employee of any of them or any other entity which is recognized by law as the subject of rights or duties.

Pervious. *M*eans 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. A factor, when multiplied by *ETo*, that estimates the amount of water needed by plants. For purposes of this *Water Efficient Landscape 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 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 the Guidelines are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species."

Precipitation rate. The rate of application of water measured in inches per hour.

Project applicant. The individual or entity submitting a Landscape Documentation Package required under Section 2.1 to request a permit, plan check, or design review from the City. A project applicant may be the property owner or his or her designee.

Property owner. The record owner of real property as shown on the most recently issued equalized assessment roll.

Rain sensor or rain sensing shutoff device. A component which automatically suspends irrigation when it rains.

Recreational area. An area(s), excluding private single family residential areas, designated for active play; recreation or public assembly in parks, sports fields, picnic grounds, amphitheaters; golf course tees, fairways, roughs, surrounds and greens; private recreational or assembly space as part of a comprehensive project that otherwise meets the intent of this Chapter, and other active or recreational play areas as determined by the Community Development Director.

Recycled water or Reclaimed water. 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 (ETo). A standard measurement of environmental parameters which affect the water use of plants. ETo is given expressed in inches per day, month, or year as represented in Appendix C of the Guidelines, 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.

Rehabilitated landscape. Any re-landscaping project that requires a permit, plan check, or design review, meets the requirement of Section 1.2 of the Guidelines, and the modified landscape area is equal to or greater than 2,500 square feet.

Runoff. See definition under Chapter 19.160.190

SMART irrigation controller or Soil moisture sensor. A weather-based or soil moisture-based irrigation controller that monitors and uses information about the environmental conditions at a specific location and landscape to automatically adjust watering schedules.

Soil texture. The classification of soil based on its percentage of sand, silt, and clay.

Special Landscaped Areas (SLA). Area(s) of the landscape dedicated solely to edible plants such as orchards and vegetable gardens, areas irrigated with recycled water, water features using recycled water, and areas designated as a Recreational Area.

Sprinkler head. A device which delivers water through a nozzle.

Static water pressure. See definition under Chapter 19.160.200.

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

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

Turf. See definition under Chapter 19.160.210.

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

Visible street side yard. For purposes of this Chapter and the Guidelines, means any street side yard that is visible from the public right of way, that shall be improved as further described in this Chapter and the Implementation Guidelines..

Water-Efficient Irrigation System. See definition under Chapter 19.160.240.

Water-Efficient Landscape. See definition under Chapter 19.160.240.

Water Efficient Landscape Ordinance. Refers to Chapter 19.40 of the City of Duarte Development Code.

Water Efficient Landscape Worksheet. The worksheet required to be completed pursuant to Section 2.2 of the Guidelines and which are included in Appendix C of the Guidelines.

Water feature. A design element or elements 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 landscaped area. Constructed wetlands used for on-site wastewater treatment, habitat protection, or storm water best management practices that are not irrigated and used solely for water treatment or storm water retention are not water features and, therefore, are not subject to the water budget calculation.

Watering window. The time of day irrigation is allowed on landscaped surfaces.

WUCOLS. Refers to the Water Use Classification of Landscape published by the University of California Cooperative Extension, the Department of Water Resources, and the Bureau of Reclamation, 2000. *www.owue.water.ca.gov/docs/wucols00*

Appendix G

This is a voluntary compliance tool template developed by the Irrigation Association.

IRRIGATION PLAN CHECKLIST

Please complete the following checklist by checking all appropriate categories under APPLICANT column, indicating compliance with these content requirements. All submitted plans shall contain the following information:

LANDSCAPE PLAN NUMBER: _____

NAME OF PROJECT: _____

Applicant			Planner
[ ]	1.	Prevailing winds	[ ]
[ ]	2.	Slope aspect and degree of slope	[ ]
[ ]	3.	Soil type and infiltration rate	[ ]
[ ]	4.	Vegetation type	[ ]
[ ]	5.	Microclimates	[ ]
[ ]	6.	Expansive or hazardous soil conditions	[ ]
[ ]	7.	Water harvesting potential	[ ]
[ ]	8.	Available water supply, including non-potable and recycled water	[ ]
All pertinent system information is indicated, including:			
[ ]	9.	Irrigation zones substantially corresponding to hydrozones on the landscape plan and labeled by precipitation rates and method of application	[ ]
[ ]	10.	Water meters	[ ]
[ ]	11.	Tap-in location	[ ]
[ ]	12.	Static water pressure at the point of connection	[ ]
[ ]	13.	System controller	[ ]
[ ]	14.	Rain sensor/shut-off device	[ ]
[ ]	15.	Backflow preventers	[ ]
[ ]	16.	Shut-off valves and zone control valves	[ ]
[ ]	17.	Main line and lateral piping	[ ]
[ ]	18.	Sprinkler heads	[ ]
[ ]	19.	Bubblers and drip irrigation tubing runs	[ ]
[ ]	20.	Type and size of main irrigation system components	[ ]
[ ]	21.	Total required operating pressure for each control valve/zone	[ ]
[ ]	22.	Graphic depiction of the locations of irrigation system components	[ ]
[ ]	23.	Total required operating pressure for each control valve/zone	[ ]
[ ]	24.	Any supplemental stormwater and/or runoff harvesting	[ ]
System design is in conformance with the following standards:			
[ ]	25.	Certification of Professional Qualifications, attached	[ ]
[ ]	26.	Pedestrian surfaces located on plan	[ ]
[ ]	27.	Equipment installed flush with grade for safety	[ ]
[ ]	28.	Compliance with local codes	[ ]
[ ]	29.	Overspray onto impervious areas minimized	[ ]

Appendix H

This is a voluntary compliance tool template developed by the Irrigation Association.

IRRIGATION INSPECTION AFFIDAVIT

(To be submitted in conformance with Code Section 309.C)

Irrigation Plan File No: _____ Name of Project: _____

Irrigation Plan Designer: _____ Inspector: _____

Date(s) of Inspection: _____

This project was inspected within the limits of customary access for compliance with the approved irrigation plan on file in City Planning. At least two (2) inspections were conducted. The findings are as follows:

(Check One)	Yes	No
A. Inspection during construction to check main line in open trench:		
1. Location of main line conforms to as-built plan	_____	_____
2. Size of main line conforms to plan	_____	_____
3. Depth of main line conforms to plan	_____	_____
4. Main line condition is undamaged	_____	_____
5. Main line pressure tested with water and meter to check for visible leaks	_____	_____
6. Specific observations attached if needed	_____	_____
B. Inspection after completion of system installation prior to seeding or sodding:		
1. Settling along trenches is absent	_____	_____
2. System components (i.e., controller, backflow preventer, rain sensor, etc.) installed as specified	_____	_____
3. Rotary heads pressure tested	_____	_____
4. System activated for observation of compliance	_____	_____
5. Landscape components are not blocking application	_____	_____
6. Each station complies with design / as-built plan	_____	_____
7. Matched precipitation rates provided by zone	_____	_____
8. As-built plan provided to owner	_____	_____
9. Specific observations attached as needed	_____	_____

I hereby certify that I am qualified to submit this irrigation inspection affidavit based on the qualification indicated below: (check one)

☐ Certified Irrigation Designer certified by The Irrigation Association, indicate year of certification _____

State: _____ Licensed No. _____

State Agency Phone No. (_____) _____

_____ _____

Name (PRINT) Signature

Date

Appendix I

CITY OF DUARTE SOUTHERN CALIFORNIA
DROUGHT TOLERANT LANDSCAPE GUIDE *

SHRUBS	SHRUBS CONTINUED	GROUNDCOVER
1. Apache Plume	7. Ribes	1. Dymondia Silver Carpet
		
2. Bush Sunflower	8. Manzanita	2. Lantana- (variety of colors)
		
3. Cleveland Sage	9. Vevin's Barberry	3. Common Yarrow
		
4. Fairy Duster	10. Mountain Mahogany	4. Woolly Thyme
		
5. Island Bush Poppy	11. Rosemary	5. Sulfur Buckwheat
		
6. Mexican Bush Sage	12. Safari Sunset	6. Red Creeping Thyme
		

SUCCULENTS

1. New Mexico Agave

2. Sempervivum 'Clipper'

3. Agave (attenuata)

4. Paddle Plant

5. Banana yucca

6. Pacific Stonecrop

PERENNIALS

1. California Poppy

2. California Evening-Primose

3. California Fuchsia

4. Blue-eyed Grass

5. Cleveland's Beardtongue

6. Desert Marigold

PERENNIALS CONTINUED

7. Island Coral Bells

8. Penstemon "Margarita Bop"

9. Hummingbird Sage

10. Wooly Blue Curls

11. Matilija Poppy

12. Douglas Iris

GRASSES

1. Fountain Grass (Purple)

2. Deer Grass

3. Eulalia Grass (Miscanthus)

4. Blue Festuca

5. Pink Muhly

6. Switchgrass (Dallas Blues)

TREES

1. Coastal Live Oak

2. California Redbud

3. Desert Willow

4. California Sycamore

5. Australian Willow

6. Hollyleaf Cherry

TREES CONTINUED

7. Shoestring Acacia

8. Peppermint Tree

9. Blue Palo Verde

10. Incense Cedar

11. Crape Myrtle

12. Mesquite

* This is only a sample of drought tolerant landscape materials and does not constitute an exhaustive list of such plant materials. The City advises that before any of these plants on this list are used, the user researches the plant's growth habits, maintenance, use in high fire zones, longevity and reproduction methods, etc.

EXHIBIT D

RESOLUTION NO. PC 16-01

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF DUARTE, RECOMMENDING THE DUARTE CITY COUNCIL ADOPT MUNICIPAL CODE AMENDMENT (MCA) 15-05 WHICH WOULD AMEND CHAPTER 19.40 (LANDSCAPING) OF THE DUARTE DEVELOPMENT CODE IN ITS ENTIRETY TO REVISE REGULATIONS PRIMARILY RELATED TO WATER EFFICIENT LANDSCAPING, IN COMPLIANCE WITH NEW STATE REQUIREMENTS

WHEREAS**,** in 1992, the State Legislature enacted the Water Conservation in Landscaping Act (AB 325) requiring cities adopt a water efficient landscape ordinance;

WHEREAS, the Duarte City Council adopted Ordinance 697 in 1993, which created the City's first landscape chapter that addressed water conservation efforts and incorporated the State's initial Model Water Efficient Landscape Ordinance developed by the Department of Water Resources (DWR); and

WHEREAS, the Water in Conservation Act of 2006 (AB 1881) required DWR to update the Model Water Efficient Landscape Ordinance to achieve greater landscape water use efficiency, and for cities to adopt the updated Model Water Efficient Landscape Ordinance, no later than January 1, 2010; and

WHEREAS, the Duarte City Council adopted Ordinance 822 on November 23, 2010, a comprehensive revision to the City's Zoning Code, now known as the Duarte Development Code, which revised the City's Landscape Chapter and incorporated DWR's updated Model Water Efficient Landscape Ordinance.

WHEREAS, Governor Brown issued a Drought Executive Order (B-29-2015) on April 1, 2015, directing DWR to update the State's Model Water Efficient Landscape Ordinance, to increase water efficiency standards for new and existing landscape through more efficient irrigation systems, graywater usage, onsite stormwater capture and by limiting the portion of landscaping that can be covered in turf; and

WHEREAS, on September 9, 2015, the California Water Commission adopted revisions to the California Code of Regulations Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance; and

WHEREAS, provisions of the Model Water Efficient Landscape Ordinance require municipalities to adopt a local ordinance being at least as effective as the State's Model Ordinance by January 1, 2016 or February 1, 2016 when adopting a regional ordinance, or otherwise the State's Model Water Efficient Landscape Ordinance becomes effective until a municipality adopts a local ordinance being as least as effective as the State's; and

WHEREAS, the Municipal Water District of Orange County, Orange County, Orange County cities and local water agencies, Building Industries Association (BIA), irrigation consultants, landscape architects, and other industry professionals formed as a group of stakeholders to update the Orange County Model Ordinance to be at least as efficient as the DWR updated Model Water Efficient Landscape Ordinance; and

WHEREAS, the San Gabriel Valley Council of Governments organized a San Gabriel Valley Cities working group to craft a regional Model Water Efficient Landscape Ordinance, which utilized Orange County's Ordinance as a model for implementation, which was thereafter augmented by local San Gabriel Valley cities to address geographical, topographical, and local conditions unique to each community; and

WHEREAS, consistent with these findings, the purpose of the Orange County Model Water Efficient Landscape Ordinance, the San Gabriel Valley Council of Governments Model Water Efficient Landscape Ordinance and City of Duarte Model Water Efficient Landscape Ordinance is to establish an alternative model acceptable under Governor Brown's Executive Order (B-29-2015) as being at least as effective as the State's DWR Model Water Efficient Landscape Ordinance; and

WHEREAS, other landscape regulations, not pertaining directly to the Model Water Efficient Landscape Ordinance, are amended from time to time based upon past experience with landscape projects, changes in the industry and corrections from previous standards and regulations; and

WHEREAS, the Planning Commission of the City of Duarte conducted a duly-noticed public hearing on January 19, 2016, pursuant to Development Code Section 19.142.040 to consider MCA 15-05, a city initiated request to amend Chapter 19.40 (Landscaping) of the Duarte Development Code in its entirety to revise regulations, primarily related to water efficient landscaping, in compliance with new State requirements promulgated by Governor’s Executive Order B-29-15; and

WHEREAS, notice of a public hearing on the MCA 15-05 was given pursuant to Duarte Development Code Chapter 19.146 and in accordance with applicable State law; and

WHEREAS, the Planning Commission received and considered the analysis and recommendation provided in the staff report for the MCA 15-05, and all of the information, evidence, and testimony received at the public hearing held on January 19, 2016 at 7:00 p.m. in the City Council Chambers; and

WHEREAS, after careful study and the holding of a duly noticed public hearing, the Planning Commission recommends the City Council adopt and approve Municipal Code Amendment 15-05.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF DUARTE RESOLVES AS FOLLOWS:

SECTION 1. RECITALS

All of the facts set forth in the Recitals of this Resolution are true and correct and incorporated herein by this reference.

SECTION 2. CEQA DETERMINATION

Pursuant to provisions of the California Environmental Quality Act (CEQA), the amendment to Duarte Development Code Chapter 19.40 to revise regulations, primarily related to water efficient landscaping, in compliance with new State requirements promulgated by Governor's Executive Order B-29-15 are categorically exempt under Section 15307 which exempts actions taken by regulatory agencies, as authorized by State law, to assure the maintenance, restoration, enhancement, or protection of a natural resource where the regulatory process involves procedures for protection of the environment.

The Planning Commission finds that the adoption of this Municipal Code Amendment is required by Governor's Executive Order B-19-25 and will result in the enhancement and protection of water resources in the City, and will not result in negative impact to the environment; therefore, it is exempt from the provisions of CEQA and no further environmental review is necessary.

SECTION 3. FINDINGS FOR DEVELOPMENT CODE AMENDMENTS

The Planning Commission of the City of Duarte makes the following findings:

(1) The proposed amendments to the Development Code are consistent with the General Plan and any applicable specific plan.

(A) Conservation Element Goal 2 and all related policies under said goal, to protect and maintain the local water supply to ensure that the City's growing demand for water can be met.

(B) Conservation Element Goal 3, Objective 3.1, to keep current on environmental legislation to protect Duarte's environment.

(C) Safety Element Goal 1, Policy 5.1.2, to support programs to reduce fire hazards of vegetation in areas of extreme to high fire risk.

(2) The proposed amendments to the Development Code will not be detrimental to the public interest, health, safety, convenience, or welfare of

the City for each of the following reasons:

(A) The amended Chapter 19.40 will provide measures that conserve water for the City and State. DWR estimates that a typical California landscape will use 12,000 gallons less a year, or 20% less than allowed by the 2009 Ordinance.

(B) Regulations have been added to address migrant dust, such as requirements to cover bare dirt.

(C) Provisions will continue to require substantial landscaping, recommended primarily as drought-tolerant landscaping, which will provide added air quality benefits and improve the aesthetic quality of our community.

(D) Definitions modified through MCA 15-05 will provide updated and comprehensive language that explains and familiarizes applicants with the terms used related to landscaping and water efficiency.

(3) The proposed amendments to the Development Code are internally consistent with other applicable provisions of this Development Code.

(A) The proposed amendments to Chapter 19.40 will provide continued internal consistency in the Development Code with other Chapters, including but not limited to Chapter 19.46 (Hillside Development Standards), and Chapter 19.52 (Sustainable Development Practices).

(B) The proposed definitions added to Chapter 19.40.020 related to landscaping will ensure continued clarity and consistency in the Development code.

SECTION 4. RECOMMENDATION

The Planning Commission approves this Resolution and recommends the City Council of the City of Duarte adopt MCA 15-05, which would amend Chapter 19.40 (Landscaping) of the Duarte Development Code in its entirety to revise regulations, primarily related to water efficient landscaping, in compliance with new State requirements promulgated by Governor's Executive Order B-29-15. The proposed language of Chapter 19.40 is depicted on the exhibit attached hereto and made a part of this resolution by reference marked "Exhibit A" for identification.

APPROVED, AND ADOPTED by the Planning Commission of the City of Duarte at a regular meeting held on the 19th day of January 2016.

_____
Sheryl Lefmann, Chairperson
City of Duarte Planning Commission

ATTEST:

_____
Craig Hensley, Community Development Director

CITY OF DUARTE
COUNTY OF LOS ANGELES } ss.
STATE OF CALIFORNIA

I, Craig Hensley, Secretary of the Planning Commission of the City of Duarte, do hereby certify that the foregoing Resolution was adopted at a regular meeting of the Planning Commission of the City of Duarte held on January 19, 2016, by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
Craig Hensley

Exhibit A

CHAPTER 19.40 (LANDSCAPING)

New Landscape Ordinance related to
Municipal Code Amendment 15-05

(For the purposes of this meeting only, Please refer to Exhibit B, attached to the January 19, 2016 Planning Commission Staff Report, for new Landscape Ordinance - Chapter 19.40)

EXHIBIT E

RESOLUTION NO. PC 16-02

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF DUARTE, ADOPTING THE WATER EFFICIENT LANDSCAPE ORDINANCE GUIDELINES, SUBJECT TO CITY COUNCIL APPROVAL OF MUNICIPAL CODE AMENDMENT 15-05

WHEREAS, Governor Brown issued a Drought Executive Order (B-29-2015) on April 1, 2015, directing DWR to update the State's Model Water Efficient Landscape Ordinance, to increase water efficiency standards for new and existing landscape through more efficient irrigation systems, graywater usage, onsite stormwater capture and by limiting the portion of landscaping that can be covered in turf; and

WHEREAS, the City of Duarte Model Water Efficient Landscape Ordinance is designed to establish an alternative model acceptable under Governor Brown's Executive Order (B-29-2015) as being at least as effective as the State's DWR Model Water Efficient Landscape Ordinance; and

WHEREAS, Municipal Code Amendment (MCA) 15-05 proposes to separate technical, procedural and submittal-based requirements into a separate Water Efficient Landscape Ordinance Guidelines, rather than being placed directly within the Landscape Chapter (Duarte Development Code Ch. 19.40). The Guidelines have also been organized to incorporate forms, checklists and easy-to use guides to assist applicants in complying with the new requirements; and

WHEREAS, the Planning Commission of the City of Duarte conducted a duly-noticed public hearing on January 19, 2016, pursuant to Development Code Section 19.142.040 to consider MCA 15-05, a city initiated request to amend Chapter 19.40 (Landscaping) of the Duarte Development Code in its entirety to revise regulations, primarily related to water efficient landscaping, in compliance with new State requirements promulgated by Governor’s Executive Order B-29-15; and

WHEREAS, notice of a public hearing on the MCA 15-05 was given pursuant to Duarte Development Code Chapter 19.146 and in accordance with applicable State law; and

WHEREAS, the Planning Commission received and considered the analysis and recommendation provided in the staff report for the MCA 15-05, and all of the information, evidence, and testimony received at the public hearing held on January 19, 2016 at 7:00 p.m. in the City Council Chambers; and

WHEREAS, after careful study and the holding of a duly noticed public hearing, the Planning Commission recommended the City Council adopt and approve Municipal Code Amendment 15-05; and

WHEREAS, Chapter 19.40.030 of the proposed revisions to the landscape ordinance (MCA 15-05) provides authority for the Planning Commission to adopt Water Efficient Landscape Guidelines, subject to City Council approval of the Model Water Efficient Landscape Ordinance; and

WHEREAS, Upon City Council approval of the Model Water Efficient Landscape Ordinance associated with MCA 15-05, and 30 days for the Ordinance to become effective, the Planning Commission shall have the authority to adopt Water Efficient Landscape Guidelines.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF DUARTE RESOLVES AS FOLLOWS:

SECTION 1. RECITALS

All of the facts set forth in the Recitals of this Resolution are true and correct and incorporated herein by this reference.

SECTION 2. CEQA DETERMINATION

Pursuant to provisions of the California Environmental Quality Act (CEQA), the amendment to Duarte Development Code Chapter 19.40 to revise regulations, primarily related to water efficient landscaping, in compliance with new State requirements promulgated by Governor's Executive Order B-29-15, and the associated Water Efficient Landscape Guidelines are categorically exempt under Section 15307 which exempts actions taken by regulatory agencies, as authorized by State law, to assure the maintenance, restoration, enhancement, or protection of a natural resource where the regulatory process involves procedures for protection of the environment.

The Planning Commission finds that the adoption of Water Efficient Landscape Guidelines is required by Governor's Executive Order B-19-25 and will result in the enhancement and protection of water resources in the City, and will not result in negative impact to the environment; therefore, it is exempt from the provisions of CEQA and no further environmental review is necessary.

SECTION 3. RECOMMENDATION

The Planning Commission approves this Resolution, which adopts Water Efficient Landscape Ordinance Guidelines, subject to City Council approval of Municipal Code Amendment 15-05.

The proposed Water Efficient Landscape Ordinance Guidelines are depicted on the exhibit attached hereto and made a part of this resolution by reference marked "Exhibit A" for identification.

APPROVED, AND ADOPTED by the Planning Commission of the City of Duarte at a regular meeting held on the 19th day of January 2016.

_____
Sheryl Lefmann, Chairperson
City of Duarte Planning Commission

ATTEST:

_____
Craig Hensley, Community Development Director

CITY OF DUARTE
COUNTY OF LOS ANGELES } ss.
STATE OF CALIFORNIA

I, Craig Hensley, Secretary of the Planning Commission of the City of Duarte, do hereby certify that the foregoing Resolution was adopted at a regular meeting of the Planning Commission of the City of Duarte held on January 19, 2016, by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
Craig Hensley

Exhibit A

GUIDELINES

FOR THE IMPLEMENTATION OF THE CITY OF DUARTE MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO)

Effective March 24, 2016

(For the purposes of this meeting only, Please refer to Exhibit C, attached to the January 19, 2016 Planning Commission Staff Report, for the Model Water Efficient Landscape Ordinance Guidelines)