



June 2026



City of Corona

LANDSCAPE DESIGN MANUAL



EXHIBIT 3



City of Corona

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1.1 OVERVIEW

INTENT

The City of Corona (“City”) Landscape Design Manual (“Manual”) provides procedural and design guidance for landscape installation and rehabilitation projects. It is intended for use by project applicants to prepare suitable landscape design documentation and to establish criteria the City will use in evaluating landscape design proposals. The design goal is for landscape projects to contribute to an inviting and attractive community and to create appealing and sustainable living, shopping, and working environments.

This Manual’s standards and guidelines 1) complement the site development regulations and design guidelines contained in the City’s Zoning Ordinance and adopted Specific Plans; and 2) address the State’s requirement for water efficient landscapes by implementing the locally adopted Water Efficient Landscape Ordinance (“WELO”).

1.2 ORGANIZATION

The Manual is organized by chapter to provide separate design criteria for residential and non-residential landscape installation and rehabilitation projects. It also includes water efficient landscape design requirements applicable to all project types.

CHAPTER 1: Introduction provides an overview of the Manual.

CHAPTER 2: Residential Landscape Design presents design standards and guidelines applicable to landscape installation and rehabilitation projects on residential properties, including mixed-use developments containing a residential component.

CHAPTER 3: Non-Residential Landscape Design presents standards and guidelines applicable to landscape installation and rehabilitation projects on non-residential properties, including commercial, industrial and institutional developments.

CHAPTER 4: Water Efficient Landscape Design implements the City’s WELO by establishing procedures and design requirements that promote water conservation for all landscape installation and rehabilitation projects of a specified minimum area.

Appendices provides definitions for landscape terms used throughout the Manual, a list of helpful landscape design resources, and copies of forms that are required as part of the review and approval process.

1.3 CONTEXT

POLICY CONTEXT

This Manual implements State and local policies and regulations for landscape design and installation, including requirements for water efficient landscapes.

GENERAL PLAN 2020-2040

Corona's land use policies require that development projects convey a high level of landscape quality and encourage sustainable practices for landscape design. Moreover, the Community Design Element promotes high quality and sustainable landscapes along Corona's streets and within its public landscapes. It also acknowledges the importance of quality landscape design on private property in contributing to a sense of place and enhancing neighborhood character and livability.

STATE MODEL WATER EFFICIENT LANDSCAPE ORDINANCE ("MWEL")

Adopted by the State Department of Natural Resources to promote efficient water use in new and retrofitted landscapes, all local agencies must adopt, implement and enforce the State's MWEL or a local WEL that is at least as effective as the MWEL. The purpose of a water efficient landscape ordinance is to reduce water use and improve environmental conditions in the built environment. The City of Corona has elected to adopt its own WEL to better address local conditions.

CITY LANDSCAPE ORDINANCE

Chapter 17.70 (Landscaping, Fences, Walls, Hedges) of the Corona Municipal Code ("CMC") establishes minimum landscape requirements, including regulations for walls, fences, and hedges. The purpose of the ordinance is to apply the General Plan's policies encouraging high quality and sustainable landscapes by establishing minimum requirements for landscape design, installation, and maintenance. Additionally, it incorporates the City's WEL with reference to this Manual as a tool for its implementation.

DESIGN CONTEXT

This Manual supports regionally appropriate landscape design that reinforces the community's overall quality and sense of place.

REGIONAL LANDSCAPE CHARACTER

Plant selection for any landscape installation and rehabilitation project should start with those species adapted to that location's climate zone. The Sunset Western Climate Zone System places Corona within Climate Zones 18 and 19, which are classified as "interior" climates. A wide array of attractive and environmentally friendly plants that use less water than traditional landscapes are suitable for these semi-arid zones, while the selection of plants native to the region will achieve the most sustainable landscapes.

LANDSCAPE DESIGN RESOURCES

For information on Sunset Climate Zones and suitable plants for Corona's climate zone, consult Sunset's *Western Garden Book*. For information on native plants, the California Native Plant Society's *A Planting Guide for Riverside County* is a recommended resource. Additional references to helpful landscape design resources are provided in Appendix B.

It is also noteworthy that Corona City Hall's California Friendly Demonstration Garden offers a platform to educate and inspire businesses and residents to install landscapes that reflect the region's unique aesthetic character and thrive in the Southern California environment.

WATER USE CLASSIFICATION OF LANDSCAPE SPECIES (WUCOLS)

WUCOLS is an online plant search database maintained by the California Center for Urban Agriculture at UC Davis and intended to help landscape professionals determine the water needs of various plant species and guide them in both plant selection and in developing irrigation schedules. Its extensive plant list identifies water needs for each plant by region according to the categories of High, Moderate, Low, and Very Low. WUCOLS locates Corona within Region 4 (South Inland Valley and Foothills), which encompasses Sunset Climate Zones 18 and 19. Note that this Manual includes requirements for plant selection that reference the WUCOLS database.



City Hall demonstration garden



City Hall demonstration garden

1.4 GENERAL PROVISIONS

The following general provisions apply to all landscape installation and rehabilitation projects:

- All plants shall be selected from the WUCOLS IV plant list, or latest edition, with water needs of moderate or lower.
- On-site landscape with automatic irrigation shall be provided for all properties, subject to the requirements of the Landscape Ordinance and Manual; off-site landscape and irrigation (e.g., for parkways) may also be required.
- Landscapes shall be designed to use water efficiently without waste to the lowest practical amount and comply with the City's WELO and the implementing guidelines contained within the Landscape Design Manual.
- Landscape documentation for landscape installation and rehabilitation projects submitted under the Performance Compliance requirements of the WELO shall be prepared by, or under direct supervision of a registered Landscape Architect (State of California) and shall bear the Landscape Architects' signature and seal.
- Landscape documentation for all other submittals involving landscape installation and rehabilitation should be prepared by, or under the direct supervision of a registered Landscape Architect (State of California) or another qualified landscape professional with experience and knowledge in preparing landscape plans.

1.5 ADMINISTRATION

GENERAL ADMINISTRATION

The Landscape Design Manual shall be administered by the Planning and Development Department under the guidance of the Planning and Development Director. Any decisions of the Planning and Development Director concerning the implementation of these guidelines may be appealed to the Planning Commission. The Planning Commission's decision may be further appealed to the City Council.

In the event of conflict with the provisions of an adopted specific plan, design guidelines, or similar planning and land use document, the more restrictive provision shall control.

REVIEW PROCEDURES

Review and approval of landscape installation and rehabilitation projects shall proceed as follows:

DISCRETIONARY REVIEW

Project proposals subject to Architectural Review, Precise Plan Review, and/or any discretionary approval as specified by the Zoning Code may require Landscape Plans as part of the submittal package to the Planning and Development Department. Landscape Plans shall undergo preliminary review for compliance with applicable landscape regulations and guidelines. Discretionary approvals shall attach a condition that the project conform to the City's WELO prior to issuance of any permit to proceed with landscape installation or rehabilitation. A typical standard condition of approval reads:

"The project's landscape shall be designed to comply with the landscape requirements of Chapter 17.70 of the Corona Municipal Code, including City's Water Efficient Landscape Ordinance (WELO) and the Landscape Design Manual."

MINISTERIAL PERMITS

Prior to issuance of any ministerial permit to proceed, all landscape installation and rehabilitation projects subject to the City's WELO shall submit a Landscape Documentation Package as described in Section 17.70.060(D) of the CMC for the Prescriptive Compliance Option and Section 17.70.060(E) for the Performance Compliance Option. The required documentation shall be reviewed by the Planning and Development Department for compliance with the Landscape Ordinance, Landscape Design Manual, and other applicable landscape regulations and guidelines, as well as conformance with any discretionary approvals or conditions of approval.



CHAPTER 2

RESIDENTIAL LANDSCAPE DESIGN

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2.1 PURPOSE & APPLICABILITY

2.1.1 PURPOSE

This chapter expands on the requirements of the City's Landscape Ordinance, establishing additional standards and guidelines for landscape design and installation on residential properties. Their general purpose is for the design and installation of residential landscapes to help make attractive, livable, and sustainable neighborhoods throughout the City.

2.1.2 APPLICABILITY

This chapter applies to all residential landscape installation and rehabilitation projects requiring discretionary review and/or a ministerial permit, including:

- Single family homes
- Production tract homes
- Multiple family developments
- Mixed-use developments that include a residential component

Residential landscape projects shall also comply with the requirements of Chapter 4: Water Efficient Landscape Design.

2.2 FRONT YARD

Residential front yards shall be landscaped per the following criteria:

2.2.1 DISTRIBUTION OF LANDSCAPE MATERIALS

- **Trees:** Two 24-inch box trees or three 15-gallon trees for single family development; One 24-inch box tree for every 500 square feet of front yard area in multiple family development.
- **Hardscape (excluding driveways):** Up to 30% maximum.
- **Shrubs and/or Groundcover:** Up to 45% maximum.
- **Turfgrass:** Up to 25% maximum for single family development; no turf permitted in multifamily development.

2.2.2 HARDSCAPE

- Hardscape materials shall not cover more than thirty percent (30%) of the total front yard landscape area.
- Permissible hardscape materials include the following: garden walkways, decorative pavers, and stepping stones; decorative rocks (minimum 3" diameter) and boulders; fountains and statues; decomposed granite and other inorganic groundcovers; mulch; and similar materials that enhance the appearance of the front yard subject to approval by the Planning and Development Department.
- Hardscape materials should be limited to neutral, earth tone or muted colors; no bright or neon colored hardscape materials shall be allowed.

2.2.3 TREES

- At least one 24-inch box tree shall be provided for every 500 square feet of front yard area in a multiple family residential development.
- At least two (2) trees that are 24-inch box in size shall be installed in each front yard of a production home development; alternatively, three (3) trees that are 15-gallon container size may be installed if the front yard will comfortably accommodate that number of trees.
- All 24-inch box trees shall be double staked, and 15-gallon trees shall be single staked; all trees shall be tied to stakes with a rubber "cinch tie" or equal, and all trees located in turf areas shall require arbor guards.



Attractive combination of hardscape and landscape

- Turfgrass is prohibited within the front yards of multiple family residential developments and shall not exceed twenty-five percent (25%) of the total front yard area for a single-family home within a production home development; turfgrass shall be limited to warm season varieties.
- Artificial or synthetic turf as defined in Appendix A of this Manual is allowed within a front yard area in lieu of turfgrass and shall be installed per manufacturer's recommendations; a hard barrier such as a concrete mow strip or bender board shall separate artificial turf from an area planted with shrubs and groundcover, while trees and large shrubs should be placed at least three feet (3') distance from artificial turf.
- Turfgrass shall not be planted on sloped areas which exceed one (1) foot of vertical elevation change for every four (4) feet of horizontal length.

Residential side and rear yards shall be landscaped per the following criteria:

- Required side and rear yard setbacks of multi-family developments shall be fully landscaped with an attractive combination of trees, shrubs, groundcovers, and other suitable landscape materials.
- Builders and developers shall not be responsible for the landscape of side and rear yards of individual lots within production home developments, except for a required street side yard setback and slopes over 4 feet in height for erosion control.
- Street side yards situated between a fence/wall and the sidewalk shall be planted with shrubs and groundcovers; shrubs should be provided at a minimum five (5) gallon container size.

2.4 TRASH ENCLOSURE & MECHANICAL EQUIPMENT

Trash enclosures and above-ground mechanical equipment shall comply with the following:

- Trash enclosure walls shall be shielded from public view using evergreen plantings; planter areas accommodating trees, shrubs, and vines shall be located adjacent to trash enclosures.
- No above-ground mechanical equipment shall be located within any required front yard setback area or required street side yard setback that is visible from a street, including but not limited to air conditioning units, pool equipment, heat pumps, generators, and water softeners.
- Equipment, cabinets, meters, transformers, pedestals, vaults, or similar infrastructure installed, owned, or required by the City, a public utility or franchised service provider may be within the front yard setback area, provided the equipment is installed in compliance with applicable standards, easement requirements, or other governmental regulations.
- Above-ground mechanical equipment shall be screened using plantings and other suitable landscape materials; nonetheless, plantings shall not impede access to maintenance of such equipment.

2.5 Landscape Buffers

- Use hardscape, plantings, and other suitable landscape elements to enhance the visual appearance of parking areas; planter areas shall be provided within and adjacent surface parking areas.
- A landscape buffer shall be provided to screen parking areas from public streets; this buffer shall have a minimum depth of five feet (5') measured from the back of sidewalk or edge of right-of-way as appropriate.
- Parking lot buffers shall incorporate landscape materials as needed to sufficiently screen the parking area; screening may be accomplished with shrubs, earth berms, and/or raised planters at a maximum height of three feet (3').
- Planter areas shall be provided at the end of each row of parking, and landscape islands or diamonds shall divide long rows of parking; a landscape island shall be provided for every ten (10) parking stalls, or a landscape diamond shall be provided for every six stalls.
- A six inch (6") raised concrete curb shall separate landscape areas from parking areas and drive aisles to protect plantings from encroaching vehicles and contain landscape materials.
- Planter areas and landscape islands or diamonds within and adjacent parking lots shall have a minimum width of five feet (5') including concrete curb; the area devoted to plantings shall have a minimum width of four feet (4'), except as needed for a concrete step-out strip.
- A six-inch (6") concrete step out strip shall be positioned adjacent the curb to accommodate people existing vehicles; to maximize the area devoted to planting, the step out strip should not run the entire length of the curb.
- Each planter area, landscape island and diamond shall incorporate a canopy shade tree, as well as low shrubs or groundcover; turfgrass is prohibited within parking areas.

- Canopy shade trees shall be placed within a parking lot to reduce heat gain on paving and nearby buildings; all trees shall be 24" box or larger size at time of installation and should be selected to minimize litter and root intrusion.
- Inorganic ground covers such as decomposed granite, crushed rock, etc. may be incorporated in limited amounts within planter areas where appropriate to the overall landscape design

2.6 Slopes

- All natural and manufactured slopes over four feet (4') in height with a horizontal to vertical slope greater than 1.5:1 shall be planted with a mixture of trees, shrubs, and groundcover, and automatically irrigated and mulched.
- Plant materials used on slopes shall have low water requirements and rooting systems that will minimize erosion and soil slippage.
- At least one (1) tree at a minimum 15-gallon container size shall be provided for each 400 square feet of slope; no less than fifty percent (50%) of the trees shall be evergreen trees.
- At least two (2) shrubs shall be provided for each 60 square feet of slope; at least forty percent (40%) of the shrubs shall be at least five-gallon container size, with the remainder of the shrubs at least one -gallon container size.
- Groundcovers shall be planted to beautify the slope, control erosion, and suppress weeds; groundcovers may be provided as rooted cuttings planted at 12-24 inches (12" - 24") on-center, triangular spaced.
- Slopes shall be landscaped with appropriate plantings for immediate erosion control; jute netting shall not be used for slope erosion control on residential production slopes unless approved by the Planning and Development Department.

2.7 WATERWAYS

Water efficient landscaping is required for all new construction projects for residential parkways. A combination of water efficient plants, permitted types of hardscapes, and cedar mulch shall be installed in the parkway. Parkway shall comply with the following:

- Turfgrass is prohibited in all new residential parkways. Artificial turf may be permitted in place of turfgrass. Approval shall be on a case by case basis.
- Only water efficient groundcover and shrubs that grow no taller than 18 inches are permitted.
- Street trees shall be planted according to the location, spacing and selected species from the approved street tree list as determined by the Community Services Department.
- Street trees shall be a minimum of 24-inch box at the time of planting, or as required by the City.
- Fire hydrants shall be a 3-foot (on center) clear area surrounding them, where no planting shall be permitted. This area shall be covered in mulch.
- Concrete, non-pervious pavers, or metal grates are prohibited.
- Pervious decorative pavers are permitted.
- Colored mulch is prohibited. Only cedar mulch, natural colored mulch, or bark is permitted (3 inches minimum depth).
- Decorative rock, red rock, colored rocks, or pea gravel that are less than 3 inches are prohibited.
- Color rocks are prohibited regardless of size of rock.
- Rocks that are 3 inches or larger are permitted (not grouted in place).
- No structures except mailboxes and utilities are allowed in the parkway.





CHAPTER 3

NON-RESIDENTIAL LANDSCAPE DESIGN

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3.1 PURPOSE & APPLICABILITY

PURPOSE

This chapter expands on the requirements of the City's Landscape Ordinance, establishing additional standards and guidelines for landscape design on non-residential properties, with a focus on the aesthetic character and function of landscapes within areas of industry and commerce. These standards and guidelines are intended to promote creative design rather than dictate a specific landscape design style or theme. Their general purpose is for non-residential landscapes to help make attractive and engaging shopping and working environments.

APPLICABILITY

The design principles, standards, and guidelines contained within this chapter are applicable to non-residential landscape installation and rehabilitation projects that require discretionary review and/or a ministerial permit, including commercial, industrial, and institutional development projects and sites. Note that non-residential landscape projects shall also comply with the requirements of Chapter 4: Water Efficient Landscape Design.



Aesthetic Appeal



Project Identity

3.2 FRONT, SIDE, & REAR YARDS

- The required front, side and rear yard setbacks shall be fully landscaped with an attractive combination of approved hardscape features, trees, shrubs, groundcover, and other suitable landscape materials, excluding walkways and driveways that afford access to the site. The landscaping shall be according to the requirements in Chapter 3 of this Manual.
- No parking or drive aisles shall encroach into the required front yard setback area.

3.3 LANDSCAPE MATERIALS & ELEMENTS

☙REES

- Shade trees must be provided for non-residential parking lot and open space areas. Trees are especially important to break up the massing and reduce the scale of tilt-up and other tall industrial, commercial, and institutional buildings, as well as to provide shade, and reduce glare and reflection. The trees shall be selected specifically for these purposes. The palette shall include a balance of evergreen and deciduous trees.
- A minimum of 24-inch box trees shall be provided on the site based on the following formula: one 24-inch box tree for every 10,000 square feet of gross commercial or institutional building area; and one 24-inch box tree for every 20,000 of gross.
- A mix of tree sizes shall include at least:
 - 25% 15-gallon trees
 - 70% 24-inch box trees
 - 5% 36-inch box trees
- A minimum of 36-inch box accent trees (single or multi-trunk specimens) or 12-foot (brown trunk) palms are required on all corner planters including all vehicular entries and major corner intersection of project area, building entries, plazas, courtyards, or patio areas.

- The use of any palms on-site shall be no less than 15 feet Brown Trunk Height (BTH).
- A minimum of one 24-inch box tree shall be planted for every 500 square feet of landscaping in all other areas.
- Root panels and linear barriers are required for all trees planted within a parkway or within 8 feet of any walking or driveable surface.
- Trees shall not be placed where they interface within site drainage or overhead and underground utilities. All utilities shall be identified on the base plan.

☙URFGRASS

- The use of turfgrass is not permitted, and the use of warm season turf is only permitted when specified for a functional or recreational use.
- Artificial or synthetic turf is allowed and must be installed per manufacturer's recommendations including a 6-inch by six inch concrete mow curb separating the synthetic turf from the adjacent shrub planting.
- Approved turfgrass areas shall not exceed a slope of four feet horizontal to one foot vertical (4:1).



Canopy trees shade parking lot

SHRUBS & GROUNDCOVER

- Designated landscape areas shall be covered in non-irrigated synthetic turf, groundcover, or mass planted shrubs grouped together based on their water, soil, sun, and shade requirements and in relationship to the buildings.
- Plants with different water needs shall be irrigated separately.
- Plants with the following WUCOLS classifications shall be grouped accordingly: moderate and low, low, and very low. Plants specified in a bioswale may have a high water use rating. Deviations from these groups shall not be permitted.
- Shrubs to be planted in the back or mid-ground of a planter shall be a minimum of 5 gallons. Sub-shrubs (maximum 18-inch diameter) shall be specified as foreground planting and must be a minimum of 1 gallon size. All shrubs and sub-shrubs must be mass planted and should utilize a variety of shrub species selected from the WUCOLS plant list for Regional 4.
- Landscapes consisting of gravel, crushed rock, and/or decomposed granite and boulders with appropriate low water shrub and tree plantings are encouraged.
- Three (3)-foot high berms or a solid hedge is required along the street setback areas in order to screen the vehicle headlights projecting from parking areas. The height of the berm and or hedge shall be measured from the parking lot grade.
- All shrubs and sub-shrubs shall be triangular or linear spaced based on the mature diameter of the specified shrubs. Shrubs shall be specified so as to fill the planter when mature and not require shearing or hedging.
- Trees and shrubs shall strategically be placed to screen/conceal parking areas and truck loading facilities from public view and to interrupt large wall expanses of buildings.

- A minimum of fifteen gallon shrubs will be required to screen electrical transformers, a/c units, backflow devices, trash enclosures, large screen walls, interior truck and yard areas, and all other maintenance (ground) equipment that may be visible to the public. Shrubs are to be kept a minimum of three feet from the doors of the electrical unit or as specified by the utility agency.
- A non-planted 24 to 36 inch wide strip of stabilized decomposed granite or crushed rock is permitted around the foundation of buildings to facilitate window washing and maintenance.

SLOPES

- All natural and manufactured slopes over four feet (4') in height shall be planted with a mixture of trees, shrubs, and groundcover, and automatically irrigated.
- Plant materials used on slopes shall have low water requirements and rooting systems that will minimize erosion and soil slippage.
- At least one (1) tree at a minimum fifteen (15) gallon container size shall be provided for each 400 square feet of slope; no less than fifty percent (50%) of the trees shall be evergreen trees.
- Shrubs shall be mass planted on all slopes; a minimum of five (5) gallon container size for all shrubs with triangular spacing at seventy-five percent (75%) of the mature diameter is required.
- Groundcover shall be planted at a minimum one (1) gallon container size to beautify the slope, control erosion, and suppress weeds; no hydroseeding is permitted on manufactured or natural slopes.
- Slopes shall be landscaped with appropriate plantings for immediate erosion control; jute netting is allowed on commercial/industrial slopes with the approval of the Planning and Development Director.

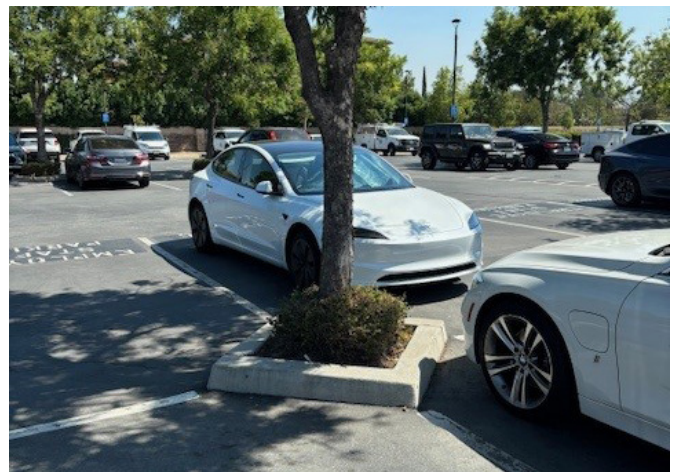
3.4 PARKING LOTS

Non-residential parking lots shall be landscaped according to the following requirements:

- A landscape buffer shall be provided to screen parking areas from public streets; this buffer shall have a minimum depth of 5 feet measured from the back of sidewalk or edge of right-of-way.
- Parking lot buffers shall incorporate landscape materials to screen the parking area; screening may be accomplished with shrubs, earth berms, and/or raised planters at a maximum height of 3 feet.
- Planter areas shall be provided at the end of each row of parking, and landscape islands or diamonds shall divide long rows of parking; a landscape island shall be provided for every 10 parking stalls, or a landscape diamond shall be provided for every 6 stalls.
- A 6-inch raised concrete curb shall separate landscape areas from parking areas and drive aisles to protect plantings from encroaching vehicles and contain landscape materials.
- Planter areas and landscape islands or diamonds within and adjacent parking lots shall have a minimum width of 5 feet including concrete curb; the area devoted to plantings shall have a minimum width of 4 feet, except as needed for a concrete step-out strip.
- A 6-inch concrete step-out strip shall be positioned adjacent the curb to accommodate people existing vehicles; to maximize the area devoted to planting, the step out strip should not run the entire length of the curb.
- Each planter area, landscape island and diamond shall incorporate a canopy shade tree, as well as low shrubs or groundcover.
- Inorganic ground covers such as decomposed granite, crushed rock, etc. may be incorporated in limited amounts within planter areas where appropriate to the overall landscape design.
- No landscape area shall have a dimension of less than four (4) feet clear in width except for vine pockets.
- Canopy shade trees shall be placed within a parking lot to reduce heat gain on paving and nearby buildings; all trees shall be 24" box or larger size at time of installation and should be selected to minimize litter and root intrusion.
- Parking areas adjacent to interior property lines shall be provided with planters at a minimum width of five feet at the property line. This requirement may be waived on industrial projects with the discretion of the Planning & Development Director.
- Show the location of proposed parking lot area lights on planting plans including raised concrete light bases which may limit the irrigation and planting in a landscape planter.



Landscape buffer screens parking area



Planter diamond

3.5 ENTRIES & FOCAL POINTS

- Use enhanced landscape treatment to demarcate and accentuate vehicular and pedestrian points of site access, main building entries and architectural features, and other visual focal points such as prominent corners and significant site amenities.
- Enhanced landscape treatment for site entries and focal points may include large signature trees, ornamental trees, accent plantings, landscape lighting, decorative paving, decorative monumentation, water features, etc.
- Consider incorporating prominent monumentation at site entries and major corners for larger commercial and industrial projects; the design and placement of monumentation should be coordinated with other special landscape treatment and accompanying signage shall comply with the requirements of the Zoning Code.



Enhanced landscape treatment at main building entrance



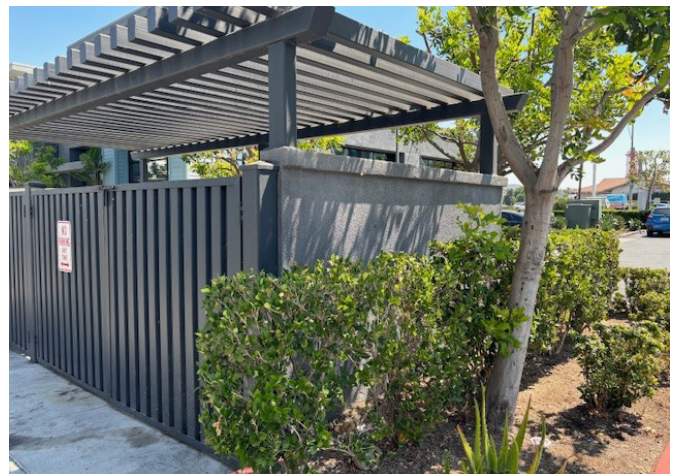
Landscape treatment complements building

3.6 STORAGE & LOADING AREAS, TRASH ENCLOSURES & MECHANICAL UNITS

- Outdoor storage areas, loading areas, and trash enclosures shall be shielded from public view using decorative masonry walls and evergreen plantings; planter areas accommodating trees, shrubs, and vines shall be located adjacent to trash enclosures.
- No above-ground mechanical equipment including air or HVAC conditioning units shall be located within any required front yard setback area or required street side yard setback that is visible from a street.
- Equipment, cabinets, meters, transformers, pedestals, vaults, or similar infrastructure installed, owned, or required by the City, a public utility or franchised service provider may be within the front yard setback area, provided the equipment is installed in compliance with applicable standards, easement requirements, or other governmental regulations.
- Above-ground mechanical equipment shall be screened using plantings and other suitable landscape materials; nonetheless, plantings shall not impede access to maintenance of such equipment.



Attractive plantings screen mechanical equipment while maintaining access



Decorative trash enclosure with landscape buffer

3.7 ADDITIONAL LANDSCAPING REQUIREMENTS

- Concrete curbing is required between landscaping and the parking and driveway areas.
- All landscape areas shall be finished with no less than eight (8) inches of amended topsoil. As per the soil analysis recommendation and provided on plans as part of notes/specifications.
- Boulders and rocks used for enhancement are encouraged.
- Provide stainless steel backflow preventer enclosures on commercial and industrial properties. Backflow preventers shall not be located within the front setback areas.
- A three- (3) foot perimeter is required around all fire hydrants. Shrubs or trees shall not be planted in this area. Low growth ground cover may be planted around the fire hydrants.
- Interim landscape areas at a minimum shall be covered with a hydro-seed mix to prevent erosion and suppress dust. The area shall be properly maintained by the owner of the property. Automatic irrigation may be required for commercial properties.
- Landscape elements, including trees and plantings, shall not interfere with utility lines, block driveways and sidewalks, obstruct vehicular and pedestrian sight lines, or interfere with security lighting; additionally, trees should be selected and planted to minimize root problems (e.g., use of root barriers near pavement and structures).

- All landscaping planted within fuel modification zones shall be approved by the Fire Department.
- Landscape treatment shall be designed to mitigate the fire danger to structures within fire hazard zones, and all plantings within fuel modification zones shall be approved by the Fire Department; reference Section 4.7.5 (Fire Safe Landscaping) for additional guidelines.

PUBLIC RIGHT-OF-WAY

- Landscaping in the public right-of-way including parkways shall comply with Section 17.70.70 of the CMC.
- A three- (3) foot perimeter is required around all fire hydrants. Shrubs or trees shall not be planted in this area. Low growth ground cover may be planted around the fire hydrants.



Attractive combination of trees, shrubs, and groundcover



Drought tolerant plantings

OUTDOOR AREAS & FURNITURE

- Enhance outdoor pedestrian areas with attractive plantings, decorative paving, overhead cover, outdoor furniture, pedestrian-scale lighting.
- Outdoor seating areas should be shaded by canopy trees and/or structures such as trellises, arbors, pergolas, etc.; deciduous trees are generally recommended to provide access to winter sun and offer shade during the summer months.
- Incorporate site furnishings as appropriate to promote comfortable and convenient use of the site and its outdoor gathering spaces.
- Select and place site furniture in relation to the size and function of the site and its outdoor spaces; site furnishings may include seating and benches, shade structures, pedestrian scaled light fixtures, trash receptacles, planters and planter boxes, etc.
- Incorporate an especially high level of amenity within outdoor gathering areas such as on-site plazas, courtyards, and patio areas serving larger commercial retail developments.
- Ensure that site furnishings are coordinated in design and compatible with the overall site character and building appearance.
- Employ quality outdoor furnishings made of durable, weather resistant, and low maintenance materials and finishes.
- Accommodate special landscape features such as recirculating water fountains, ornamental rocks and boulders, etc., that enliven communal space, heighten entries and visual focal points, or otherwise enrich the landscape.



Water fountain provides a focal landscape feature



Coordinated landscape palette

SITE WALLS & FENCES

- All site walls and fences shall be consistent with the provisions of Chapter 17.70.050 of the CMC, including that chapter's regulations on the placement, height limitations, and allowable fence and wall materials.
- Limit site walls and fences to those required for security, screening, or landscape enhancement; walls and fences should not obstruct views of a building's street elevation.
- Design site walls and fences to harmonize with the building architecture and landscape character, utilizing complementary and high-quality materials and colors; walls and fences shall be structurally durable and easily maintained, especially where visible to the public.
- Provide site walls and fences with a decorative appearance; discourage use of precision block, unless coated in stucco or similar surface treatment.
- Long expanses of site walls and fences shall be mitigated using design treatments such as pilasters, offsets, compatible changes in material and color, as well as shrubbery and vines that soften perimeter walls.
- Chain link fences, barbed wire, wrought iron spears, and similar fence types are generally discouraged and prohibited in areas readily visible to the public.



Decorative site wall

OUTDOOR LIGHTING

- Provide an appropriate level of landscape lighting, generally limiting light/illumination to that necessary for safety and security; the most intense lighting should occur in areas with special security needs and/or active pedestrian zones.
- Accent landscape lighting such as tree up-lights, twinkle lights, etc., may be appropriate to highlight focal points or enliven outdoor gathering spaces; flashing, pulsating, or other types of dynamic lighting are otherwise prohibited.
- Landscape lighting shall be located and shielded to minimize spill-over and glare and properly scaled to function; pedestrian-scale fixtures that emit a warm light should be used along walkways.
- Select decorative light fixtures that are compatible with other site furnishings and complement the building design.
- Light fixtures should use energy efficient technology, such as solar powered lighting and energy-efficient bulbs.



Pedestrian scale light fixtures

STORMWATER MANAGEMENT

- Encourage low impact development (LID) methods such as porous paving, storm water cisterns, landscaped or vegetated swales, and rain gardens; nonetheless, the design and placement of bioretention and filtration areas should be sensitive to the site context.
- Maximize stormwater infiltration by employing natural and permeable materials, where feasible; the use of permeable pavement and pavers to reduce impervious surface area and manage runoff is encouraged.
- Explore opportunities for local water storage and treatment through strategically located landscaped or vegetated swales and rain gardens; a minimum five-foot (5') width is required for any planter incorporating a vegetated swale or infiltration area, and plants utilized for stormwater retention features should be able to sustain water ponding and perform in dry conditions.
- Reference Section 4.6.4 (Stormwater Management & Rainwater Retention) for additional guidelines.

IRRIGATION

- Install efficient irrigation systems that employ low volume and/ or low flow methods, and recycled water use is encouraged.
- Irrigation systems shall be designed to provide the optimum amount of water to maintain healthy plants without causing soil erosion and runoff.
- Design the irrigation system to minimize runoff and overspray; in particular, the irrigation system should not allow water to spray or flow across a public sidewalk.
- Irrigation systems shall comply with the requirements of Chapter 4: Water Efficient Landscape Design.



Porous paving in parking lot



Vegetated swale

SUPPLEMENTAL GUIDELINES: INDUSTRIAL PROPERTIES

- Parking areas within industrial sites that are not visible from a public or private street or adjacent property may have landscaping requirements waived, subject to the discretion of the Planning and Development Director.
- Warehouse and logistics developments shall provide landscape buffers and screening to mitigate light and noise impacts on nearby sensitive land uses (e.g., residences, schools, parks, etc.) in accordance with the Warehouse Design and Build Standards of the State Government Code (Section 65098.2).



CHAPTER 4

WATER EFFICIENT LANDSCAPE DESIGN

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4.1 PURPOSE & APPLICABILITY

The primary purpose of this chapter is to provide Implementing Guidelines for the City of Corona's Water Efficient Landscape Ordinance ("WELO"), located in Section 17.70.060 of the CMC. More specifically, these Implementing Guidelines provide procedural and design guidance for project applicants proposing landscape installation or rehabilitation projects that are subject to the requirements of the WELO, as provided for in Section 17.70.060(B) of the CMC. They are also intended for use and reference by City staff in reviewing and approving designs and verifying compliance with the WELO.

4.2 PRESCRIPTIVE COMPLIANCE OPTION

4.2.1 LANDSCAPE PROJECT REQUIREMENTS

Compliance with the following prescriptive criteria shall be detailed in the Landscape Documentation Package as required by Section 17.70.060(D) of the CMC.

1. Incorporate compost at a rate of at least four (4) cubic yards per 1,000 square feet to a depth of six inches (6") into landscape areas, unless contraindicated by a soil test. Soils with greater than six percent (6%) organic matter in the top six inches (6") of soil are exempt from adding compost and tilling.
2. Irrigation systems shall comply with the following:
 - a. For non-residential landscape projects with landscape areas of 1,000 sq. ft. or more, a dedicated irrigation meter or private submeter(s) shall be installed to measure landscape water use.
 - b. Automatic irrigation controllers are required and must use either evapotranspiration (weather-based) or soil moisture (sensor-based) data and utilize a rain sensor.
 - c. Irrigation controllers shall use non-volatile memory.
 - d. Pressure regulating devices, which may include pressure boosters or reducers, shall be installed on the irrigation system to ensure the dynamic pressure of the system is within the manufacturer's recommended pressure range.
- e. 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.
- f. All irrigation emission devices must meet the requirements set by ANSI in the 2020 ASABE/ICC 802 Landscape Irrigation Sprinkler and Emitter Standard, which is herein incorporated by reference. All sprinkler heads installed in the landscape must document a low-quarter distribution uniformity of 0.65 or higher using the protocol defined in 2020 ASABE/ICC 802 Standard.
- g. Non-rotating spray sprinkler bodies are required to meet the standards described in the California Code of Regulations, Title 20, Division 4, Chapter 4, Section 1605.3(x).
- h. Landscape areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produce no water waste, runoff or overspray.
3. Plant material shall comply with the following:
 - a. For residential landscape projects, climate adapted plants shall be installed that require occasional, little, or no summer water (average WUCOLS plant factor 0.3) for seventy-five percent (75%) of the landscape area, excluding areas permanently and solely dedicated to edible plants.
 - b. For non-residential landscapes, climate adapted plants shall be installed that require occasional, little, or no summer water (average WUCOLS plant factor 0.3) for one hundred percent (100%) of the landscape area, excluding areas permanently and solely dedicated to edible plants, and areas using recycled water.
4. Turfgrass shall comply with the following:
 - a. Turfgrass shall not exceed twenty-five percent (25%) of the landscape area in single-family residential landscapes.

- b. There shall be no turfgrass in multifamily and non-residential landscape projects. However, turfgrass may be allowed in a recreational area as defined in Appendix A of this Manual.
- c. Turfgrass shall not be planted on sloped areas which exceed a slope of one foot (1') vertical elevation change for every four feet (4') of horizontal length.
- d. Turfgrass is prohibited in parkways.

- 5. A minimum three-inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turfgrass areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.

4.2.2 FINAL INSPECTION

The designer of record shall make plants identifiable to an inspector during final inspection; plants must be identifiable by botanical name, common name or cultivar as specified in Section 53481 of the Food and Agricultural Code. At the time of final inspection, the permit applicant shall provide the City and the owner of the property with a Certificate of Completion Package.

4.2.3 CERTIFICATE OF COMPLETION PACKAGE

The Certificate of Completion Package is to be completed by the project applicant or their designee to certify that the landscape project has been installed in accordance with the WELO and these Implementing Guidelines. The Certificate of Completion Package for the Prescriptive Compliance Option shall include the following:

- 1. Project Information Sheet (Appendix D – Element 1).
- 2. Certificate of Installation according to the Landscape Documentation Package (Appendix D – Element 2).
- 3. Irrigation Scheduling Parameters (Appendix D – Element 4)
- 4. Landscape and Irrigation Maintenance Schedule (Appendix D – Element 5).

4.3. PERFORMANCE COMPLIANCE: LANDSCAPE DOCUMENTATION

4.3.1 LANDSCAPE PROJECT REQUIREMENTS

Compliance with the following performance criteria shall be detailed in the Landscape Documentation Package as required by Section 17.70.060(E) of the CMC.

4.3.2 SOIL MANAGEMENT REPORT

A soil management report shall be completed by the project applicant, or their designee, as follows:

- 1. Submit soil samples to a laboratory for analysis and recommendations.
 - a. Soil sampling shall be conducted in accordance with laboratory protocols, including protocols regarding adequate sampling depth for the intended plants.
 - b. The soil analysis shall include the following: soil texture; infiltration rate determined by laboratory test or soil texture infiltration rate table; pH; total soluble salts; sodium; percent organic matter; and recommendations.
 - c. For landscape projects with multiple landscape installations (i.e., production home developments) a soil sampling rate of one (1) in seven (7) lots or approximately fifteen percent (15%) of the total number of lots will satisfy this requirement.
- 2. The project applicant, or their designee, shall comply with one of the following:
 - a. If significant mass grading is not planned, the soil management report shall be submitted as part of the Landscape Documentation Package.
 - b. If significant mass grading is planned, the soil management report shall be submitted to the City as part of the Certificate of Completion.
- 3. The Soil Management 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.

4. The project applicant, or their designee, shall submit documentation verifying implementation of Soil Management Report recommendations with the Certificate of Completion.

4.3.3 LANDSCAPE DESIGN PLAN

Plantings, and other landscape materials and features shall be designed to promote efficient use of water. A Landscape Design Plan shall be submitted by the project applicant as part of the Landscape Documentation Package.

1. The Landscape Design Plan shall, at a minimum, provide the following:

- a. Delineate and label each hydrozone by number, letter, or other method.
- b. Identify the plant factor for each hydrozone as very low, low, moderate, or mixed water use. Temporarily irrigated landscape areas shall use a low water use plant factor range of 0.1 - 0.3.
- c. Identify special landscape areas, including the following: recreational areas; areas permanently and solely dedicated to edible plants; and areas irrigated with recycled water or water features using recycled water.
- d. Identify type of mulch and application depth.
- e. Identify type and quantity of soil amendments.
- f. Identify type and surface areas of water features.
- g. Identify hardscapes (pervious and non-pervious).
- h. Identify location, installation details, and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Project applicants shall refer to Regional Water Quality Control Board for information on any applicable stormwater technical requirements. Stormwater best management practices are encouraged in the landscape design plan and examples are provided in Section 4.6.4.
- i. Identify any applicable rain harvesting or catchment technologies and their 24-hour retention or infiltration capacity, if applicable.
- j. Identify any applicable graywater discharge piping, system components, and area(s) of distribution.
- k. Identify designated insect habitat.
- l. Make plants identifiable to an inspector during final inspection. Plants must be identifiable by botanical name, common name or cultivar as specified in Section 53481 of the Food and Agricultural Code.
- m. Contain the following statement: "I have complied with the performance compliance option criteria of the WELO and applied them for the efficient use of water in the landscape design plan."
- n. Bear the signature of the designer of record.

2. Plant Selection

- a. 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, and the plant selection does not otherwise conflict with requirements of this Manual.
- b. The use of invasive plant species, such as those listed by the California Invasive Plant Council, is strongly discouraged.
- b. Each hydrozone shall have plant materials with similar water use.
- c. Exceptions are allowed for hydrozones that use a mix of plant materials with very low, low and moderate plant factors, as specified in Section 4.3.5, guideline 3.g.
- d. High water use plants, characterized by a plant factor range of 0.7 to 1.0, are prohibited.
- e. Turfgrass is not allowed on slopes greater than twenty-five percent (25%) where the toe of the slope is adjacent to a non-pervious hardscape (i.e., one foot (1') of vertical elevation change for every four feet (4') of horizontal length).
- f. Methods to achieve water efficiency shall include one or more of the following:
 - Protection and preservation of native species and natural vegetation.

- Selection of plants based on local climate suitability, disease, and pest resistance.
 - Selection of water-conserving tree, plant, and turfgrass species, especially local native plants.
 - Selection of trees based on applicable tree ordinances or tree shading guidelines, and size at maturity as appropriate for the planting area.
 - Selection of plants from local and regional landscape program recommended plant lists
 - Selection of plants from local Fuel Modification Plan Guidelines.
- h. 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:
- Use the Sunset Western Climate Zone System, 2007, which is herein incorporated by reference, which accounts for temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate.
 - Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure (e.g., buildings, sidewalks, power lines); allow for adequate soil volume for healthy root growth.
 - Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

3. Water Features

- a. Recirculating water systems shall be used for water features.
- b. Where available, recycled water shall be used for decorative water features.
- c. Surface area of a water feature shall use the high water use hydrozone plant factor in the water budget calculation.
- d. Pool and spa covers are highly recommended pursuant to Subdivision (d) of Section 115921 of the Health and Safety Code.

4. Soil Preparation, Mulch, and Amendments

- a. Prior to the planting of any materials, compacted soils shall be transformed into 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 management report and what is appropriate for the plants selected. (Reference Section 4.3.2).
- c. For landscape installations, compost at a rate of a minimum of four (4) cubic yards per 1,000 square feet of pervious area shall be incorporated to a depth of six inches (6") into the soil. Soils with greater than six percent (6%) organic matter in the top six inches (6") 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 turfgrass areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated. To provide habitat for beneficial insects and other wildlife, up to five percent (5%) of the landscape area may be left without mulch and identified in the landscape design plan. (Reference Section 4.3.3, guideline 1.k.)
- e. The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement as established in the prior guideline.
- f. Stabilizing mulching products shall be used on slopes that meet current engineering standards.
- g. Organic mulch made from recycled or post-consumer materials shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available. Organic mulches are not required where prohibited by local Fuel Modification Plan Guidelines or other applicable local ordinances. (Public Resources Code Section 4291).

4.3.4 GRADING DESIGN PLAN

Grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A Grading Design Plan shall be submitted by the project applicant as part of the Landscape Documentation Package.

1. A Grading Design Plan shall indicate finished configurations and elevations of the landscape area, including:
 - a. Height of graded slopes.
 - b. Drainage patterns.
 - c. Pad elevations.
 - d. Finish grade.
 - e. Stormwater retention improvements, if applicable.
2. To prevent excessive erosion and runoff, it is highly recommended that the Grading Design Plan consider the following:
 - a. Grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-pervious hardscapes.
 - b. Avoid disruption of natural drainage patterns and undisturbed soil.
 - c. Avoid soil compaction in landscape areas.
3. The Grading Design Plan shall contain the following statement: "I have complied with the performance compliance option criteria of the WELO 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.

4.3.5 IRRIGATION DESIGN PLAN

This section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An Irrigation Design Plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

1. Irrigation System Efficiency

- a. The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 4.3.6 regarding the Maximum Applied Water Allowance.
- b. For the purpose of determining Estimated Total Water Use, average irrigation system efficiency is assumed to be 0.75 for overhead irrigation systems and 0.81 for drip irrigation systems.
- c. Sprinkler head spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations. Head-to-head coverage is recommended.

2. The Irrigation Design Plan, at a minimum, shall contain the following:

- a. Location and size of separate water meters and submeters.
- b. Location, type, and size of all components of the irrigation system, including controllers, main and lateral lines, valves, emission devices, moisture sensing devices, rain sensors, quick couplers, pressure regulating devices, and backflow prevention devices.
- c. Static water pressure at the point of connection to the public water supply.
- d. Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for the emission devices controlled by each station.
- e. Identification of Special Landscape Areas irrigated with recycled water, and water features using recycled water as specified in Section 4.6.2.
- f. Identification of any applicable graywater discharge piping, system components, and landscape areas where graywater is distributed.
- g. Identification of hydrozone areas shall be designated by number, letter, or other designation as identified on the Landscape Design Plan. Designate the areas irrigated by each valve and assign a number to each valve using the Water Efficient Landscape Worksheet (see Appendix C).

This table can also assist with the irrigation audit and programming the controller. Each valve shall irrigate a hydrozone, or part of a hydrozone, with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.

- h. The following statement: "I have complied with the performance compliance option criteria of the WELO and applied them accordingly for the efficient use of water in the irrigation design plan."
- i. The signature of the designer of record. (See Division 3, Chapter 3.5, Article 3 of the Business and Professions Code).

3. General Design Criteria

- a. Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system as specified in the California Plumbing Code (Cal. Code Regs., Title 24, Part 5, Chapter 6). A project applicant shall refer to Section 13.14.080(M) of the CMC for additional backflow prevention requirements.
- b. The design of the irrigation system shall conform to the hydrozones of the Landscape Design Plan.
- c. Emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
- d. Where feasible, trees shall be placed on separate stations from hydrozones that include shrubs, groundcovers, and turfgrass 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.
- e. In mulched planting areas, the use of low-pressure and low volume irrigation systems is required to maximize water infiltration into the root zone.
- f. Areas less than ten feet (10') in width in any direction shall be irrigated with subsurface irrigation or other means that produces no water waste, runoff, or overspray.
- g. Individual hydrozones that use a mix of plants with low and moderate plant factors may be allowed if the

plant factor used in the calculation of the estimated water use (EWU) is either based on the proportions of the respective plant factors, or the highest plant factor is used.

- h. Individual hydrozones that use a mix of plants with high and low plant factors shall not be permitted.
- i. Relevant information from the Soil Management Plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
- j. Overhead irrigation shall not be permitted within 24 inches (24") of any non-pervious surface. Allowable irrigation within the setback from non-permeable surfaces may include drip irrigation, 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:
 - no runoff occurs; or
 - the adjacent non-pervious surfaces are designed and constructed to drain entirely to landscaping; or
 - the irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates strict adherence to the prevention of water waste. Prevention of overspray and runoff must be confirmed during the irrigation audit.
- k. Restrictions regarding overspray and runoff in any irrigation system may be modified if:
 - the landscape area is adjacent to pervious surfacing and no runoff occurs; or
 - the adjacent non-pervious surfaces are designed and constructed to drain entirely to landscaping.
- l. Slopes greater than twenty-five percent (25%) shall not be irrigated with an irrigation system using an application rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and

clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

- m. 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.

4. Irrigation System Components

a. Meters

- Pursuant to California Water Code Section 535, a water purveyor with 15 or more service connections shall install a dedicated irrigation meter(s) for new retail water service to a property with more than 5,000 sq. ft. of irrigated landscape, excluding single-family residential connections and connections for the commercial production of agricultural crops or livestock.
- A submeter or dedicated irrigation meter shall be installed and may be used to assist with leak detection and water management for non-residential landscapes with an irrigated landscape of 1,000 sq. ft. but not more than 5,000 sq. ft., and residential landscapes with an irrigated landscape of 5,000 sq. ft. or more.

b. Water Pressure

- 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.
- 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.
- If the water pressure is below or exceeds the

recommended pressure range of the specified emission 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.

c. Water Waste Prevention Equipment

- The irrigation system shall be designed to prevent water waste.
- Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.
- Manual shut-off valves (such as a gate 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 break in the pressurized pipeline that delivers water from the water source to the valve or outlet) or routine repair.
- Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.
- Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to hardscapes or in high traffic areas of turfgrass.
- Flow sensors that detect high flow conditions created by system damage or malfunction are required for all on non-residential landscapes and residential landscapes of 5000 sq. ft. or larger.

ci. Emission Devices

- Emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American

Society of Agricultural and Biological Engineers/ International Code Council's (ASABE/ICC) 802-2020 "Landscape Irrigation Sprinkler and Emitter Standard," which is herein incorporated by reference.

- All overhead irrigation systems installed in the landscape must document a low quarter distribution uniformity of 0.65 or higher using the protocol defined in ASABE/ICC 802-2020.
- Non-rotating spray sprinkler bodies are required to meet standards described in California Code of Regulations, Title 20, Division 2, Chapter 4, Section 1605.3(x).

e. System Controls

- Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for scheduling irrigation events.
- 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.

4.3.6 WATER EFFICIENT LANDSCAPE WORKSHEET

1. A project applicant shall complete the Water Efficient Landscape Worksheet in Appendix C, which compares the landscape project's Estimated Total Water Use (ETWU) with the Maximum Applied Water Allowance (MAWA). ETWU must be equal to or below the MAWA.
 - a. The MAWA is calculated based on the maximum evapotranspiration adjustment factor (ETAF) allowed for the landscape project and is expressed as annual gallons allowed. The maximum ETAF allowed is:
 - 0.55 for residential Regular Landscape Areas.
 - 0.45 for non-residential Regular Landscape Areas.
 - 0.8 for new and existing (non-rehabilitated) Special Landscape Areas.
 - b. The ETWU is the sum of estimated water use (EWU) for each hydrozone. The ETAF for each hydrozone is based on the plant factor and the average irrigation system efficiency. EWU is calculated using the ETAF, Regular Landscape Areas, and Special Landscape Areas.
 - c. In calculating the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use the ETo values indicated in the following table.

TABLE 4.1: Reference Evapotranspiration (ETo) (All values shown in inches)

COUNTY/ CITY OR PLACE	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL ETO
Corona	2.5	2.7	4.0	5.0	5.9	6.8	7.5	7.0	5.7	4.2	2.8	2.2	56.3

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

- a. The plant factor used shall be from WUCOLS or from horticultural researchers with academic institutions or professional associations as approved by the California Department of Water Resources. The plant factor ranges are:
 - less than 0.1 for very low water using plants.
 - 0.1 to 0.3 for low water use plants.
 - 0.4 to 0.6 for moderate water use plants.
 - 0.7 to 1.0 for high water use plants.
- b. All water features shall use the high water use plant factor in the water budget calculations.
- c. Temporarily irrigated areas shall use the low water use plant factor in the water budget calculations.
- d. All Special Landscape Areas (SLA) shall be identified in the Landscape Design Plan and the Irrigation Design Plan and their water use calculated as shown in Appendix C.
- e. The City may consider Effective Precipitation (Eppt), (twenty-five percent (25%) of annual precipitation) in tracking water use and may use the following equation to calculate Maximum Applied Water Allowance:
 - Residential landscapes: $MAWA = (ET_o - Eppt) \times (0.62) \times [0.55 \times RLA + 0.8 \times SLA]$.
 - Non-residential landscapes: $MAWA = (ET_o - Eppt) \times (0.62) \times [0.45 \times RLA + 0.8 \times SLA]$.

4.4 PERFORMANCE COMPLIANCE OPTION: IRRIGATION & MAINTENANCE

4.4.1 IRRIGATION SCHEDULING

All irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health and prevent water waste. Irrigation schedules shall meet the following criteria:

A project applicant shall complete the Water Efficient Landscape Worksheet in Appendix C, which compares the landscape project's Estimated Total Water Use (ETWU) with the Maximum Applied Water Allowance (MAWA). ETWU must be equal to or below the MAWA.

1. Irrigation scheduling shall be regulated by automatic irrigation controllers.
2. Parameters used to set the automatic irrigation controller shall be developed and submitted with the Certificate of Completion for each of the following:
 - a. The plant establishment period.
 - b. The established landscape.
 - c. Temporarily irrigated areas.
3. Each irrigation schedule shall consider for each station all the following parameters that apply:
 - a. Irrigation interval (days between irrigation events).
 - b. Irrigation run times (hours or minutes per irrigation event to avoid runoff and prevent water waste).
 - c. Number of cycle starts required for each irrigation event to avoid runoff and prevent water waste.
 - d. Amount of applied water scheduled to be applied on a monthly basis.
 - e. Application rate setting.
 - f. Root depth setting.
 - g. Plant type setting.
 - h. Soil type.
 - i. Slope factor setting.

- j. Shade factor setting.
 - k. Distribution uniformity or irrigation efficiency setting.
4. Overhead irrigation systems shall be scheduled during watering windows that have been adopted by the City. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
 5. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA).
 - a. Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.
 - b. For implementation of the irrigation schedule, carefully consider the irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water does not exceed the Estimated Total Water Use.

4.4.2 LANDSCAPE AND IRRIGATION MAINTENANCE SCHEDULE

1. Landscapes shall be maintained to ensure water use efficiency. A regular landscape and irrigation maintenance schedule shall be submitted with the Certificate of Completion Package.
2. A regular maintenance schedule shall include, but not be limited to, routine inspection; auditing, adjustment, and repair of the irrigation system and its components; aerating and dethatching turfgrass areas; topdressing with compost, replenishing mulch; fertilizing; pruning; weeding in all landscape areas; and removing obstructions to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
3. Repair of all irrigation equipment shall be done with replacement parts for the originally installed components or their equivalents, or with components that improve the average irrigation system efficiency.
4. A project applicant is encouraged to implement established landscape industry sustainable Best Practices for all landscape maintenance activities.

4.4.3 IRRIGATION AUDIT

1. All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor. Landscape irrigation audits shall not be conducted by the person who designed the landscape or installed the landscape.
2. In large landscape projects or landscape projects with multiple landscape installations (i.e., production home developments) an auditing rate of one (1) in seven (7) individual lots or approximately fifteen percent (15%) of the total number of individual lots will satisfy this requirement.
3. For new construction and rehabilitated landscape projects installed after December 1, 2015:
 - a. The project applicant shall submit an irrigation audit report with the Certificate of Completion Package to the City that may include, but is not limited to, inspection, system tune-up, system test with distribution uniformity, and reporting overspray or run off that causes overland flow; and
 - b. The City shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Allowance.

4.5 PERFORMANCE COMPLIANCE OPTION: CERTIFICATE OF COMPLETION

4.5.1 CERTIFICATE OF COMPLETION PACKAGE

The Certificate of Completion Package is to be completed by the project applicant or their designee to certify that the landscape project has been installed in accordance with the WELO and these Guidelines, and shall include the following six (6) elements in accordance with Appendix D.

1. Project information sheet that contains:
 - a. Date the project information sheet is completed.
 - b. Project name.
 - c. Project applicant name, telephone, and mailing address.
 - d. Project address and location; and
 - e. Property owner name, telephone, and mailing address.
2. Certification by the designer of record that the landscape project has been installed per the approved Landscape Documentation Package.
 - a. Where there have been significant changes made in the field during construction, the “as-built” or record drawings shall be included with the certification.
 - b. A diagram of the irrigation plan showing hydrozones shall be kept with the automatic irrigation controller for subsequent management purposes.
4. Soil Management Report, if not submitted with Landscape Documentation Package, and documentation verifying implementation of soil report recommendations. (Reference Section 4.3.2).
5. Irrigation scheduling parameters used to set the automatic irrigation controller. (Reference Section 4.4.1).
6. Landscape and irrigation maintenance schedule. (Reference Section 4.4.2).
7. Irrigation audit report. (Reference Section 4.4.3).

4.5.2 PROJECT APPLICANT RESPONSIBILITIES

The project applicant shall:

1. Submit the signed Certificate of Completion Package to the City for review.
2. Ensure that copies of the approved Certificate of Completion Package are submitted to the property owner or their designee, unless the property owner is the project applicant.

4.5.3 CITY RESPONSIBILITIES

The City shall:

1. Receive the signed Certificate of Completion Package from the project applicant and conduct an inspection of the project site.
2. Approve or deny the Certificate of Completion Package. If the Certificate of Completion Package is denied, the City shall provide information to the project applicant regarding reapplication, appeal, or other assistance. Subsequent landscape inspections may be necessary prior to the approval of the Certificate of Completion Package and landscape permit.

4.6 ADDITIONAL PROVISIONS

4.6.1 WATER WASTE PREVENTION

It is the policy of the City to prevent water waste resulting from inefficient landscape irrigation. Prohibitions on water waste have been established in Section 13.26.040 of the CMC and the associated penalties have been established in Section 13.26.110 of the CMC.

4.6.2 RECYCLED WATER.

1. All recycled water use is subject to applicable provisions of the California Code of Regulations (Cal. Code Regs.), Titles 17 and 22, the California Plumbing Code (Cal. Code Regs., Title 24, Part 5, Chapter 15), and all applicable local and State laws.
2. The installation of recycled water irrigation systems shall allow for the current and future use of recycled water.
3. Landscape areas using recycled water are considered Special Landscape Areas, as defined in Appendix A.

4.6.3 GRAY WATER SYSTEMS

1. All gray water systems are required to conform to the California Plumbing Code (Cal. Code Regs., Title 24, Part 5, Chapter 15) and any applicable local ordinance standards.
2. Gray water systems promote the efficient use of water and are encouraged to assist in on-site landscape irrigation.
3. For projects using treated or untreated gray water, any lot or parcel within the project that has less than 2,500 sq. ft. of landscape area and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with gray water is subject only to Section 4.2.2, guideline 2.

4.6.4 STORMWATER MANAGEMENT AND RAINWATER RETENTION

1. Project applicants shall refer to the City and Regional Water Quality Control Board for information on any applicable stormwater technical requirements.
2. All non-potable rainwater catchment systems are required to conform to the California Plumbing Code (Cal. Code Regs., Title 24, Part 5, Chapter 16).
3. All landscape areas are required to have friable soil to maximize water retention and infiltration. Refer to Section 4.3.3, guideline 4.a.
4. For projects using rainwater captured on site, any lot or parcel within the project that has less than 2,500 sq. ft. of landscape area and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely through stored rainwater captured on site is subject only to Section 4.2.2, guideline 2.
5. It is strongly recommended that landscape areas be designed for capture and infiltration capacity that is sufficient to prevent runoff from impervious surfaces (i.e., roof and paved areas) from either:
 - a. The one inch, 24-hour rain event, or
 - b. The 85th percentile, 24-hour rain event, and/or additional capacity as required by any applicable local, regional, state or federal regulation.

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

4.6.5 FIRE SAFE LANDSCAPING

1. A landscape design plan for development and construction in Local Responsibility Areas designated as Very High Fire Hazard Severity Zones and areas designated by the Board of Forestry and Fire Protection as State Responsibility Areas are required to comply with the California Fire Code (Cal. Code Regs., Title 24, Part 9, Chapter 49) "Requirements for Wildland-Urban Interface Fire Areas."
2. Public Resources Code section 4291(a) and (b) describes the requirements for a person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, shrub-covered lands, grass-covered lands, or land that is covered with flammable material to around a building or structure. Avoid fire-prone plant materials and highly flammable mulches.
3. Local Fuel Modification Plan guidelines may prescribe additional requirements per Public Resources Code section 4291(a) and (b).

4.6.6 COMMON INTEREST DEVELOPMENTS

The architectural guidelines of a common interest development, which include community apartment projects, condominium projects, 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 (Civil Code sections 4100 and 4735).

4.6.7 MODEL HOMES

All model homes that are landscaped shall display signs that provide information demonstrating the principles of water efficient landscapes described in the WELO and these guidelines.

1. Signs shall be used to identify the model home as an example of a water efficient landscape. Signage shall include:
 - a. Fundamental water efficient landscape elements such as hydrozones, irrigation equipment, native plants, gray water systems, rainwater catchment systems, and other elements as applicable that contribute to the overall water efficient theme.
 - b. Information about the site water use budget as designed per the WELO and these Guidelines; specify who designed and installed the water efficient landscape.
2. Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.



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APPENDIX A: DEFINITIONS

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

“Artificial turf” means a man-made material which simulates the appearance of live turf, organic turf, grass, sod, or lawn.

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

“Backflow prevention device” means a safety device required by the California Plumbing Code (California Code of Regulations, Title 24, Part 5, Chapter 6) used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

“Certificate of Completion Package” has the same meaning as set forth in Section 17.70.030 of the CMC.

“Certified Landscape Irrigation Auditor” means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program labeled by the US Environmental Protection Agency’s WaterSense professional certification program, July 2014, which is herein incorporated by reference.

“Check valve” or **“anti-drain valve”** means a valve used in a pipeline or emission device that holds water in the system to prevent drainage from emission devices when the system is off.

“Common interest developments” means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 4100 and applies to the WELO when there is a separate interest coupled with an interest in the common area or membership in the association per Chapter 2 (commencing with Section 4200), Part 5 of the Civil Code.

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

“Conversion factor (0.62)” means the number used in the Maximum Applied Water Allowance (MAWA) calculation that converts acre-inches per acre per year to gallons per square foot per year.

“Dedicated irrigation meter” means a customer service meter dedicated to landscape use provided by the local water purveyor.

“Designee” means a person or entity authorized to sign documents on behalf of the project applicant.

“Designer of record” means the person, professional practitioner, or project applicant functioning and providing services in compliance with Division 3, Chapter 3.5, Article 3 of the Business and Professions Code.

“Design review” means review by the City to enforce the WELO and this Manual.

“Distribution uniformity” or **“DU”** means the measure of the uniformity of irrigation water over a defined area.

“Drip irrigation” means any non-spray low volume irrigation system utilizing emission devices where water is slowly applied at or below the soil surface and at or near the root zone of plants. Drip irrigation emission devices have a manufacturer specification for flow rate measured in gallons per hour.

“Drought tolerant landscaping” means 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.

“Dynamic pressure” means the measure of water pressure with the water in motion, also known as working pressure.

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

“Effective precipitation” (Eppt) means the portion of total precipitation which becomes available for plant growth.

“Emission device” means an irrigation system component that dispenses water to the landscape.

“Established landscape” means the stage at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.

“Establishment period of the plants” or **“establishment period”** means the first year after installing the plant in the landscape, or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth. Native habitat mitigation areas and trees may need three to five years for establishment.

“Estimated Total Water Use” (ETWU) is the sum of each hydrozone’s estimated water use (EWU) and means the total water used for the landscape as described in Section 4.3.6 (Water Efficient Landscape Worksheet) of this Manual. ETWU must be equal to or below the Maximum Applied Water Allowance (MAWA) to comply with the WELO.

“Estimated Water Use” (EWU) is the calculated water used for each hydrozone as described in Section 4.3.6 (Water Efficient Landscape Worksheet) of this Manual.

“ET Adjustment Factor” (ETAF) means a factor 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 maximum ETAF allowed in the MAWA equation must be equal to or below:

- a. 0.55 for residential Regular Landscapes Areas.
- b. 0.45 for non-residential Regular Landscape Areas.

c. 0.8 for Special Landscape Areas.

d. 0.8 for existing non-rehabilitated Regular Landscape Areas over one acre in size installed before December 1, 2015, per Section 17.70.060(F) of the CMC as presently adopted, or as amended or superseded by California Code of Regulations, Title 23, Division 2, Chapter 2.7, Section 491.1.

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

“Flow rate” means the volume of water per unit of time that flows through pipes, valves, and emission devices, and commonly measured in gallons per minute, gallons per hour, or cubic feet per second.

“Flow sensor” means an inline device installed at the supply point of the irrigation system that produces a repeatable signal proportional to flow rate. Flow sensors must be connected to a compatible automatic irrigation controller, or flow monitor capable of receiving flow signals and operating master valves. For the purposes of this definition, “compatible” means the flow sensor can communicate with the irrigation controller to allow the controller to record and report actual water usage. This combination flow sensor/controller may also function as a privately-owned submeter.

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

“Front yard” has the same meaning as set forth in Section 17.04.639 of the CMC.

“Fuel Modification Plan Guideline” means landscaping guidelines from a local fire authority to assist residents and businesses that are developing land or building structures in a fire hazard severity zone.

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“Gray water” means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. “Gray water” includes wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers per Health and Safety Code Section 17922.12.

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

“Hydrozone” means a section of the landscaped area having plants with similar water needs (i.e., “plant factors”) and generally similar rooting depth (e.g., turfgrass - shallow to moderate, shrubs- moderate, and trees - deep). A hydrozone may be irrigated or non-irrigated.

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

“Invasive plant species” means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. Lists of invasive plants are maintained by the California Invasive Plant Council in their Inventory and invasive plants and noxious weeds by the USDA in their PLANTS database.

“Irrigation audit” means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to, inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting water waste, overspray or runoff that causes overland flow, and preparation of an irrigation schedule. The audit must be conducted in a manner consistent with the Irrigation Association’s

Landscape Irrigation Auditor Certification program or other U.S. Environmental Protection Agency “WaterSense” labeled auditing program.

“Irrigation efficiency” (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied and is expressed as a percentage. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The average irrigation efficiency used in the Estimated Total Water use equation for purposes of the WELO and this manual are 0.75 for overhead irrigation systems, and 0.81 for drip irrigation systems.

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

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

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

“Landscape area” (LA) means all the irrigated planting areas, turfgrass areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The irrigated planting 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). The landscape area is the sum of the landscape projects’ Regular Landscape Areas (RLA) and Special Landscape Areas (SLA). $LA = RLA + SLA$.

“Landscape Documentation Package” has the same meaning as set forth in Section 17.70.030 of the CMC.

“Landscape professional” means 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.

“Landscape project” has the same meaning as set forth in Section 17.70.030 of the CMC.

“Lateral line” means the water delivery pipeline that supplies water from the valve to the emission devices.

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

“Low head drainage” means a condition where water partially or completely drains from the lateral line through the emission device after the irrigation cycle is completed.

“Master shut-off valve” is an automatic valve installed at the irrigation supply point which controls water flow into the irrigation system. When this valve is closed water will not be supplied to the irrigation system. A master shut-off valve will greatly reduce any water loss due to a ruptured pipe or leak in the irrigation system.

“Matched precipitation rate” or **“matched application rate”** means that all emission devices within a hydrozone delivers water at a similar precipitation rate per unit of time.

“Maximum Applied Water Allowance” (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 4.3.6 (Water Efficient Landscape Worksheet). It is based upon the area’s reference evapotranspiration, the maximum ET Adjustment Factor allowed, and the size of the Regular Landscape Area (RLA) and the Special Landscape Area (SLA). $MAWA = (ET_o) \times (0.62) \times [ETAF \times RLA + 0.8 \times SLA]$

“Median” is a landscape project area between opposing lanes of traffic that may be unplanted or planted with trees, shrubs, perennials, and ornamental grasses.

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

“Mined-land reclamation projects” means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

“Mulch” has the same meaning as set forth in Section 17.70.030 of the CMC.

“Multi-family residential landscape” means the landscape area surrounding or associated with any structure designed for human habitation that has been divided into two or more legally created independent living quarters.

“New construction” has the same meaning as set forth in Section 17.70.030 of the CMC.

“Non-pervious” means any surface or natural material that does not allow for the passage of water through the material and into the underlying soil.

“Non-residential landscape” means the landscape area surrounding or associated with commercial, institutional, industrial, and public settings that may have areas designated for recreation or public assembly. It also includes the landscape area associated with common areas of common interest developments with designated recreational areas.

“Non-volatile memory” means a type of computer memory used in automatic irrigation controllers that retains stored information after power is removed and will maintain the programmed irrigation schedule after power is restored.

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

“Overhead irrigation systems” means irrigation systems that deliver water through the air.

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

“Parkway” has the same meaning as set forth in Section 12.22.030 of the CMC.

“Permit” means an authorizing document issued by the City for new construction or rehabilitated landscapes.

“Pervious” means any surface or material that allows the passage of water through the material and into the underlying soil.

“Plant factor” or **“plant water use factor”** is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of the WELO and this Manual, the plant factor ranges are:

- a. very low water use plants is less than 0.1.
- b. low water use plants is 0.1 to 0.3.
- c. moderate water use plants is 0.4 to 0.6.
- d. high water use plants is 0.7 to 1.0.

Plant factors cited in the WELO and this Manual are derived from the database “Water Use Classification of Landscape Species.” Plant factors may also be obtained from horticultural researchers from academic institutions or professional associations as approved by the California Department of Water Resources (DWR).

“Project applicant” has the same meaning as set forth in Section 17.70.030 of the CMC.

“Property owner” or **“owner”** means the record owner of real property as shown on the most recently issued equalized assessment roll.

“Rain sensor” or **“rain sensing shutoff device”** means a component that automatically interrupts an irrigation event when it rains.

“Record drawing” or **“as-builts”** means a set of reproducible drawings that show significant changes in the work made during construction and that are usually based on drawings marked up in the field and other data furnished by the contractor.

“Recreational area” means areas designated for active play, recreation or public assembly in parks, sports fields, picnic grounds, amphitheaters, or golf course tees, fairways, roughs, surrounds and greens. Private single-family residential landscapes are not recreational areas.

“Recycled water” or **“reclaimed water”** means treated wastewater of a quality suitable for non-potable uses such as landscape irrigation and water features, as described in California Code of Regulations, Title 22, Division 4, Chapter 3. This water is not intended for human consumption.

“Reference evapotranspiration” or **“ETo”** means a standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month, or year as represented in Appendix C (Water Efficient Landscape Worksheet) of this Manual. The annual reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowances so that regional differences in climate can be accommodated.

“Regular landscape area” (RLA) is the portion of the irrigated landscape area that is not a Special Landscape Area. $RLA = LA - SLA$.

“Rehabilitated landscape” means any landscape renovation project that requires a permit, plan check, or design review, in which the modified landscape area is equal to or greater than 2,500 square feet.

“Riser” means a length of pipe with male nominal pipe threads on each end usually affixed to a lateral or submain supporting a sprinkler head or anti-siphon valve.

“Runoff” means water which is not absorbed by the soil or landscape to which it is applied and flows from the target landscape area. Runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate), from low head drainage, or when there is a slope.

“Single-family residential landscape” means the landscape areas surrounding or associated with a one or two-family dwelling or townhouse. Swimming pools of single-family residential landscapes are water features and not Special Landscape Areas.

“Soil moisture sensing device” or **“soil moisture sensor”** means a device that measures the amount of water in the soil and sends a signal to the automatic irrigation controller to interrupt or initiate an irrigation event.

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

“Special Landscape Area” (SLA) means an irrigated area that may be all or part of the landscape project and is permanently and solely dedicated to edible plants such as orchards and vegetable gardens, recreational areas, areas irrigated with recycled water, or water features using recycled water.

“Sprinkler head” or **“sprinkler”** means an emission device that applies water by converting water pressure to a high velocity discharge stream or stream(s) through the air by a nozzle (e.g., spray, rotors, and rotators). Sprinklers have a manufacturer specification for flow rate measured in gallons per minute.

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

“Station” means a hydrozone served by a circuit on an automatic irrigation controller that operates either one valve or a set of valves that operate simultaneously.

“Submeter” means a metering device to measure water applied to the landscape that is installed after the primary utility water meter.

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

“Turfgrass” means a living ground cover surface of mowed grass.

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

“Water budget calculation” means the calculation of a landscape water budget defined by Estimated Water Use (EWU), Estimated Total Water Use (ETWU), and Maximum Applied Water Allowance (MAWA).

“Water conserving plant species” means a plant species identified as having a very low or low plant factor.

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

“Water waste” means the overapplication of water through inefficient landscape irrigation that causes runoff to leave the target landscape area onto adjacent property, non-irrigated landscapes, private and public walkways, roadways, parking lots, or structures. Water waste includes low head drainage, overspray, runoff, or other similar conditions that cause overland flow.

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“Watering window” means the days per week and the hours per day irrigation is allowed.

“WUCOLS” means the Water Use Classification of Landscape Species IV, 2014, which is herein incorporated by reference, and maintained by the California Center for Urban Horticulture, University of California. WUCOLS IV is an online database that classifies and provides regional water needs for commonly available landscape plants.

APPENDIX B: LANDSCAPE DESIGN RESOURCES

The City of Corona does not endorse nor recommend any products, materials, or services. These resources are provided for informational purposes only.

Source: Department of Water Resources (DWR)
MWELo Resources Link: <https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/MWELo-Files/MWELo-Guidebook/W--MWELo-Resources-Links.pdf>

MWELo ORDINANCE

- DWR Ordinance & Reporting: <https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Model-Water-Efficient-Landscape-Ordinance>

IRRIGATION AUDITORS

- Irrigation Auditors EPA WaterSense: <https://lookforwatersense.epa.gov/pros/>

SOIL, COMPOST, MULCH

- Calrecycle: <https://calrecycle.ca.gov/organics/compostmulch/>

PLANTS

- Calscape, Native Plants in Landscaping: <https://www.calscape.org/>
- WUCOLS, Water Use Classification of Landscape Species, Plant Database: <https://www.ucanr.edu/sites/WUCOLS/>
- Native and Invasive Plants: CALIPC Plants in Horticulture: <https://www.cal-ipc.org/plants/horticulture-plants/>
- Invasive Plants: Plant Right: <https://plantright.org/>
- Southern California Plant List – BeWaterWise: <http://www.bewaterwise.com/california-native-plants.html>

IRRIGATION & EVAPOTRANSPIRATION DATA

- CIMIS: <https://cimis.water.ca.gov/>
- Rain Bird: <https://www.rainbird.com/agency/mwelo>

ADDITIONAL RESOURCES

- CalWEP Sustainable Landscaping: <https://calwep.org/sustainable-landscapes/>
- Sustainable Landscapes in California: A Guidebook for Commercial and Industrial Site Managers: <https://pacinst.org/wpcontent/uploads/2020/08/Sustainable-Landscapes-in-California-PacificInstitute-2020.pdf>

APPENDIX C: WATER EFFICIENT LANDSCAPE WORKSHEET

WATER EFFICIENT LANDSCAPE WORKSHEET INSTRUCTIONS

1. Reference Evapotranspiration.

- a. Use the Annual ETo value for the City using the Reference Evapotranspiration (ETo) Table provided in Section 4.3.6 of this Manual and use this value in the EWU and MAWA calculations.

2. Calculate the Maximum Applied Water Allowance (MAWA).

- a. RLA is the total regular landscape area in square feet.
- b. SLA is the total special landscape area in square feet.
- c. MAWA is calculated based on the maximum ETAF allowed for the type of landscape areas for the landscape project and is expressed as annual gallons allowed.
- d. Effective Precipitation. Per § Section 493.3(b)(5), a local agency may consider Effective Precipitation (Eppt), (25% of annual precipitation) in tracking water use and may use the following equation to calculate MAWA:
 1. Residential landscapes:

$$\text{MAWA} = (\text{ETo} - \text{Eppt}) \times (0.62) \times [0.55 \times \text{RLA} + 0.8 \times \text{SLA}]$$
 2. Non-residential landscapes:

$$\text{MAWA} = (\text{ETo} - \text{Eppt}) \times (0.62) \times [0.45 \times \text{RLA} + 0.8 \times \text{SLA}]$$

3. Calculate the Estimated Total Water Use (ETWU).

- a. Column A – List each hydrozone using the label corresponding to the Landscape Design Plan.
- b. Columns B and C – Complete the ETWU table for each hydrozone based on the plant factor (PF) and the average irrigation system efficiency (IE). The plant factor is found in Water Use Classification of Landscape Species (WUCOLS).
- c. Column D – calculate the ETAF for each hydrozone by dividing the PF (Column B) by the IE (column C); write the result in column D.
- d. Column E – for each hydrozone measure and report:
 - i. Regular landscape area (RLA) as defined in the Landscape Design Manual as presently adopted, or as amended or superseded by California Code of Regulations, Title 23, Division 2, Chapter 2.7, Section 490.2.
 - ii. Special landscape areas (SLA), as defined in the Landscape Design Manual as presently adopted, or as amended or superseded by California Code of Regulations, Title 23, Division 2, Chapter 2.7, Section 490.2, are not included in RLA measurements.
- e. Column F – calculate the Estimated Water Use (EWU) for each hydrozone by multiplying columns D, E, EToa and 0.62 (conversion factor) and write the result in column F.
- f. ETWU - is the sum of EWU for each hydrozone and is expressed as gallons per year.

4. Compare ETWU with MAWA.

The ETWU (gallons per year) must be equal to or less than the MAWA (annual gallons allowed) to comply with the City's WELO.

APPENDICES

APPENDIX D: CERTIFICATE OF COMPLETION

This certificate is filled out by the project applicant to certify that the landscape project has been installed in accordance with the Model Water Efficient Landscape Ordinance.

- (a) Prescriptive Compliance Option is limited to elements 1, 2, and 4.
- (b) Performance Compliance Option shall include all six (6) elements.

ELEMENT 1. PROJECT INFORMATION SHEET

Project Applicant Information:

Name of Project Applicant (or designee if applicable) and Title:	Project Name or Entitlement Case No.:
Project Landscape Architect or Designer of Record:	Tract No. / Phase No. (if applicable):
Street Address for Project Site:	Water Supply Type (Circle One): Potable / Recycled / Well / Other (specify):
City, State:	Water Purveyor:
Zip Code:	Phone Number:
Fax Number:	Email:
Company:	

ELEMENT 2. CERTIFICATION OF INSTALLATION ACCORDING TO THE LANDSCAPE DOCUMENTATION PACKAGE

- (A) Where there have been significant changes made in the field during construction, these “as-built” or record drawings shall be included.
- (B) A diagram of the irrigation plan showing hydrozones shall be kept with the automatic irrigation controller for subsequent management processes.

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

Primary Designer of Record Signature

Date

Secondary Designer of Record Signature

Date

ELEMENT 3. SOIL MANAGEMENT REPORT

Attach soil management report, if not previously submitted with the Landscape Documentation Package per Section 4.3 (Performance Compliance) of the Landscape Design Manual.

Attach documentation verifying implementation of recommendations from soil analysis management report per Section 4.3 (Performance Compliance) of the Landscape Design Manual.

ELEMENT 4. IRRIGATION SCHEDULING PARAMETERS

Attach irrigation scheduling parameters used to set the automatic irrigation controller per Section 4.2 (Prescriptive Compliance) or 4.3 (Performance Compliance) of the Landscape Design Manual, as applicable.

ELEMENT 5. LANDSCAPE AND IRRIGATION MAINTENANCE SCHEDULE

Attach landscape and irrigation maintenance schedule per Section 4.3 (Performance Compliance) of the Landscape Design Manual.

ELEMENT 6. IRRIGATION AUDIT REPORT

Attach Irrigation Audit Report per Section 4.3 (Performance Compliance) of the Landscape Design Manual.

PROJECT APPLICANT SIGNATURE:

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

Project Applicant (or designee) Signature

Date

Please answer the questions below:

1. Date the Landscape Documentation Package was submitted to the City of Corona Planning and Development Department _____
2. Date the Landscape Documentation Package was approved by the City of Corona Planning and Development Department _____
3. Date that a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) was submitted to the City of Corona Planning and Development Department _____

CITY LANDSCAPE INSPECTOR SIGNATURE:

- ☐ The approved set of landscape plans issued by the City of Corona and the job card have been provided to the City Landscape Inspector during the on-site inspection.
- ☐ The fence and walls are constructed and installed per the approved set of fence and wall plans issued by the City of Corona. (This item is only required if the project development includes fence and walls.)
- ☐ The project complies with the approved landscape plan.

City Landscape Inspector Signature

Date