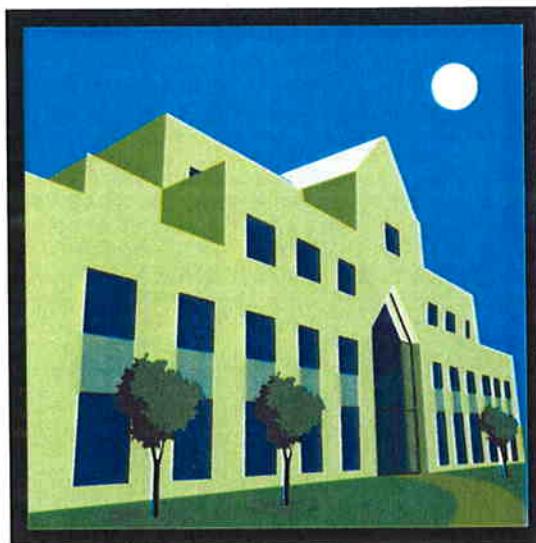


**City of Ceres**

# **WATER EFFICIENT LANDSCAPE GUIDELINES AND STANDARDS**

**Two or More Dwellings and/or  
Nonresidential Development**



*Adopted by City Council Resolution 94-27, February 28, 1994*

## City of Ceres

# WATER EFFICIENT LANDSCAPE GUIDELINES AND STANDARDS

### Section 1.0: Purpose and Intent

The purpose of these Guidelines is to establish landscaping regulations that are intended to:

- A. Enhance the aesthetic appearance of development by providing standards relating to quality, quantity, and functional aspects of landscaping and landscape screening.
- B. Increase compatibility between various land uses, particularly between residential and abutting commercial and industrial land uses.
- C. Reduce the heat and glare generated by development.
- D. Reduce water consumption in the landscape environment using conservation principles. Comply with State laws requiring local agencies to adopt water-conserving landscape standards.
- E. Protect public health, safety, and welfare by minimizing the impact of all forms of physical and visual pollution, controlling soil erosion, screening incompatible land uses, preserving the integrity of neighborhoods, and enhancing pedestrian and vehicular traffic and safety.
- F. Provide developers and property owners with a better understanding of the City's expectations regarding the design and installation of landscaping and irrigation systems as currently required by Code.
- G. Establish a system to insure that the City's interests in landscaping and irrigation systems are carried out are both cost-effective and flexible. The City Council recognizes that minor deviations may be granted to these Guidelines, whenever such deviations are more likely to satisfy the purpose and intent of the Guidelines.

### Section 2.0: Applicability

Section 3.0 of these Guidelines shall apply to the development of a lot with a single-family dwelling (including model homes) as a permitted use where the Ceres Zoning Ordinance requires the landscaping of the front yard (front setback) and exterior side yard (side setback). Section 4.0 of these Guidelines shall apply to all development projects that consist of two or more dwelling units on a single lot or lots, or nonresidential uses that are subject to the discretionary review and approval by the City of Ceres and where landscaping and irrigation systems are required by the Zoning Ordinance. Section 5.0, Definitions, and Appendix A shall apply to all developments regulated by these Guidelines.

## **Section 4.0: Landscaping for Two or More Dwellings and/or Nonresidential Development**

The following process shall be observed in conjunction with the review and approval of landscaping and irrigation plans prepared in conjunction with two or more dwelling units and/or nonresidential developments:

- A. **Concept Landscape Plan.** A concept landscape plan shall be submitted as a part of each application for a discretionary permit. The concept plan shall meet the intent of these Guidelines by exhibiting a generalized design layout which adequately demonstrates the desired landscaping program in terms of location, size/scale, function, theme, and similar attributes. The concept plan shall provide the reviewing body with a clear understanding of the landscaping program prior to the preparation of a detailed, comprehensive landscape plan.
- B. **Comprehensive Landscape and Irrigation Plan.** A comprehensive landscaping and irrigation plan shall be prepared following the approval of an application for a discretionary permit by the final decision making body. The comprehensive landscaping plan shall be submitted with the application for a building permit. The standards and guidelines below provide the guidance needed to prepare an acceptable comprehensive landscaping and irrigation plan.

## **Section 4.1: General Landscape Design Policies for Two or More Dwellings and/or Nonresidential Development**

The following landscape design policies are intended to assist the designer/landowner in understanding the City's expectations for landscaping associated with development in Ceres.

- A. Landscaping and open spaces should be designed as an integral part of the overall site plan design. Landscaping and open spaces should enhance the building design, enhance public views and spaces, provide buffers and transitions, provide for a balance of solar uses, and provide screening.
- B. Landscape design should accent the overall design theme through the use of structures such as arbors and trellises which are appropriate to the particular architectural style of adjacent structures.
- C. Landscaped areas should incorporate plantings utilizing a three tier system: (1) grasses and ground covers, including vines; (2) shrubs; and (3) trees.

D. The following are common planting design concepts that should be used whenever possible:

- specimen trees used in informal groupings and/or rows at major focal points;
- the use of native plants where possible;
- extensive use of flowering vines both on walls and arbors;
- pots, wall, or raised planters;
- the use of planting to create shadow and patterns against walls;
- trees to create canopy and shade, especially in parking areas;
- the use of flowering trees in informal groups to provide color;
- informal massing of colorful plantings;
- use of distinctive plants as focal points;
- berms, plantings, and low walls to screen parking areas from view of public rights-of-way while allowing filter views of larger buildings beyond.

E. Planting areas between walls and streets, and buildings and streets should be landscaped in a hierarchy of plants in natural formations and groupings. Solid walls three feet (3'-0") or higher should receive vines, particularly when adjacent to public streets.

F. A colorful landscape edge should be established at the base of buildings. Avoid asphalt edges at the base of structures as much as possible. Plant materials located in containers are appropriate.

G. Planting masses on-site should assume a simple, non-uniform arrangement. The diversity of massing types should be great enough to provide interest, but kept to a level which evokes a relaxed natural feeling.

H. Plants should be selected based upon their adaptability to the climatic, geological, and topographical conditions of the site. The planting of trees is encouraged, especially deciduous trees planted on the south side of buildings.

I. Plants having similar water needs should be grouped together in distinct "hydrozones" so that the irrigation system can efficiently provide adequate water supplies.

## **Section 4.2: General Landscape Requirements and Development Standards for Two or More Dwellings and/or Nonresidential Development**

The following represent the minimum requirements and development standards for the landscaping of development that consists of two or more residential units and/or nonresidential development in the City of Ceres.

A. **Water Conservation.** The design of the landscaping shall be based on one of the two following methods:

1. ***"Water Allowance" Method.*** This method involves establishing a water allowance for each site, which provides the basis for the entire landscape program. A water allowance is simply the maximum amount of water that may be applied to a landscaped area (24.6 gallons per square foot of landscaped area on an annual basis). It is determined by the evapotranspiration rate for the Ceres area, adjusted to reflect both the water consumption of the plant materials involved and the efficiency of the irrigation system. This method involves designing landscapes with a mixture of low, medium, and even high water-using plants, if desired, provided that they be maintained within the water allowance determined for each site. The principal advantage is that it permits a greater degree of flexibility in the selection and arrangement of plant materials. The methodology for the water allowance method is described in Appendix A.
2. ***"Prescriptive Format" Method.*** The prescriptive format involves selecting plant materials that fit the following predetermined formula:
  - not more than 35% of the landscaped area planted with turf.
  - balance of landscaped area to consist of at least 90% in drought tolerant plant materials and not more 10% in plant materials with medium to high water needs.

For the prescriptive format, the developer shall submit the information required in Section 3.4. No water allowance calculations need be provided as long as the landscaping by type, meets the percentages listed above. Forms for the single-family application of this method are contained in Appendix B.

While this method restricts the selection and arrangement of plant materials, its principal advantage is that it is somewhat easier to understand and to implement than the water allowance method.

B. **Trees.**

1. Minimum tree size shall be fifteen gallon (15) unless another size is specified in certain situations.
2. When more than five (5) trees are required on a site, twenty percent (20%) of all required trees shall be 24 inch box size or larger.

3. Fifteen gallon (15) trees shall be double staked and planted in accordance with city standards.
4. All 24 inch box size or larger trees shall be supported with guy wires meeting city standards.
5. Trees varieties shall be long-lived (minimum of 50 years), clean, require little maintenance and be structurally strong and disease and pest resistant.
6. Trees planted adjacent to streets, parking areas and pedestrian walkways shall have a deep rather than shallow root system and be coordinated with any street trees located within the right-of-way.
7. Trees planted in turf areas should be provided with a three foot (3') diameter clear area around the trench.
8. Trees planted in paved areas shall have a protective tree grate and shall have a deep rather than shallow root system.

C. Shrubs.

1. Eighty percent (80%) of all shrubs shall be five (5) gallon size or larger unless another size is specified in certain situations.
2. Accent plants may be one (1) gallon in size.

D. Ground Cover/Turf.

1. The size and spacing of plants used for ground cover shall be based on the requirements for the specific plants to achieve 100 percent coverage within one year from being planted.
2. Where turf is used for ground cover, concrete mow strips shall be used to separate turf areas from other landscaped areas.
3. Drought tolerant grasses should be planted in turf areas unless specific conditions prevent the selection of these species.
4. When designing landscaping for a project using the "prescriptive format" method, areas devoted to turf shall not exceed 35% of the total landscaped area. Exceptions include: public parks, cemeteries, and golf courses.
5. Turf is not permitted in narrow planting strips (areas less than eight feet (8') wide), median strips and parking strips.

6. Turf is not recommended for berms and other areas with slopes in excess of 20%. The toe of turf-planted berms or sloped areas (greater than 5%) shall be located a minimum of 24 inches behind any curb, street or walkway.
7. Turf shall not be installed within 24 inches of driveways or sidewalks unless a three inch (3") deep swale measured from the top of the hardscape is constructed at least three feet (3') back of the hardscape.

**E. Rock-Stone and Mulch.**

1. A minimum of three inches (3") of rock, gravel, or mulch (e.g. wood chips, bark, etc.) shall be required in conjunction with ground covers, shrubs and trees, provided that it does not become the dominant feature of the landscape program except for the few months after initial planting. Non-porous material such as impervious sheet plastic may not be placed under the mulch as it blocks the infiltration of rainwater and can cause runoff elsewhere on the site.
2. Inorganic materials such as rocks, stones, boulders and timbers may be incorporated into a landscape program only when used in conjunction with live plant materials and when limited to an accent feature.

**F. Planters.**

1. All planter areas shall provide positive drainage away from paved areas.
2. Planters should be separated from surrounding areas by a six inch (6") high curb of raised concrete or treated wood, or be recessed at least two inches (2") below the surrounding surface with a 4:1 slope away from any adjoining paved area.
3. All planters constructed adjacent to buildings or structures shall be designed to avoid water intrusion into the adjacent building or structure.

**G. Irrigation Systems**

1. All landscaped areas shall be provided with an approved automatic irrigation system that meets the criteria listed below:
  - Low pressure/low precipitation rate systems (e.g. drip irrigation, etc.) shall be used where high pressure/high precipitation systems are not required and a low pressure system can provide an adequate supply of water.

- Sprinkler heads irrigating turf or other high-water-demand landscape areas shall be circuited so that they are on a separate zone or zones from those irrigating trees, shrubbery or other reduced-water requirement areas.
- The system shall be designed to minimize over spray onto impervious surfaces such as sidewalks, buildings, parking areas, etc., through the use of such techniques as low-trajectory spray nozzles, underground or low-volume applicators.
- Sprinklers should not be installed immediately adjacent to sidewalks and other impervious areas but should be set inward in turf areas and other planting areas.
- Automatic irrigation controllers shall have multiple cycle capabilities; electronic controllers shall have a battery backup.
- Automatic irrigation controllers shall be programmed within the days and hours established by any water conservation program adopted by the City of Ceres.
- Rain sensing override devices shall be installed on all irrigation systems.
- Serviceable check valves are required where elevation differences may cause low head drainage.

#### **Section 4.3: Specific Landscape Requirements and Development Standards for Two or More Dwellings and/or Nonresidential Development**

A. Landscape Buffers. One of the three landscape buffers described below, intended to provide varying degrees of separation and privacy between activities located on adjoining properties, shall be provided along the perimeter of a developing property in accordance with Table 1. It is the sole responsibility of the developing property to install the landscape buffer; any participation from an adjoining property is strictly voluntary. The installation of a landscape buffer may be waived or appropriately modified by the Planning Director where existing conditions eliminate or limit the need for a landscape buffer.

Table 1  
Landscape Buffer Requirements Between Developing and Adjoining Properties

## 1. Maximum

- Masonry wall (stucco finish not recommended) six to eight feet (6'-8') high with climbing vines adjacent to wall.
- Densely planted landscape strip 10-15 feet-wide containing trees, shrubs and/or ground cover.
- Small tree varieties planted 30 feet apart or large tree varieties planted 40 feet apart.

Diagram

### **Landscape Buffer - Maximum**



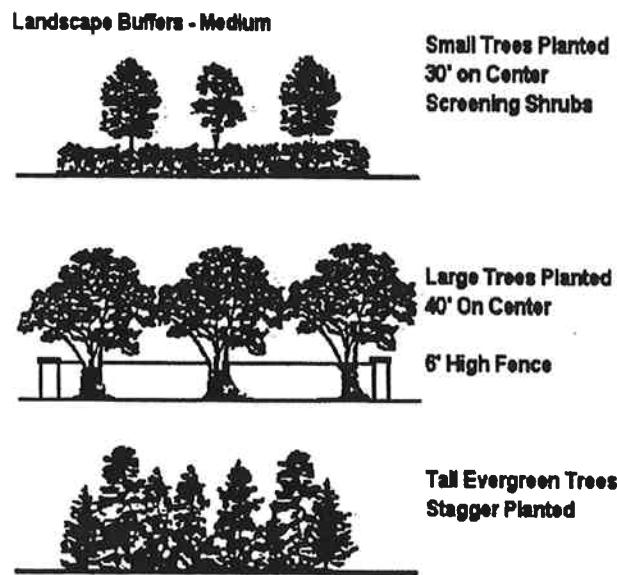
**Small Trees Planted 30' on Center**  
**Screening Shrubs**  
**6' to 8' Masonry Wall**



**Large Trees Planted 40' on Center**  
**Screening Shrubs**  
**6' to 8' Masonry Wall**

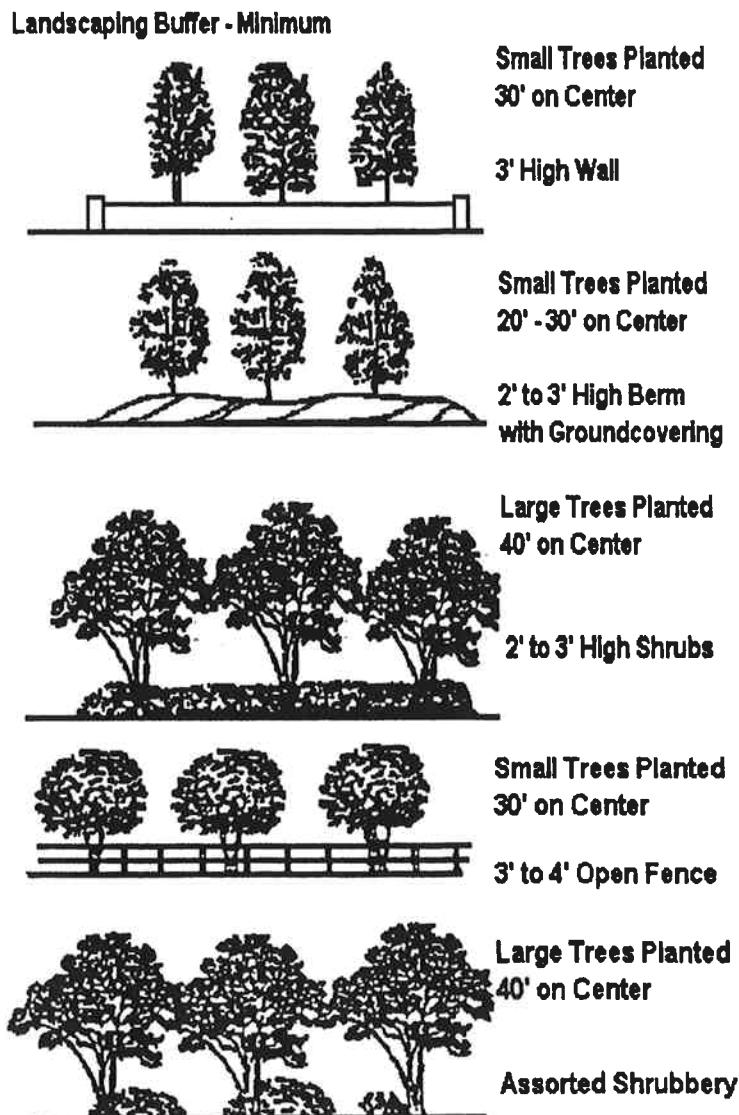
2. Medium

- Wood-pilaster fence six to eight feet (6'-8') high (densely planted evergreen hedge may be substituted with the approval of the Planning Director) with climbing vines on fence.
- Densely planted landscape strip five to ten feet (5'-10') wide containing trees, shrubs and/or ground cover. Turf not permitted in narrow planting strips (area less than 8' wide).
- Small tree varieties planted 30 feet apart or large tree varieties planted 40 feet apart.



### 3. Minimum

- Rolling berm with ground cover, preferably with low spreading shrubs, two to three feet (2'-3') high, or open fence three to four feet (3'-4') high , or evergreen hedge two to three feet (2'-3') high (see Section 4.2, D. Ground Cover/Turf for more detail).
- Sparsely planted landscape strip three to five feet (5') wide containing trees, shrubs and accent plants or non plant materials (e.g. rocks, boulders, etc.).
- Small tree varieties planted 30 feet apart or large tree varieties planted 40 feet apart.



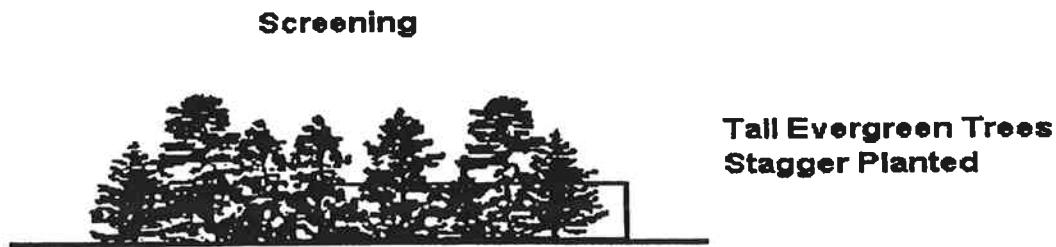
B. Sound Walls. Sound walls are identified in the Noise Element as a feasible method to mitigate the excessive noise generated on the city's expressways, arterials and high-volume collector streets. Landscaping is needed to make these noise barriers a community asset and to prevent them from becoming graffiti covered visual blight. As a result, the standards described below shall apply to the installation of sound walls.

- Masonry wall (stucco finish not permitted) eight to ten feet (8'-10') high with climbing vines adjacent to wall.
- Densely planted landscape strip ten feet (10') wide containing trees, shrubs and/or ground cover (landscape strips less than ten feet (10') wide may be considered if the density of plants is increased).
- Small tree varieties planted 30 feet apart or large tree varieties planted 40 feet apart.



C. **Screening Requirements.** All trash and refuse containers, areas provided for the storage and collection of recyclable materials, outdoor storage areas, transformers, backflow, metering devices, and ground mounted equipment or devices shall be screened from public view using walls or fences and supplemented by evergreen trees, shrubs and vines where possible. Plant materials used for screening shall meet the size and spacing standards described below.

- Trees - 24 inch box planted 10 feet (10') apart.
- Shrubs - five (5) gallon planted at a minimum of three feet (3') apart.
- Vines - five (5) gallon planted at a minimum of five feet (5') apart.



D. Trash/Refuse Containers and Recyclable Materials Storage and Collection. In addition to the screening requirements outlined in C. above, areas provided for the storage and collection of recyclable materials shall be sized in accordance with the applicable table below. Materials such as paper, cardboard, or similar materials that are adversely affected by the rain shall be protected either by covering the area or the materials themselves.

Residential Development:

<u>No. Units</u>	<u>Trash/ Refuse (sq. ft.)</u>	<u>Recyclable Materials (sq. ft.)</u>	<u>Total Area (sq. ft.)</u>
2 - 6	12	12	24
7 - 15	24	24	48
16 - 25	48	48	96
26 - 50	96	96	192
51 - 75	144	144	288
76 - 100	192	192	384
101+	Every additional 25 dwelling units shall require an additional 48 sq. ft. for trash and 48 sq. ft. for recyclable materials.		

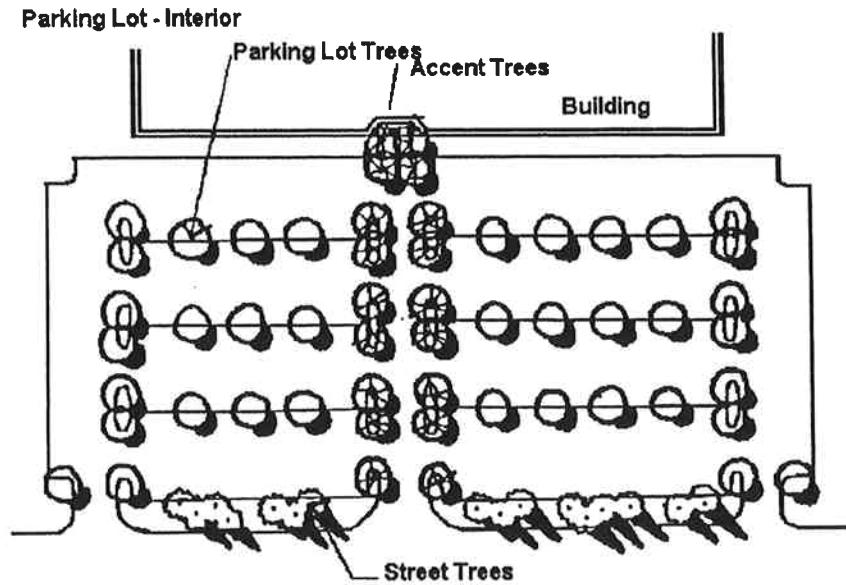
Nonresidential Development:

<u>Bldg. Size (sq. ft.)</u>	<u>Trash/ Refuse (sq. ft.)</u>	<u>Recyclable Materials (sq. ft.)</u>	<u>Total Area (sq. ft.)</u>
0 - 5,000	12	12	24
5,000 - 10,000	24	24	48
10,001 - 25,000	48	48	96
25,001 - 50,000	96	96	192
50,001 - 75,000	144	144	288
75,001 - 100,000	192	192	384
100,000+	Every additional 25,000 sq. ft. of floor area shall require an additional 48 sq. ft. for trash and 48 sq. ft. for recyclable materials.		

E. Parking Lots. Not less than five percent (5%) of the interior (within the perimeter of the parking lot) of all off-street parking lots with five (5) or more spaces as described below shall be landscaped. The landscaping of parking lots should be integrated and consistent with the landscaping provided for other areas of a property.

1. Interior

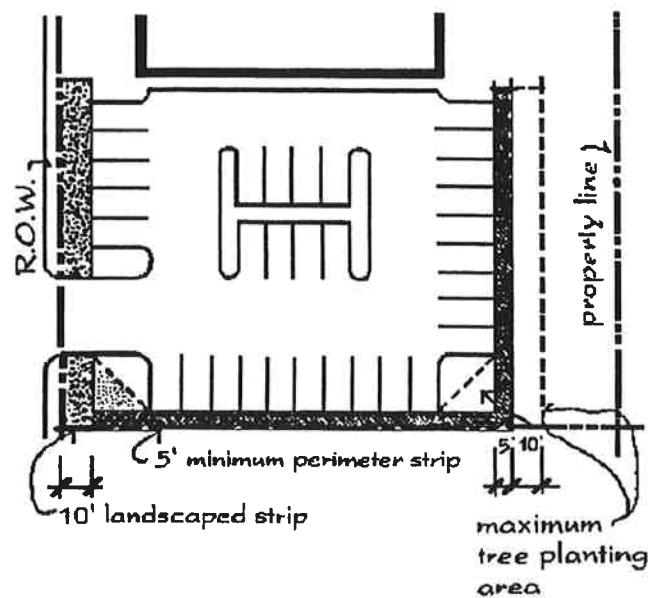
- One tree for every eight parking spaces.
- All portions of parking lots not used for parking, maneuvering or pedestrian access shall be landscaped with a mixture of ground cover, trees, shrubs or other plants.
- Landscaped areas shall be enclosed by a four inch (4") high by six inch (6") wide continuous concrete curb.
- Landscaped tree islands shall have a minimum dimension of four feet (4'), exclusive of curbing (six feet (6') if curb also used as a wheel stop).
- A mixture of trees is recommended -- no more than three predominant tree types.
- Plants that restrict vehicular or pedestrian visibility shall be avoided.



## 2. Perimeter - Non street Frontage

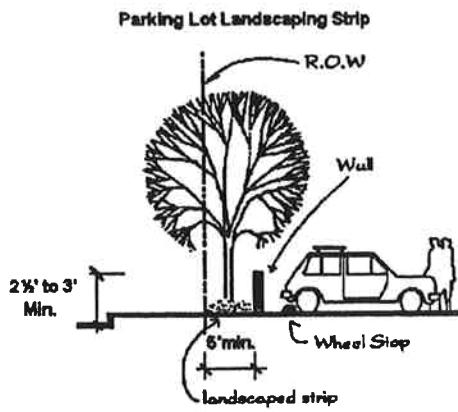
- Appropriate landscape buffers shall be provided where a parking lot adjoins a site with use requiring buffer.
- Landscaped strip five to ten feet (5'-10') wide (six feet (6') if curb also used as a wheel stop) planted with ground cover and one (1) tree and five (5) shrubs for each 35 linear feet of perimeter; or alternatively a perimeter landscaped strip three feet (3') wide integrated with landscaped tree islands (eight feet (8') wide and 15 feet long) at a rate of one for each eight parking spaces.
- Landscaped areas shall be enclosed by a four inch (4") high by six inch (6") wide continuous concrete curb.
- A mixture of trees is recommended -- no more than three (3) predominant tree types.
- Plants that restrict vehicular or pedestrian visibility shall be avoided.

Parking Lot Perimeter - Non Street Frontage

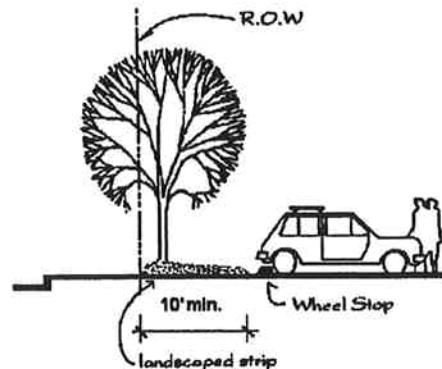


### 3. Perimeter - Street Frontage

- Landscaped strip ten feet (10') wide between right-of-way and parking lot planted with ground cover and one (1) tree and ten (10) shrubs for each 35 linear feet of frontage, excluding driveway openings; or alternatively a landscape strip five feet (5') wide containing a masonry wall, wood-pilaster fence, or hedge or combination not less than 30 inches nor more than 36 inches in height and planted with spreading shrubs, one (1) tree and ten (10) shrubs for each 35 linear feet of frontage.
- Landscaped areas shall be enclosed by a four inch (4") by six inch (6") high continuous concrete curb.
- Street trees where appropriate.
- Plants that restrict vehicular or pedestrian visibility shall be avoided -- clear vision triangles (street and other motor vehicle intersections) shall be observed.
- Landscaping should be integrated with project signs where possible.
- Landscaping (e.g. accent trees, etc.) should be used to emphasize and highlight the major entryway to a property.



plant landscaped strip along street frontage with a minimum of one shade tree per 35 linear feet



plant landscaped strip along street frontage with a minimum of one shade tree per 35 linear feet

F. Yards, Setbacks and Open Spaces. All yards, setbacks, and open spaces not otherwise devoted to parking or walkways shall be landscaped in accordance with the minimum standards described below. Landscaping along street frontages shall be extended into the right-of-way and/or public utility easement to the sidewalk. The width of any landscaped areas in the right-of-way, including parkway strips, shall be excluded when calculating the width of any minimum frontage landscaping strip.

1. Residential - Two or More Units

- Front, side and rear yards shall be landscaped with ground cover and one (1) tree and ten (10) shrubs for each 35 linear feet of frontage.
- Street trees shall consistent with Ceres Street Tree Program.

2. Nonresidential

- Landscaped strip ten feet (10') wide located along any street frontage planted with ground cover and one (1) tree and ten (10) shrubs for each 35 linear feet of frontage.
- Special treatment should be given the frontage landscaping of at the intersection of the city's major streets.
- Street trees shall consistent with Ceres Street Tree Program.

G. Building Perimeter Landscaping. Landscaping around all buildings in accordance with the guidelines below shall be provided, with the exception of single-family residential buildings, window display areas (retail uses) and areas where sidewalks abut buildings.

- Trees and vines should be planted to soften large, plain building walls.
- Tree planting shall not obscure entryways, walkways, or signs.
- Ten-foot (10') wide planting area required for trees; four-foot (4') wide planting area required for shrubs and ground cover.

**Section 4.4: Comprehensive Landscape and Irrigation Plan Requirements for Two or More Dwellings and/or Nonresidential Development**

All Comprehensive Landscape and Irrigation Plans and associated construction documents shall indicate the information listed below.

Plans shall be drafted at a scale sufficient to adequately show plant and irrigation detail and shall not exceed 30" x 42", or be less than 24" x 36". The landscape plan plant symbols shall reflect the size of plants three (3) to four (4) years after planting. Comprehensive Landscape and Irrigation Plans must be prepared by a licensed landscape architect, landscaped contractor, or other competently trained professional recognized by the State of California to prepare landscape and irrigation plans. State regulations permit a property owner to prepare a landscape and irrigation plan for his or her own property.

A. Project Information.

1. Project name and file number.
2. Landscape designer's name, address, phone number, and professional credentials (license, etc.).
3. North arrow and scale.
4. Site plan drawn to scale indicating:
  - property lines, right-of-way line(s) and easements.
  - buildings (proposed and/or existing).
  - parking areas, pedestrian areas, and walkways.
  - trash enclosures, above ground utilities (transformers, detector check valves, etc.).
  - sign locations.
  - existing trees and significant vegetation stands.
  - all proposed hardscape.
  - drainage features.

B. Landscape Plan and Planting Program.

1. All landscape plans shall include, at a minimum, the following information:
  - turf and/or ground cover areas and number and location of shrubs.
  - tree locations; trees are to be identified by general description (8' tall vertical, broad-spreading canopy, accent, evergreen, deciduous, etc.).
  - Proposed plant palette with botanical and common name, sizes, and total number proposed.
  - staking and/or guying for trees.
  - raised planters, including drains.
2. A tabulation of landscape square footage and percentage of site devoted to:
  - net lot area.
  - area occupied by buildings and structures.
  - parking lot (if applicable).
  - turf areas.
  - other landscaped areas.
  - number of parking lot trees provided (if applicable).

3. An identification of the method used to insure water efficient landscaping (water allocation or prescriptive formula, See Section 4.2, General Requirements and Minimum Development Standards).

- water allowance - annual water use requirement (within 0.8 of adjusted ETo, include data to document water use).
- prescriptive format - list percentages of landscaped area with plants in common water consumption category.

C. Irrigation Plan.

1. The type and location of all equipment, heads, valves, backflow-preventer(s), etc., including:

- automatic irrigation controllers.
- rain switches.
- location and size and type of all non-pressure and pressure lines.
- location of connections.
- water service line, size and location.
- system design water pressure and existing static water pressure.
- site grading showing finished configurations, slopes, elevations and drainage patterns of the landscaped area.
- moisture sensors if used.

2. All equipment is to be identified by manufacturer's name, model number and size if applicable.
3. All heads and/or emitters are to be identified by manufacturer, model number, pattern, radius, and GPM or GPH demand.
4. All control valves are to indicate manufacturer, model number, size and estimate GPM demand at each valve.
5. An irrigation schedule for an entire year, organized by season, that shows the estimated annual water consumption.

D. Maintenance and Fertilization Schedule.

1. All landscape plans shall include the landscape designer's annual maintenance and fertilization recommendations.

E. Designer's Certification. The individual preparing the Comprehensive Landscape and Irrigation Plan shall sign and certify that the plans submitted to the City of Ceres meet the city's Water Efficient Landscape Guidelines and Standards.

#### **Section 4.5: Maintenance Standards for Two or More Dwellings and/or Nonresidential Development**

- A. **Maintenance**. Maintenance of approved landscaping shall consist of regular watering, mowing, pruning, fertilizing, clearing of debris and weeds, the removal and replacement of dead plant materials, and the repair and replacement of irrigation systems or components as necessary to sustain all plant materials in a neat, clean, and healthy condition.
- B. **Landscape and Property Maintenance Agreement**. Prior to issuance of a final building permit, the property owner shall file a Landscape and Property Maintenance Agreement, subject to the approval of the Director of Planning and Community Development. The requirement to file a Landscape and Property Maintenance Agreement shall not apply to the construction of a detached single-family residence. The agreement shall ensure that if the landowner, or subsequent owners, fails to maintain the required/ installed site improvements, the City will have the ability to file an appropriate lien(s) against the property in order to accomplish the required maintenance.

## Section 5.0: Definitions

"Estimated applied water use" means the amount of the water recommended (based upon the irrigation schedule.)

"ET adjustment factor" is the plant factor divided by irrigation efficiency. This factor is used to calculate the maximum water allowance. The plant factor is based on a site-wide average of 0.5. The irrigation efficiency factor for the ET Adjustment Factor is 0.625. Therefore, the ET Adjustment Factor (0.8) = (0.5 / 0.625).

"Hydrozone" means a portion of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule.

"Irrigation efficiency" means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum irrigation efficiency being used is 0.625. Greater irrigation efficiency can be expected from well designed and maintained systems.

"Landscaped area" means the entire parcel including water features such as ponds, fountains, swimming pools, and spas; less the building footprint, driveways, non-irrigated portions of parking lots, hardscapes- such as decks and patios, and other non-porous areas.

"Maximum applied water allowance" means, for design purposes, the upper limit of annual applied water for the established landscaped area. It is based upon the area's reference evapotranspiration, the "ET adjustment factor", and the size of the landscaped area. The "estimated applied water use" shall not exceed the "maximum applied water allowance."

"Plant factor" means a factor that when multiplied by reference evapotranspiration, estimates the amount of water used by plants. The average plant factor of low water using plants ranges from 0 to 0.3; for medium water using plants, the range is 0.4 to 0.6; and for high water using plants, the range is 0.7 to 1.0.

"Reference evapotranspiration" or "ETo" means a standard measurement of environmental parameters which affect the water use of plants. ETo is given in inches per day, month, or year as represented below, and is an estimate of the evapotranspiration of a large field of four- to seven-inches tall, cool season grass that is well watered. Reference evapotranspiration is used as the basis of determining the maximum water allowances so that regional differences in climate can be accommodated.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
0.9	1.4	3.2	4.7	6.4	7.7	8.1	6.8	5.0	3.4	1.4	0.7	49.7

"Turf" means single bladed grass or sod. Bermuda grass, Kikyu grass, Seashore paspalum, St. Augustine grass, Zoysia grass, and Buffalo grass are warm-season grasses. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses.

## APPENDIX A WATER ALLOWANCE METHOD

### PURPOSE

This method allows the greatest flexibility, but requires the most work and a good understanding of plant and irrigation systems.

Method:

If the landscape design of a project is based upon establishing a water allowance, rather than a prescriptive format, then a "maximum applied water allowance" must be calculated as well as a "total estimated applied water use".

A project's "maximum applied water allowance" shall be calculated utilizing the State's formula.

MAWA =  $(ETo) * (0.8) * (LA) * (0.62)$  where:

MAWA = Maximum Applied Water Allowance (gallons per year)  
ETo = Reference Evaporation (inches per year) 49.7  
0.8 = ET Adjustment Factor (0.5 site wide average plant factor/0.625  
irrigation irrigation efficiency).  
LA = Landscaped Area  
0.62 = Conversion Factor (to gallons per square foot)

The "total estimated applied water use" may be calculated by summing the estimated water use of all hydrozones in the landscaped area.

EWU (hydrozone) =  $\frac{(Eto) * (PF) * (HA) * (.62)}{(IE)}$

EWU (hydrozone) = Total Estimated Water Use (gallons per year)  
ETo = Reference Evapotranspiration  
PF = Plant Factor  
HA = Hydrozone Area (square feet)  
.62 = Conversion Factor  
IE = Irrigation Efficiency

The "total estimated applied water use" may not exceed the "maximum applied water allowance." An exception to this is where turf areas may serve as recreational purposes and may require water in addition to the "maximum applied water allowance." Portions of landscaped areas in public and private projects such as parks, playgrounds, sports fields, or golf courses where turf provides a playing surface or serves other recreational purposes are considered recreational areas. A statement shall be included with the landscape design plan, designating recreational areas to be used for such purposes and specifying any needed amount of additional water above the maximum applied water allowance.



APPENDIX A

# CITY OF CERES

## LANDSCAPE AND IRRIGATION PLAN

\_\_\_\_\_  
(address)

### WATER ALLOWANCE CALCULATION SHEET

1. Square footage of lot = \_\_\_\_\_ sq. ft.
2. Square footage of house (garage included) = \_\_\_\_\_ sq. ft.
3. Square footage of driveways, patios, decks, walkways = \_\_\_\_\_ sq. ft.

LANDSCAPE AREA 1 - 2 - 3 = \_\_\_\_\_ sq. ft.

Lawn Area \_\_\_\_\_ sq.ft. ÷ Landscape Area = \_\_\_\_\_

High Water Use  
Landscaped Area \_\_\_\_\_ sq.ft. ÷ Landscape Area = \_\_\_\_\_

Medium Water Use  
Landscaped Area \_\_\_\_\_ sq.ft. ÷ Landscape Area = \_\_\_\_\_

Low Water Use  
Landscaped Area \_\_\_\_\_ sq.ft. ÷ Landscape Area = \_\_\_\_\_

Non-Plant Area \_\_\_\_\_ sq.ft. ÷ Landscape Area = \_\_\_\_\_

MAXIMUM APPLIED WATER ALLOWANCE  
(See Appendix A) = \_\_\_\_\_

TOTAL ESTIMATED WATER USE  
(See Appendix A) = \_\_\_\_\_

## **APPENDIX B**

### **PRESCRIPTIVE METHOD**

#### **PURPOSE**

This method can be used when a person wishes to do something other than the standard plans and does not wish to use a full order allocation method.

#### **Method:**

1. A plot plan needs to be completed. A copy of the plot plan submitted with the building permit showing the areas to be landscaped the type of landscaping is acceptable. For rectangular lots, a plan such as attached hereto can be used.
2. The calculation sheet needs to be completed. When calculating the percentages of the various water use landscape areas, it is important to use the landscaped area not the total lot area.
3. Verify that the landscape area is less than the percentages shown on the right of the calculation sheet. If they are, then the plan will meet the requirements of this policy. If not, the areas must be readjusted and recalculated until they do.



APPENDIX B

# CITY OF CERES

## LANDSCAPE AND IRRIGATION PLAN

\_\_\_\_\_  
(address)

### PRESCRIPTIVE METHOD CALCULATION SHEET

1. Square footage of lot = \_\_\_\_\_ sq. ft.
2. Square footage of house (garage included) = \_\_\_\_\_ sq. ft.
3. Square footage of driveways, patios, decks, walkways = \_\_\_\_\_ sq. ft.

SUBTOTAL \_\_\_\_\_ sq. ft.

LANDSCAPE AREA 1 - (2 + 3) = \_\_\_\_\_ sq. ft.

1. Lawn Area \_\_\_\_\_ sq.ft. ÷ Landscape Area = \_\_\_\_\_ ≤ 35.0%
2. Balance of Landscaped Area
  - a. Medium and High Water Use Landscaped Area \_\_\_\_\_ sq.ft. ÷ Landscape Area = \_\_\_\_\_ ≤ 6.5%
  - b. Low Water Use Landscaped Area \_\_\_\_\_ sq.ft. ÷ Landscape Area = \_\_\_\_\_ ≤ 58.5%
3. a. Non-Landscaped Area \_\_\_\_\_ sq.ft. ÷ Landscape Area = \_\_\_\_\_



## APPENDIX D PLANT LIST

### Information Compiled From the Wucols Project: Water Use Classification of Landscape Species

The list of landscape plants are identified by both botanical name and common name. It is divided into five vegetation types:

- Trees
- Shrubs
- Groundcovers
- Vines
- Perennials, Ferns, Grasses, and Bulbs

Water need evaluations are listed for each species. Symbols are defined as follows:

- H = High
- M = Moderate
- L = Low
- VL= Very Low

The species are grouped according to water use needs.

## CITY OF CERES

The species listed tend to do well in the Ceres area.  
Most of the species are readily available from local suppliers.

### TREES

COMMON NAME	BOTANICAL NAME	WATER REQUIREMENT
Desert Willow	<i>Chilopsis linearis</i>	VL
Madrone	<i>Arbutus menziesii</i>	VL
Oleander	<i>Nerium oleander</i>	VL
Bottle Brush	<i>Callistemon citrinus</i>	L
California Black Walnut	<i>Juglans hindsii</i>	L
Carob	<i>Ceratonia siliqua</i>	L
Chinese Pistache	<i>Pistacia chinensis</i>	L
Cork Oak	<i>Quercus suber</i>	L
Crape Myrtle	<i>Lagerstroemia indica</i>	L
Glossy Privet	<i>Ligustrum fucidum</i>	L
Hopseed Bush	<i>Dodonaea viscosa</i>	L
Italian Stone Pine	<i>Pinus pinea</i>	L
Majestic Beauty	<i>Rhaphiolepis "Majestic Beauty"</i>	L
Russian Olive	<i>Elaeagnus angustifolia</i>	L
Saw Leaf Zelkova	<i>Zelkova serrata</i>	L
Strawberry Tree	<i>Arbutus unedo</i>	L
California Sycamore	<i>Platanus racemosa</i>	M
Camphor Tree	<i>Cinnamomum camphora</i>	M
Chinese Hackberry	<i>Celtis sinensis</i>	M
Chinese Tallow Tree	<i>Sapium sebiferum</i>	M
Deodar Cedar	<i>Cedrus deodora</i>	M
Eastern Redbud	<i>Cercis canadensis</i>	M
Fraser Photinia	<i>Photinia X fraseri</i>	M
Holly Oak	<i>Quercus ilex</i>	M
Incense Cedar	<i>Calocedrus decurrens</i>	M
Japanese Black Pine	<i>Pinus thunbergiana</i>	M
Maiden Hair Tree	<i>Ginkgo biloba</i>	M
Mayten tree	<i>Maytenus boaria</i>	M
Monkey Puzzle Tree	<i>Araucaria araucana</i>	M
Moraine Ash	<i>Fraxinus "Moraine"</i>	M
Pin Oak	<i>Quercus palustris</i>	M
Podocarpus	<i>Podocarpus latifolius</i>	M
Raywood Ash	<i>Fraxinus oxycarpa "Raywood"</i>	M
Yew Pine	<i>Podocarpus macrophyllus</i>	M
Southern Magnolia	<i>Magnolia grandiflora</i>	H

## SHRUBS

COMMON NAME	BOTANICAL NAME	WATER REQUIREMENT
Oleander	<i>Nerium oleander</i>	VL
Western Redbud	<i>Cercis occidentalis</i>	VL
Bush Anemone	<i>Carpenteria californica</i>	L
Ceanothus	<i>Ceanothus cuitivars</i>	L
Cotoneaster	<i>Cotoneaster spp.</i>	L
Coyote Brush	<i>Baccharis pilularis consanguinea</i>	L
Crape Myrtle	<i>Lagerstroemia indica (dwarfs)</i>	L
Evergreen Euonymus	<i>Euonymus japonica</i>	L
Fortnight Lily	<i>Dites bicolor</i>	L
Heavenly Bamboo	<i>Nadina domestica</i>	L
Lily-of-the-Nile	<i>Agapanthus africanus</i>	L
Manzanita	<i>Arctostaphylos spp.</i>	L
Manzanita cuitivars	<i>Arctostaphylos cuitivars</i>	L
Mediterranean Fan Palm	<i>Chamaerops humilis</i>	L
Pampas Grass	<i>Cortaderia sellowiana cvs.</i>	L
Pineapple Guava	<i>Feijoa sellowiana</i>	L
Rosemary	<i>Rosmarinus officinalis</i>	L
Russian Olive	<i>Elaegnus angustifolia</i>	L
Shiny Xylosma	<i>Xylosma congestum</i>	L
Angel Wing Jasmine	<i>Jasminum nitidum</i>	M
Bougainvillea	<i>Bougainvillea (shrub cvs.)</i>	M
Burford Holly	<i>Ilex conuta "Burfordii"</i>	M
Camellia	<i>Camellia japonica</i>	M
Double Mock Orange	<i>Phildelphus X virginicus</i>	M
Dwarf Pittosporum	<i>Pittosporum tobira "Wheelers Dwarf"</i>	M
Escationia	<i>Escationia spp.</i>	M
Evergreen Mock Orange	<i>Phildelphus mexicanus</i>	M
Evergreen Pittosporum	<i>Pittosporum crassifolium</i>	M
Gardenia	<i>Gardenia spp.</i>	M
Heavenly Bamboo (Nana)	<i>Nadina domestica 'Purpurea'</i>	M
Italian Jasmine	<i>Jasminum humile</i>	M
Lantana	<i>Lantana camera</i>	M
Mock Orange	<i>Pittosporum tobira</i>	M
Photinia	<i>Photinia X fraseri</i>	M
Primrose Jasmine	<i>Jasminum mesnyi</i>	M
Rose	<i>Rosa hybirds</i>	M
Wilson Holly	<i>Ilez X altaclarensis "Wilsonii"</i>	M
Yew Pine	<i>Podocarpus macrophyllus</i>	M
Bog Rosemary	<i>Andromeda polifolia</i>	H
Hydrangea	<i>Hydrangea macrophylla</i>	H

## GROUND COVERS

COMMON NAME	BOTANICAL NAME	WATER REQUIREMENT
African Daisy	Osteospermum spp.	L
Ceanothus	Ceanothus cuitvars	L
Cotoneaster	Cotoneaster spp.	L
Dwarf Coyote Brush	Baccharis pilularis cvs.	L
Gazania	Gazania spp.	L
Ice Plant (Lampranthus)	Aptenia Cordifolia - Lampranthus	L
Lantana	Lantana montevidensis	L
Manzanita	Arctostaphylos spp.	L
Manzanita (cvs)	Arctostaphylos cuitivars	L
Rockrose	Cistus spp.	L
Trailing Rosemary	Rosemannus prostratus	L
Boston Ivy	Parthenocissus tricuspidata	M
Bougainvillea	Bougainvillea spp.	M
Ice Plant (Carpobrotus)	Aptenia Cordifolia - carpobrotus	M
Mondo Grass	Ophiopogon japonicum	M
Periwinkle	Vinca minor	M
Periwinkle	Vinca major	M
Star Jasmine	Trachelospermum jasminoides	M
Virginia Creeper	Parthenocissus quinquefolia	M

## VINES

COMMON NAME	BOTANICAL NAME	WATER REQUIREMENT
Cat's Claw	Mactadyena unguis-cati	L
Trumpet Creepers	Campsis spp.	L
Wisteria	Wisteria spp.	L
Blood Red Trumpet Vine	Distictis buccinatona	M
Boston Ivy	Parthenocissus tricuspidata	M
Bougainvillea	Bougainvillea spp.	M
Climbing Roses	Rosa other-climbing spp.	M
Creeping Fig	Ficus pumila	M
English Ivy	Hedera nelix	M
Star Jasmine	Trachelospermum jasminoides	M
Virginia Creeper	Parthenocissus quinquefolia	M

PERENNIALS, FERNS, GRASSES, AND BULBS

COMMON NAME	BOTANICAL NAME	WATER
Daffodil	<i>Narcissus</i> spp.	VL
Bearded Iris	<i>Iris</i> spp.	L
California Poppy	<i>Eschscholzia californica</i>	L
Dusty Miller ( <i>Gymnosperma</i> )	<i>Centaurea gymnosperma</i>	L
Fortnight Lily	<i>Dietes vegeta</i>	L
Gazania	<i>Gazania</i> spp.	L
Lantana	<i>Lantana montevidensis</i>	L
Lily-of-the-Nile	<i>Agapanthus africanus</i>	L
Verbena	<i>Verbena hybrida</i>	L
African Daisy	<i>Arctotis hybrida</i>	M
Mondo Grass	<i>Ophiopogon japonicum</i>	M
Society Garlic	<i>Tulbaghia violacea</i>	M

