



Model Landscape Ordinance

The Alliance for Water Awareness and Conservation (AWAC) believes water conservation is of prime importance. This ordinance focuses on new residential construction, and commercial and industrial landscaping.

AWAC members have worked to create a model landscape ordinance with a regional approach. This ordinance recognizes the diverse needs and resources of the communities within the MWA service area and offers public agency flexibility in conservation methods and goals.

This ordinance requires tract homes and custom or “spec” homes to install landscaping and water efficient irrigation in the front yard before a certificate of occupancy is issued. This also allows an ordinance to be used as a “beautification” ordinance.

This ordinance combines successful methods and best management practices from adopted ordinances that are suitable for the High Desert. The ordinance offers two approaches to the applicant, a turf limitation approach and a water budget approach.

Turf/Water Intensive Landscaping Limitation

The Turf/Water Intensive Landscaping Limitation method, offers an easy approach to water conservation in the landscape. This requires the homeowner or landscaper to provide a simple landscape plan to the regulating agency. Water conservation goals are achieved by:

- Limiting total area of water intensive landscaping/turf to not more than 30% of the landscaped area (up to a maximum of 900 square feet);
- Using only low water use plants (AWAC list) on all additional landscaped areas; and,
- Installing low volume irrigation systems on landscaped areas.

Water Budget

The Water Budget method is more complicated and may require the services of a licensed landscape architect or landscaping professional. This approach utilizes the WUCOLS III method of estimating irrigation water needs in the landscape. This may be a more desirable approach for larger developments, offering more landscaping options. The AWAC water budget exceeds the requirements of the AB 1881 compliant statewide Model Water Efficient Landscape Ordinance by applying a stricter ET adjustment factor of 0.40 compared to the state's 0.70 ET adjustment factor.

This ordinance can be adapted to each jurisdiction's needs. Included in the document are appendices with material to aid a jurisdiction including:

- The AWAC plant list;
- The water budget calculation worksheet;
- Suggested enforcement and violation penalties; and,
- AWAC landscaping information.

Please submit your comments to:

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ORDINANCE NO: _____

**“AN ORDINANCE OF THE *PUBLIC ENTITY* RELATING TO
WATER EFFICIENT LANDSCAPING REQUIREMENTS
AND DECLARING THE URGENCY THEREOF”**

WHEREAS, continued overdraft of the groundwater and the limited supply of regional waters has resulted in a challenging water situation; and

WHEREAS, the rapid growth throughout the High Desert has placed and continues to place a substantial strain on the water resources of the Mojave Water Agency; and

WHEREAS, economic prosperity depends on adequate supplies of water; and

WHEREAS, the *Public Entity* finds that it is in the best interest of *Public Entity* to enact an Ordinance promoting water efficient landscapes by requiring permits and posing restrictions on the design, installation and maintenance; and

WHEREAS, education of the public is recognized as a critical component in securing an adequate water supply for the area; and

WHEREAS, the Alliance for Water Awareness and Conservation used its extensive knowledge of water conservation in the preparation of this Ordinance.

NOW, THEREFORE, THE *PUBLIC ENTITY* DOES HEREBY ORDAIN AS FOLLOWS:

Chapter XXXXX

LANDSCAPE WATER CONSERVATION

Section 1. Title

This Chapter shall be known and may be cited as the *Public Entity* Landscape Water Conservation Ordinance.

Section 2. Purpose and Intent

In accordance with Water Conservation in the Landscaping Act (GOVERNMENT CODE SECTIONS 65591, et Seq.) the purpose and intent of this Ordinance is to:

1. Promote the values and benefits of landscapes while recognizing the need to utilize water and other resources as efficiently as possible.
2. Establish a structure for designing permitting, installing and maintaining water efficient landscapes in new projects.
3. Establish provisions for water management practices and water waste prevention for established landscapes.
4. Implement procedures required to maximize the beneficial use of the available water resources to the extent capable and that the waste or unreasonable use or unreasonable method of use, of water, be prevented and the conservation of such water is to be extended with a view to the reasonable and beneficial use thereof in the interests of the people of *Public Entity*.

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Section 3. Definitions

The words used in this Ordinance and Chapter have the meanings set forth below:

Application Rate means the depth of water applied to a given area, usually measured in inches per hour.

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

Automatic Controller means a mechanical or solid state timer, capable of operating valve stations to set the days and length of time of a water application.

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

Bubbler Emitter – See Low Volume Irrigation Systems

Check Valve means a valve located under a sprinkler head to hold water in the system so it minimizes drainage from the lower elevation downstream sprinkler heads.

Commercial refers to the purchase, sale or other transaction involving the handling or disposition of any article, substance, service or commodity (except as included hereafter under “industrial”) for profit or livelihood.

Distribution Uniformity – A measure of how evenly sprinklers apply water. The distribution uniformity low quarter (DULQ) measurement method utilized in the irrigation audit procedure is utilized for the purposes of this Ordinance. This Ordinance assumes an attainable performance level of 75% DULQ for spray heads, 80% DULQ for rotor heads and 85% DULQ for recreational turf grass rotor heads.

Drip Emitter – See Low Volume Irrigation System

Duplex- means a building designed and used for occupancy by two families, both living independently of each other.

Electric Automatic Controllers refers to time clocks that have the capabilities of multi-programming and multiple start times in order to control amount of water applied to landscaping.

Emission Uniformity – A measure of how evenly drip and micro spray emitters apply water. The low quarter measurement method (EULQ) utilized in the landscape irrigation evaluation procedure is used for the purpose of this Ordinance. This Ordinance assumes 90% DULQ for drippers, micro sprays, and pressure compensated bubblers.

Established Landscape means the point at which new plants in the landscape have developed roots into the soil adjacent to the root ball.

Establishment Period means the first year after installing the plant in the landscape.

ET Adjustment Factor means a factor of .40 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.

Evapotranspiration or ET means the quantity of water evaporated from adjacent soil surfaces and transpired by plants expressed in inches for a specific time.

Hardscapes shall mean any inorganic decorative landscape materials, including but not limited to, stones, boulders, cobbles, pavers, decorative concrete and/or mulch, incorporated into an overall landscape design.

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. A Hydrozone may be irrigated or non-irrigated. For example: A naturalized area planted with native vegetation that will not need supplemental irrigation (once established) is a non-irrigated Hydrozone.

Industrial refers to the manufacture, fabrication, processing, storage, reduction or destruction of material, or any other treatment to change the form character or appearance thereof.

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

Institutional refers to a facility having public character such as a school, church or hospital.

Irrigation Efficiency- 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 for purposes of these regulations is 75%.

Landscape Area shall mean the entire parcel less the building footprint, driveways, and non-irrigated portions of parking lots including hardscapes, such as decks, patios and other non-porous areas. Water features (including pools and ponds) are included in the calculation of the landscaped area. Areas dedicated to edible plants, such as orchards or vegetable gardens, are not included.

Landscape Documentation Package to include (1) Information on annual irrigation program (with schedule) including timer based and ET controllers; (2) Manufacturer information on component parts; (3) System design information; (4) Final planting and irrigation plan; and (5) Water use application projection (Water Budget).

Landscape Irrigation Audit shall mean a process to perform site inspections, evaluate irrigation systems and develop efficient irrigation systems. At a minimum, the Audit shall be in accordance with the California Landscape Water Management Program as described in the Landscape Irrigation Auditor Handbook, the entire document which is hereby incorporated by reference. (See Landscape Irrigation Auditor Handbook, Department of Water Resources, Water Conservation Office, most recent version).

Landscape Plans shall mean planting plans notes, details and specifications as well as irrigation plans, notes, details and specifications.

Landscaping and/or Landscaping Improvements refers to plantings of turf grass, shrubs, trees or similar living plants, with minimal use of other ground surface treatment such as decorative rock, bark or stone. These inert materials are allowed to be used in conjunction with live material in planting beds, but do not count toward the calculations of required landscaping and/or landscaping improvements.

Low Volume Irrigation Systems shall mean appropriately designed irrigation systems that utilize low volume devices appropriate to the climatic and site factors. Such heads include micro sprinkler heads, drip emitters and bubbler emitters.

Low Water Use Plant Material means trees, shrubs and ground covers that survive with a limited amount of supplemental water, as identified by the Alliance for Water Awareness and Conservation (AWAC) or similar lists. (See Appendix A)

Main Line is the pressurized pipeline that delivers water from the water source to a valve or outlet.

Maximum Applied Water Allowance means, for design purposes, the upper limit of annual applied water for the established landscape area as specified in Division 2, Title 23, California Code of Regulations, Chapter 7 and Section 702. It is based upon the area's reference evapotranspiration, ET Adjustment Factor and the size of the landscaped area. The estimated applied water use shall not exceed the maximum applied water allowance.

Micro Sprinkler – See Low Volume Irrigation Systems

Model Home means a facility used exclusively for the promotion and sale of homes similar to the model.

Mulch means any organic material such as leaves, bark, straw or inorganic material such as pebbles, stones, gravel and decorative sand or decomposed granite left loose and applied to the soil surface to reduce evaporation.

Multi-Family Dwelling means a building or buildings designed and used for occupancy by three or more families, all living independently of each other.

Native Plants means plants that are: (1) Indigenous to the desert region of California, Nevada and Arizona; and (2) Native to the southwestern United States and northern Mexico and (3) are low to minimal water users.

Overdraft shall mean that wherein the current total annual consumptive use of water in the Mojave Basin Area exceeds the long-term average annual natural water supply to the Basin Area or Sub-Area.

Overspray shall mean the water, which is delivered beyond the landscaped area, wetting pavements, walks, structures or other non-landscaped areas.

Person means an individual, corporation, partnership, incorporated association or any other similar entity.

Plant Factor – means a factor when multiplied by reference evapotranspiration, estimates the amount of water used by plants. For purposes of this Ordinance, the plant factor of very low water using plants ranges from 0.01 to 0.10, for low water using plants the range is .10 to .30, for moderate water using plants the range is .30 to .60 and for high water using plants the range is .60 to .90. Reference: Water use classifications of landscape species III (WUCOLS III).

Public Entity shall mean any County, Special District, Agency, Authority and/or any other Municipal Public Corporation or District, or any other political subdivision of the State.

Qualified Professional means a person who has been certified by their professional organization or a person who has demonstrated knowledge and is locally recognized as qualified among Landscape Architects due to long time experience.

Recreation Areas shall mean public and institutional areas designed for active play or recreation such as sports fields, school yards, picnic grounds or other areas with intense foot traffic.

Reference Evapotranspiration or ETo – means a standard measurement of the environmental parameters which affect the water use of plants, using cool season grass as a reference. ETo is expressed in inches per day, month or year and is an estimate of the evapotranspiration of a large field of cool season grass that is well watered. Reference evapotranspiration is used as a basis of determining the maximum applied water allowances so that the regional differences in climate can be accommodated. *(For the purpose of this Ordinance ET Zones for each public entity will be determined by AWAC.)*

Rehabilitated Landscape shall mean any re-landscaping project that requires discretionary approval. Any re-landscaping project whose choice of new plant material and/or new irrigation system components is such that the calculation of the site's estimated water use will be significantly changed. The new estimated water use calculation must not exceed the maximum applied water allowance calculated for the site using a 0.6 ET Adjustment Factor.

Residential Development means the development of any type of dwelling unit or units suitable or designed for human habitation, including, but not limited to, single family homes, condominiums or manufactured homes, but not including hotels, motels, licensed convalescent homes, commercially operated retirement homes, time share units or the like. "Residential Development" shall not include remodeling or reconstruction.

Right-of-Way means land which by Deed, Conveyance, Agreement, Easement, Dedication, Usage or Process of Law is reserved for or dedicated to the general public for street, highway, alley, public utility or pedestrian walkway purposes.

Run Off means water which is not absorbed by the soil or landscape to which it is applied and flows from the area. For example: Run off may result from water that is applied at too great a rate (application rate exceeds infiltration rate), or when there is a severe slope.

Shall or Must shall mean an action which is mandatory.

Single Family Dwelling means a detached building designed exclusively for the occupancy of one family.

Sprinkler Head shall mean a device which sprays water through a nozzle.

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

Turf shall mean a surface layer of earth containing mowed grass with its roots.

Valve shall mean a device used to control the flow of water in the irrigation system.

Water Intensive Landscape means an area of land that is watered with a permanent water application system and planted primarily with plants not referred to in Appendix A, "Low Water Use Plant List." Included is the total surface area of all water features (i.e., swimming pools of any size, fountains, ponds, water courses, waterfalls and other artificial water structures) filled or refilled with water from any source.

Water Feature means any water applied to the landscape for non-irrigation, decorative purposes. Fountains, streams, ponds and lakes are considered water features. Water features use more water than efficiently irrigated turf grass and are assigned a plant factor of 1.1 for a stationary body of water and 1.2 for a moving body of water.

Water Waste shall mean any unreasonable or non-beneficial use of water or any unreasonable method or use of water, including but expressly not limited to, the specific uses, conditions, actions or omissions prohibited or restricted by the Ordinance, as hereinafter set forth.

Zone means an area served by one valve, sometimes referred to as a Station.

Section 4. Applicability

- A. This Ordinance shall apply to landscaping for all new residential, commercial, industrial, institutional projects that require permitting.
- B. This Ordinance shall not apply to registered historical sites and ecological restoration projects that do not require permanent irrigation systems.

Section 5. Required Approval for Projects

No Development/Building Permit Meter, Will-Serve Letter and/or Proposal, shall be approved unless the person or entity authorized to grant approval thereof, finds that the project satisfies the criteria set forth in this Ordinance.

Section 6. Limitations on New Landscaping Projects

- A. The maximum slope of a turf area shall not exceed 4:1 or 25 percent.
- B. Turf areas shall not be located within six (6) feet of a street, curb, paved surface or sidewalk unless watered with subterranean drip irrigation.
- C. No area of turf (unless watered with subterranean drip irrigation) shall have a width less than five (5) feet unless adjacent to a planter bed or other landscape area which will catch overspray.
- D. No water intensive landscape or turf (unless watered with subterranean drip irrigation) shall be permitted in any right-of-way. Low water use plant material shall be allowed.
- E. Information shall be provided to new homeowners about designing, installing and maintaining water efficient landscapes.
- F. Recreational areas shall not be considered in calculating the percentage of the total lot area and shall not be considered in determining compliance with this Section, but shall be subject to Section 7-F, Water-efficiency in Landscape Irrigation and Design.
- G. Artificial turf/plants are not limited.

Section 7. Provisions for New Landscapes

This model ordinance provides two approaches to conservation in new landscapes. Section 6 covers the “turf limitation approach”. Section 7 covers the “water budget approach”. The entity adopting this ordinance can choose to use either the “turf limitation” or “water budget” or a combination of both of these approaches. Applicants will be required to comply with either section 6 or section 7, not both.

Section 8. Turf Limitations

A. Residential- Single/Duplex

1. Landscaping shall be installed in the front yard of the residence. Landscaping shall meet the following requirements:
 - Limit total area of water intensive landscaping/turf to not more than thirty percent (30%) the landscaped area (up to a maximum of 900 square feet);
 - Use only low water use plants (See Appendix A) on all additional landscaped areas; and,
 - Install low volume irrigation systems on any additional landscaped areas.

B. Residential- Multifamily Dwelling

1. Water Intensive Landscape/Turf shall be limited to ten percent (10%) of the first nine-thousand (9,000) square feet. Additional acreage of developments over 9,000 square feet shall be limited to a maximum area of five percent (5%) water intensive landscape/turf.

C. Non-Residential- Limitation on water intensive landscape and turf areas.

1. The following types of facilities shall limit the water intensive landscape and turf within the landscaped area to the following percentages of the total lot area, and all remaining landscaped area shall consist of plants identified in Appendix A. Turf areas shall not be located within six (6) feet of a street, curb, paved surface or sidewalk if adjacent to a paved surface. Turf areas may be located within six (6) feet of the aforementioned features when subterranean drip irrigation is used. The maximum slope of a turf area shall not exceed twenty-five percent (25%).
 - Churches: Twenty-five percent (25%)
 - Resorts, including hotels and motels: Ten percent (10%) of the total area
 - Commercial, institutional and industrial uses: Shall be limited to ten percent (10%) of the first nine-thousand (9,000) square feet. Additional acreage of development over one (1) acre shall be limited to a maximum of five percent (5%) water intensive landscape/turf
2. Recreational areas shall not be considered in calculating the percentage of the total lot area and shall not be considered in determining compliance with this Section but, shall be subject to Section 8-D, Water-efficiency in Landscape Irrigation and Design.

D. Processing Procedures and Submittal Requirements

1. For any development proposal, the applicant shall submit landscape plans, meeting the requirements listed below to the *Public Entity*. Plans submitted under Section 6A are not required to be prepared by a Landscape Architect.
2. All landscape plans submitted by the applicant shall meet the following requirements:
 - a. Plans must be at a reasonable scale to indicate all proposed improvements
 - b. All landscape plans must contain the following minimum information:
 - Name of applicant/owner.
 - The dates the plans are submitted and revised.

- All existing and proposed buildings and other structures, paved areas, landscaped areas (including non-irrigated areas), power poles, fire hydrants, water meters, light standards, streets, street names, signs, fences, walls, water features (including pools and ponds), storm water retention / detention areas and other permanent features to be added and/or retained on the site.
 - All property lines.
 - Project information, including total square footage of the landscaped area, total square footage of the proposed turf grass area.
 - Existing protected trees including any vegetation identified in Vegetation Preservation Plans, if required, to be preserved in place, indicated by botanical name and variety, common name, size and location.
 - Show all paved areas such as driveways, walkways and streets.
 - Show all pools, ponds, lakes, fountains, water features, fences and retaining walls.
 - Show an address or APN number to identify the property.
3. If approved, the *Public Entity* will make an inspection of the completed project for compliance with the program before issuing a Certificate of Occupancy.

E. Final planting plans shall contain the following minimum information:

- The landscape plan shall indicate the name and location of all plants used.
- All proposed lawn areas and ground cover areas shall be identified.

F. Final irrigation plans shall contain the following minimum information:

- The location and type of all sprinkler heads, including drip emitter configurations.
- The location and type of irrigation controllers. Programmable controllers are required.

G. Systems must be designed and operated to maximize irrigation efficiency.

1. Sprinkler irrigation shall be scheduled to operate during the months of May through October, between the hours of 6:00 PM and 9:00 AM and during the remaining months of November through April, between the hours of 9:00 AM and 3:00 PM to reduce water loss from wind and evaporation, and to avoid ice during winter months. Drip irrigation and sub-terranean devices shall not be subject to this water window.
2. Valves shall be scheduled for multiple repeat cycles if necessary to reduce runoff, especially on slopes and with soils with slow infiltration rates.
3. All zone run times shall be adjusted seasonally to accommodate landscape water needs or preferably the ET rate, exposure slope and soil types.
4. Turf and non-turf shall be irrigated on separate valves.
5. Drip emitters and sprinklers shall be placed on separate valves.
6. No single zone shall mix head types, such as rotors and pop-up spray heads on the same zone.

Section 9. Water Budget

Projects will be required to submit a landscape documentation package including a water budget statement illustrated in Appendix B. It serves as a summary checklist of the landscaping project.

A. Processing Procedures and Submittal Requirements

1. As a condition of approval for any development proposal, the applicant shall submit landscape plans meeting the requirements listed below to the *Public Entity*.

2. A California licensed Landscape Architect, Architect, Landscape Contractor (within the scope of his/her license) or Certified Irrigation Designer shall prepare the landscape plans and certify on a form provided by the *Public Entity*, the plans meet the requirements set forth below.
3. All landscape plans submitted by the applicant shall meet the following requirements:
 - a. Plans must be at a reasonable scale to indicate all proposed improvements (minimum 1" = 30')
 - b. The drawings shall show zone number, valve size and gallons per minute (gpm), as well as point of connection, meter size, operating pressure, flushing devices, emitters and spray heads.
 - c. All must contain the following minimum information:
 - North arrow and scale (including bar scale).
 - Name of applicant/owner.
 - The name, address and telephone number of the person or firm responsible for the preparation of the landscape plan.
 - The dates the plans are submitted and revised.
 - All existing and proposed buildings and other structures, paved areas, landscaped areas (including non-irrigated areas), power poles, fire hydrants, water meters, light standards, streets, street names, signs, fences, walls, water features (including pools and ponds), storm water retention / detention areas and other permanent features to be added and/or retained on the site.
 - Show a title block on each sheet with the name of the project, *Public Entity*, name and address of the professional design company with its signed professional stamp if applicable.
 - Reserve a 3-inch by 6-inch space for a signature block on the lower right corner of the cover page and on all of the landscape, irrigation design / detail / specification sheets.
 - Existing or proposed elevations or contour lines at sufficient locations to clearly show the drainage pattern (or a copy of the grading plan).
 - All property lines and easements.
 - Project information, including total square footage of the landscaped area, total square footage of the proposed recreational areas and total square footage of turf grass.
 - Existing protected trees including any vegetation identified in Vegetation Preservation Plans, if required, to be preserved in place, indicated by botanical name and variety, common name, size and location.
 - Show all paved areas such as driveways, walkways and streets.
 - Show all pools, ponds, lakes, fountains, water features, fences and retaining walls.
 - Show location of all overhead and underground utilities.
 - Show total landscaped area in square feet. Separate area square footages by Hydrozone. Show the total percentage area of each Hydrozone. Include total area of all water features as separate Hydrozones of still or moving water.
 - Designate recreational areas and recreational turf areas.
 - Show total maximum annual applied water budget allowance for the proposed project. (See formula in Appendix B).
4. If approved, the *Public Entity* will make an inspection of the completed project for compliance with the program before issuing a Certificate of Occupancy.

B. Final planting plans shall contain the following minimum information:

1. A table listing the plant material including the plant symbols, common and botanical names, sizes, spacing (if applicable), quantities and other remarks as appropriate to describe the plant selection.
2. The location of all plant material shall be shown on the plan at approximately two-thirds the mature size of the plant material.

3. All proposed lawn areas and ground cover areas shall be identified, including the types and amounts of living plant materials to be used and the size and depth of non-living materials. The manner in which any lawn areas are to be established shall be included.

C. Final irrigation plans shall contain the following minimum information:

1. The location and type of all sprinkler heads, including drip emitter configurations.
2. The location and size of main line and lateral line piping.
3. The location and size of water meters.
4. The location of backflow prevention devices.
5. The location, size and circuit number of all valves.
6. The location and type of irrigation controllers.
7. A table including the manufacturer and a description of all parts used in the irrigation plan.
8. Details of the backflow prevention devices, valves, sprinkler heads, controllers, etc.

D. Water-efficiency in Landscape and Irrigation Design

New irrigation systems and improvements shall be designed to achieve water-efficiency.

1. Each valve shall irrigate a landscape with similar site, slope and soil conditions and plant materials with similar watering needs.
 - a. Turf and non-turf shall be irrigated on separate valves.
 - b. Drip emitters and sprinklers shall be placed on separate valves.
 - c. Bubblers shall be placed on a separate valve.
2. Soil types, infiltration rate and slopes shall be considered in order to avoid runoff and overspray, where water flows onto adjacent property, non-irrigated areas, walks roadways or structures. Proper irrigation equipment, schedules and repeat cycles shall be used to minimize runoff. Spray zones shall run parallel to the slope to minimize runoff.
3. A minimum of three-inches of mulch shall be applied to all exposed soil surface areas in new plantings.
4. Separate landscape water meters shall be installed for all projects except for single-family homes or any project with a landscaped area of more than 5,000 square feet.
5. A pressure-reducing valve shall be used when the static water pressure exceeds the pressure needed by the system by 15-pounds per square inch (psi). Pressure reducing valves can be installed within the project on the mainline or at the valve, if elevation changes require it.
6. Turf irrigation principles:
 - a. No single zone shall mix head types, such as rotors and pop-up spray heads on the same zone.
 - b. Uniform distribution shall meet eighty percent (80%).
 - c. No sprinkler irrigation systems shall be installed in strips less than 5-feet wide.
 - d. Small areas (25-feet wide or less) shall be irrigated with fixed nozzle pop-up spray heads with matched precipitation nozzles. Nozzles shall be sized to provide head to head coverage. Heads shall pop-up a minimum of 4-inches in turf areas. Heads can be specified with pressure reducing features where needed.
 - e. Large areas (wider than 25-feet) shall be irrigated with gear driven rotor heads with a minimum precipitation rate of 1.45-inches per hour for a full circle head. Heads shall pop-up a minimum of 4-inches in turf areas.

- f. Check valves shall be included in heads or valves where low head drainage will occur due to elevation changes. See irrigation head catalogue for elevation change tolerances.
- g. Use of emerging water saving technology such as evapotranspiration controls and subterranean irrigation systems is highly encouraged.

E. Irrigation control systems shall be employed that offer flexibility in programming.

1. All irrigation systems shall include an electric automatic controller with multiple programs and multiple repeat and rest cycle capabilities and a flexible calendar program.
2. Each zone / valve shall have its own station on the controller. The exception is drip valves, which can be doubled on the controller.
3. Recreational areas are required to use ET controllers for irrigation.

F. Systems shall be operated to maximize irrigation water efficiency.

1. Sprinkler irrigation shall be scheduled to operate during the months of May through October, between the hours of 6:00 PM and 9:00 AM and during the remaining months of November through April, between the hours of 9:00 AM and 3:00 PM to reduce water loss from wind and evaporation, and to avoid ice during winter months. Drip irrigation and sub-terranean devices shall not be subject to this water window.
2. Valves shall be scheduled for multiple repeat cycles if necessary to reduce runoff, especially on slopes and with soils with slow infiltration rates.
3. All zone run times shall be adjusted seasonally to accommodate landscape water needs or preferably the ET rate, exposure slope and soil types.

G. Irrigation schedules satisfying the following conditions shall be submitted as part of the Landscape Project Tracking Form. (Refer to Appendix B)

1. An annual irrigation program with monthly irrigation schedules shall be required for: (1) The plant establishment period; (2) the established landscape; and, (3) any temporarily irrigated areas.
2. For timer-based controllers include run time (in minutes per cycle), suggested number of cycles per day and frequency of irrigation for each station; and provide the amount of applied water (in hundred cubic feet, gallons or in whatever billing units the local water supplier uses) recommended on a monthly and annual basis.
3. For ET based controllers include essential details of the specific controller involved.
4. Water features shall be considered as High Water Zones. The total amount of water for irrigation, plus water needed for any water features, shall be combined in the total water budget.

H. Certificate of Project Completion/Landscape Project Tracking Form

Verified completion of all elements on the Landscape Project Tracking Form shall constitute a Certification of Project Completion. Appendix B contains a sample Landscape Project Tracking Form.

Section 10. Provisions for Existing Landscapes

A. Water Management

All existing landscaped areas that are one acre or more in size, including, but not limited to, golf courses, cemeteries, green belts, common areas, multi-family housing, schools, businesses, parks and publicly owned landscapes shall have a landscape irrigation audit at least once every five (5) years. At a minimum, the audit shall be performed in accordance with the California Landscape Water Management Program as

described in the Landscape Irrigation Auditor Handbook, by a Certified Landscape Irrigation Auditor. (See Landscape Irrigation Auditor Handbook, The Irrigation Association (most current version).

B. Water Waste Prevention

The provisions of this Section shall apply to all water users. The *Public Entity* shall encourage the reduction of water waste resulting from inefficient landscape irrigation by prohibiting runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways or structures. The *Public Entity* may, at the discretion of the Planning Department, require the property owner to conduct a landscape irrigation audit and make corrections to the landscape based on the findings of the water audit. The audit shall be performed in accordance with the above Paragraph.

Section 11. Low Water Use and California Native Plants

All landscape shall strive to maximize the use of native species. Where native material is not appropriate for the intended use or appearance, plant species that are regionally adapted and non-invasive may be used. A copy of Alliance for Water Awareness and Conservation (AWAC) recommended plants list is available at the *Public Entity*. Or contact the Mojave Water Agency 760.946.7000.

Section 12. Prohibited Water Uses and Water Waste

1. It shall be unlawful for any water user to allow water waste at any location or premises within the jurisdiction of the *Public Entity*. Included but not limited to:
 - a. Causing or permitting any water furnished to any property within the *Public Entity* to run or to escape from any hose, pipe, valve, faucet, and sprinkler or irrigation device onto any sidewalk, street or gutter or to otherwise escape from the property.
 - b. Washing driveways, sidewalks, parking lots or other hard surfaces by direct hosing except when necessary to prevent or eliminate risk of fire or contamination, which could result in a risk to public health and safety.
 - c. Washing any vehicle, trailers, motor homes, buses, boats and mobile homes except from a bucket and except that from a hose equipped with an automatic shut-off nozzle may be used for a quick rinse.
 - d. Excessively using, losing or escape of water through breaks, leaks or other malfunctions in the water user's plumbing or distribution system.

Section 13. Public Education

The *Public Entity* shall make available information about water efficient landscaping to water users throughout the community. The *Public Entity* will also use public education to teach and assist water users in water conservation and the need for voluntary compliance. In addition to education, the *Public Entity* may use enforcement measures to curb water waste.

Section 14. Severability

The *Public Entity* Council declares that, should any provision, section, paragraph, sentence or word of this Ordinance be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any pre-emptive legislation, the remaining provisions, sections, paragraph, sentences or words of this Ordinance as hereby adopted shall remain in full force and effect.

Section 15. Effective Date

The state model Water Efficient Landscape Ordinance became effective on January 1, 2010 by operation of state law and in compliance with AB 1881. However, the *Public Entity* has taken the position that the state model ordinance will be superseded by the *Public Entity's* Ordinance if the *Public Entity*, upon consideration of the state model ordinance, adopts an ordinance, which promotes water efficient landscaping as effectively as the state model ordinance. The *Public Entity* has considered the state model

ordinance and has developed this ordinance to promote water efficient landscaping. Unless this ordinance goes into effect immediately, the state model ordinance will continue to be the law in the *Public Entity* and will impose requirements not appropriate to the policy and goals of the *Public Entity*.

Furthermore, the imposition of different guidelines during the period between January 1, 2010 and the date on which the state model ordinance became effective will continue to create confusion and difficulty in enforcement of water efficient landscape standards. For these reasons, this ordinance is an urgency ordinance necessary for the immediate preservation of the public peace, health and safety within the meaning of California Government Code Section 36937(b). Therefore, this ordinance shall take effect immediately.

Section 16. Repeal of Conflicting Provisions

All the provisions of the *Public Entity* Municipal Code as heretofore adopted by the *Public Entity* that are in conflict with the provisions of this ordinance are hereby repealed.

PASSED, APPROVED AND ADOPTED this ___ day of _____, 20___, by
the following vote:

AYES: _____

NOES: _____










ABSENT: _____

ABSTAIN: _____

APPENDIX A






AWAC PLANT LIST

Accents

-  *Agave* species: *A. Americana* (Century Plant); *A. parryi huachucensis*; *A. victoriae-reginae*
-  *Dasyliirion wheeleri*, Desert Spoon
-  *Nolina microcarpa*, Bear Grass
-  *Hesperaloe parviflora*, Red Yucca
-  *Kniphofia uvaria*, Red-Hot Poker, Torch Lily
-  *Yucca* species: *Y. aloifolia*, Spanish Bayonet; *Y. baccata*, Banana Yucca, Datil; *Y. brevifolia*, Joshua Tree; *Y. elata*, Soaptree Yucca
-  *Chamaerops humilis*, Mediterranean Fan Palm
-  *Trachycarpus fortunei*, Windmill Palm
-  *Washingtonia filifera*, California Fan Palm

Grasses











Ornamental

-  *Muhlenbergia rigens*, Deer Grass
-  *Muhlenbergia capillaris*, Regal Mist
-  *Muhlenbergia lindheimeri*, Autumn Glow
-  *Festuca ovina glauca*, Blue Fescue
-  *Bouteloua gracilis*, Blue Grama











Turf

-  *Buchloe dactyloides*, Buffalo Grass (Legacy)
-  *Buchloe dactyloides*, Buffalo Grass (UC Verde)
- Warm-Season Grasses (winter dormant):**
-  *Zoysia*, *Zoysia* Grass
-  *Stenotaphrum secundatum*, St. Augustine Grass
- Cool-Season Grasses (year round):**
-  *Festuca arundinacea*, Tall Fescue
-  *Lolium perenne*, Perennial Ryegrass
-  *Poa pratensis*, Kentucky Bluegrass

Ground Covers





-  *Oenothera berlandieri*, Mexican Evening Primrose
-  *Santolina chamaecyparissus*, Lavender Cotton
-  *Cerastium tomentosum*, Snow-in-Summer
-  *Gazania*, most varieties
-  *Sedum*, most varieties
-  *Thymus*, most varieties
-  *Verbena peruviana*; *V. pulchella*
-  *Dalea greggii*, Trailing Indigo Bush
-  *Rosmarinus officinalis*, 'Prostratus'
-  *Phlox*, most varieties

Perennial Flowers

-  *Coreopsis*, most varieties
-  *Penstemon ambiguus*, *P. barbatus*, *P. centranthifolius*, *P. eatonii*, *P. palmeri*, *P. parryi*, *P. pinifolius*, *P. pseudospectabilis*, *P. strictus*
-  *Cosmos*, most varieties
-  *Convolvulus cneorum*, Bush Morning Glory
-  *Perovskia*, Russian Sage or Blue Spire
-  *Berlandiera lyrata*, Chocolate Flower
-  *Gaura lindheimeri*, 'Whirling Butterflies,' 'Siskiyou Pink'
-  *Hemerocallis*, Daylily, most varieties
-  *Rosmarinus officinalis*, most prostrate and upright varieties
-  *Verbena gooddingii*, *V. peruviana*, *V. rigida*

Shrubs

-  *Salvia greggii*, Red Sage, Autumn Sage
-  *Salvia clevelandii*, Blue Sage, Cleveland Sage
-  *Salvia chamaedryoides*, Germander Sage
-  *Fallugia paradoxa*, Apache Plume
-  *Leucophyllum frutescens*, Texas Ranger species, several varieties
-  *Leucophyllum laevigatum*, Chihuahuan Sage
-  *Baccharis 'Centennial'*, Coyote Bush
-  *Baccharis pilularis*, Dwarf Coyote Brush

-  *Artemisia*, 'Powis Castle'
-  *Cotoneaster horizontalis*, Rock Cotoneaster
-  *Photinia fraseri*
-  *Grevillea 'Noellii'*

Trees

Evergreen

-  *Eucalyptus camaldulensis (rostrata)*, Red River
-  *Eucalyptus microtheca*, Coolibah
-  *Pinus eldarica*, Eldarica Pine, Afghan Pine, Russian Pine
-  *Pinus halepensis*, Aleppo Pine
-  *Pinus pinea*, Italian Stone Pine
-  *Cedrus deodara*, Deodar Cedar
-  *Calocedrus decurrens*, Incense Cedar
-  *Heteromeles arbutifolia*, Toyon
-  *Sophora secundiflora*, Texas Mountain Laurel
-  *Arbutus unedo*, Strawberry Tree
-  *Pithecellobium flexicaule*, Texas Ebony

Deciduous

-  *Albizia julibrissin*, Silk Tree, Mimosa
-  *Chilopsis linearis*, Desert Willow, 'Burgundy'
-  *Chitalpa tashkentensis*, Pink Dawn, Morning Cloud
-  *Parkinsonia floridum*, Blue Palo Verde
-  *Parkinsonia microphyllum*, Littleleaf Palo Verde
-  *Parkinsonia aculeata*, Mexican Palo Verde
-  *Fraxinus angustifolia*, 'Raywood' (Raywood Ash)
-  *Fraxinus velutina*, Arizona Ash
-  *Fraxinus velutina*, 'Modesto' (Modesto Ash)
-  *Prosopis chilensis*, Chilean Mesquite
-  *Prosopis glandulosa*, Honey Mesquite
-  *Prosopis pubescens*, Screw Bean Mesquite
-  *Gleditsia triacanthos*, Honey Locust
-  *Pistacia chinensis*, Chinese Pistache
-  *Vitex agnus-castus*, Chaste Tree, Monk Tree

APPENDIX B

SAMPLE WATER BUDGET STATEMENT

Project Site: _____ Tract or Parcel Number _____

Project Address: _____

Landscape Architect/ Irrigation Designer / Contractor:

Included in this project submittal package are: (Check to indicate completion)

- _____ 1. Annual Water Budget Allowance:
 - Ornamental Landscape: _____ 100 cubic feet / year
 - Annual Water Budget Allowance: _____ 100 cubic feet / yr
- _____ 2. Estimated Annual Applied Water Use by Hydrozone:
 - Turfgrass Hydrozones: _____ 100 cubic feet / yr
 - Very Low Plant Hydrozones: _____ 100 cubic feet / yr
 - Low Plant Hydrozones: _____ 100 cubic feet / yr
 - Medium Plant Hydrozones: _____ 100 cubic feet / yr
 - High Plant Hydrozones: _____ 100 cubic feet / yr
 - Water Features: _____ 100 cubic feet / yr
 - Other: _____ 100 cubic feet / yr
 - Estimated Annual Total Applied Water Use: _____ 100 cubic feet / yr
- _____ 3. EAAWU < AWBA
- _____ 4. Landscape Design Plan
- _____ 5. Irrigation Design Plan
- _____ 6. Grading Design Plan
- _____ 7. Soil Chemical Analysis (Optional)

Description of Project: Describe actions taken that are intended to achieve conservation and efficiency in water use.)

Date _____

Prepared by: _____

LANDSCAPE PROJECT TRACKING FORM

Tract or Parcel Number: _____

Project Address: _____

Annual Water Budget Allowance _____ (in one hundred cubic feet)

Estimated Annual Total Applied Water Use _____ (in one hundred cubic feet)

Preliminary project documentation submitted: (Initials Indicate Submittal)

- _____ 1. Grading Design Plan
- _____ 2. Landscape Design Plan
- _____ 3. Irrigation Design Plan
- _____ 4. Irrigation Schedules

Post installation inspection: (Initials Indicate Submittal)

- _____ 1. Plants installed as specified
- _____ 2. Irrigation System installed as designed

Comments: _____

_____ A copy of this certification has been provided to the owner/developer and to the
Public Entity

I hereby certify that the work has been completed in accordance with this Ordinance # _____
Landscape and Irrigation Guidelines.

Name/Title: _____ Signature: _____ Date: _____

Annual Water Budget Allowance

Use the following formula to calculate the Annual Water Budget Allowance:

AWBA = Annual Water Budget Allowance (CCF or hundred cubic feet)

$AWBA = [(ET_o) \times (.40) \times (LA) \times (.62)] / (748)$

ET_o = Reference Evapotranspiration (inches per year)

LA = Landscaped Area (square feet)

0.62 = Conversion Factor (to gallons per square foot)

748 = Conversion Factor (to hundred cubic feet)

IE = Irrigation System Efficiency

.40 = ET Adjustment factor = .3 Plant Factor/.75 IE

Estimated Annual Applied Water Use (by Hydrozone)

EAAWU = Estimated Annual Applied Water Use

$EAAWU = [(ET_o) \times (PF) \times (LA) \times (.62)] / (748) / (IE)$

ET_o = Reference Evapotranspiration (inches per year)

PF = Plant Factor

IE = Irrigation System Efficiency

LA = Landscaped Area (square feet)

0.62 = Conversion Factor (to gallons per square foot)

748 = Conversion Factor (to hundred cubic feet)

APPENDIX C

Potential Enforcement of Violations

WHEREAS, enforcement of water restrictions may be achieved through education and/or made more effective through the use of a proactive enforcement system; and

WHEREAS, use of a pro-active enforcement system will allow the imposition of civil penalties for violations of the provisions of this Landscape Water Conservation Ordinance; and

WHEREAS, the imposition of civil penalties for violations of the Landscape Water Conservation Ordinance will protect the water resources of the *Public Entity*.

Violations of any Provision of the Landscape Water Conservation Ordinance No. _____

For the first violation of any provision of this Ordinance, the *Public Entity* shall issue a written notice of first violation and provide the violator with educational materials on water conservation, including a copy of the relevant provisions of this Chapter. The *Public Entity* shall give the water user a reasonable period of time to correct the violation. Failure to correct the violation within a reasonable period of time shall constitute a second violation.

For a second violation of any provision of this Ordinance, the *Public Entity* shall issue a written notice of second violation to the water user imposing a fine in an amount not to exceed Fifty Dollars (\$50.00) and requiring immediate correct of the violation.

For a third violation of any provision of this Ordinance, the *Public Entity* shall issue a written notice of the violation to the water user imposing a fine in an amount not to exceed Two Hundred Dollars (\$200.00) and requiring immediate correction of the violation.

For a fourth or subsequent violation of this Ordinance, the *Public Entity* shall impose a fine in an amount not to exceed Five Hundred Dollars (\$500.00). The fourth and each subsequent violation of this Ordinance shall be deemed a public nuisance, which may be abated pursuant to the procedures provided in Chapter 13.02 "Nuisances" of this Code.

Any fine imposed under this Section shall be collected in accordance with the procedures of Chapter 1.05 "Administrative Remedies" of this Code. Failure to pay any portion of a water user's account, including any fines imposed pursuant to this Section, shall subject said account to termination of water service in accordance with the provisions of this Section.

In addition to the remedies set forth above, the *Public Entity* may seize equipment, line, fountains and other devices, which are operated in violation of this Chapter, until the fine is paid. The *Public Entity* may dispose of these items if the fine is not paid in six (6) months from the date the equipment was confiscated.

Right to Hearing

Any water user against whom a penalty is levied under this Ordinance shall have a right to a hearing before the *Public Entity* Manager or the *Public Entity* Manager's designee.