City of Brisbane
Agenda Report

TO: City Council via the City Manager

FROM: Interim Community Development Director

SUBJECT: Water Conservation in Landscaping Ordinance

DATE: Meeting of May 17, 2010

City Council Goals:

To develop plans and pursue opportunities to protect natural resources. (Goal #8)

Purpose:

Comply with the provisions of State law (Assembly Bill (AB) 1881) to reduce landscaping irrigation demands from both commercial and residential properties.

Recommendation:

That the City Council introduce Ordinance 544, *Water Conservation in Landscaping,* amending Chapter 15.70 of the Brisbane Municipal Code.

Background:

On January 1, 2010, the California Water Conservation in Landscaping Act (Model Ordinance) became operative statewide, pursuant to AB 1881. It seeks to reduce water use associated with landscaping irrigation by placing specific requirements for low water plantings and irrigation on new and replacement irrigated landscapes meeting specific size criteria as discussed in Discussion section of this report. The Model Ordinance applies statewide, except those local jurisdictions which have adopted ordinances that are equivalent or more stringent than the Model Ordinance.

The Model Ordinance further will assist in compliance with the requirements of two other State laws that call for reductions in water use. Senate Bill (SB) 7 approved in 2009 requires urban per capita water use reductions of at least 10 percent no later than December 31, 2015 and 20 percent no later than December 31, 2020. Also, the Green Building Standards Code passed in 2009 has mandatory requirements for water savings effective in 2011.

Regionally, the City of Brisbane is a member agency of the Bay Area Water Supply and Conservation Agency (BAWSCA), which receives its water from the San Francisco Public

Utilities Commission (SFPUC). BAWSCA has evaluated the Model Ordinance and indicated that there is a need to reduce outdoor water use beyond that required under the Model Ordinance. This is based on BAWSCA's projections that water demands within the BAWSCA service area will exceed available supplies by 2015, barring increases in supply or increased water conservation. To address this regional concern, a BAWSCA-sponsored working group developed its own version of a model ordinance (BAWSCA Ordinance) and is recommending that member agencies adopt the BAWSCA Ordinance.

Draft Ordinance 544 as recommended for adoption is generally consistent with the BAWSCA Ordinance, which has already been determined to be consistent with the State's Model Ordinance. Ordinance 544 includes minor changes from the BAWSCA Ordinance, related primarily to enforcement provisions. Draft Ordinance 544 and related implementation checklist are included as Attachments A and B. BAWSCA has prepared a list of frequently asked questions and answers, which is included as Attachment C.

Discussion:

In summary, the Ordinance requires the installation of water efficient landscaping for irrigated landscapes over 1,000 square feet (sq ft) in size for all new development and rehabilitated landscapes Irrigated landscapes less than 1,000 sq ft are exempt. Other exemptions include, but are not limited to, non-irrigated areas, temporary irrigation systems, community gardens and commercial nurseries.

The Ordinance includes two tiers. Tier 1 includes irrigated landscapes between 1,000 sq ft and 2,500 sq ft and Tier 2 is 2,500 sq ft and above. There are two main differences between Tier 1 and Tier 2 landscapes: 1) Tier 1 landscape plans, irrigation plans and audits may be self certified by the applicant, while Tier 2 plans must be certified by a professional and 2) Tier 2 landscapes will be required to have automatic irrigation controllers for irrigation scheduling. Attachment E provides additional information regarding the Tier 1 and Tier 2 requirements.

Existing landscapes installed before the effective date of the Ordinance are exempt from the Ordinance, with two exceptions. Exceptions include existing irrigated landscapes over one (1) acre in size, and irrigated landscapes over 1,000 sq ft on sites where the main structure is being substantially remodeled (increased in size or value by more than 50 percent, consistent with BMC Section 15.15.08.140). Irrigated landscapes in these cases will be subject to water audit by the City and water waste prohibitions. Ordinance 544 will replace existing BMC Chapter 15.70, which requires landscape plans for private development projects with new or replacement landscaping over 1,000 sq ft, excluding single family residences and duplexes. The existing ordinance has general design requirements, but lacks specific standards.

In comparing the State Model Ordinance to the BAWSCA Ordinance (on which Ordinance 544 is based), the BAWSCA Ordinance is designed to achieve a 25% water savings on outdoor water use at applicable new development projects and landscape rehabilitations versus 20% under the State's Model Ordinance. These reductions are compared to current requirements. Under the State's Model Ordinance 2,500 sq ft is the threshold for developer installed residential, commercial and public, irrigated landscapes and 5,000 sq ft for homeowner installed irrigated landscapes, compared to the Tier 1/Tier 2 standards identified above. The BAWSCA Ordinance

was also designed to be simpler to comply with and administer than the Model Ordinance, facilitated by a checklist format. The key differences between the BAWSCA Ordinance and the State's Model Ordinance are further highlighted in Attachment D.

On April 14th , the Open Space and Ecology Committee (OSEC) reviewed and endorsed the draft Ordinance (see OSEC Minutes, Attachment F). A number of edits were made to the Ordinance as requested by OSEC, with the exception of modifying the ordinance to recommend the use of permeable paving where possible. This was not included, as the Ordinance regulates irrigated landscape only. OSEC also recommended that the enforcement section be revisited at a future date. While not directly related to Ordinance 544, the City Attorney is in the process of drafting an ordinance for future hearing by the City Council that will revise and update all of the enforcement provisions in the Brisbane Municipal Code, including those contained in draft Ordinance 544.

Fiscal Impact:
While the Ordinance is intended to reduce future water usage from what would otherwise occur, the amount or rate of reduced usage is undetermined. It illustrates an ongoing issue with the City's water rate structure. Currently the City raises 70% of its water revenue from water use charges and 30% from the fixed rate. Conversely, 70% of the system is a fixed cost (the amount the City would need to spend to keep the system available to deliver water) and 30% is the cost of water. By decreasing the amount of water used in the system we would need to review our rates to ensure we could still provide safe drinking water. The Water and Sewer subcommittee has looked into this issue in the past and has directed staff to provide alternative rate structures where more of the revenue is provided by the fixed charges.

Additional staff time will be required to review landscape project/building permit applications that would not have otherwise been subject to review. The costs for this time would typically be recovered with building permit fees.

Measures of Success:

Adoption of Ordinance 544 will allow the City to comply with the provisions of AB 1881 in a manner that is compatible with the region and city's unique needs.

Attachments:

A. Draft Ordinance 544
B. Outdoor Water Use Efficiency Checklist & Worksheets
C. Frequently Asked Questions
D. Comparison of Ordinance 544 to Model Ordinance (AB 1881)
E. Proposed Landscape Efficiency Standards
F. OSEC Minutes, April 14, 2010

Department Head

City Manager

ORDINANCE NO. 544

AN ORDINANCE OF THE CITY OF BRISBANE AMENDING CHAPTER 15.70 OF THE MUNICIPAL CODE ESTABLISHING WATER CONSERVATION IN LANDSCAPING REGULATIONS

The City Council of the City of Brisbane hereby ordains as follows:

SECTION 1: This Ordinance is adopted in light of the following facts and circumstances, which are hereby found and declared by the City Council:

A. A reliable minimum supply of potable water is essential to the public health, safety and welfare of the people and economy of the City of Brisbane, California.

B. The California Water Conservation in Landscaping Act, also known as the State Landscape Model Ordinance ("Model Ordinance"), has been implemented by a Statewide Landscape Task Force which was overseen by the California Urban Water Conservation Council. The California Water Conservation in Landscaping Act was amended pursuant to AB 2717 (Chapter 682, Stats. 2004) and AB 1881 (Chapter 559, Stats. 2006).

C. Effective January 1, 2010, the State's model ordinance automatically became operative and this ordinance is now being adopted to establish more effective regulations.

D. The City has developed this local Water Conservation In Landscaping Ordinance to meet the requirements and guidelines of the Model Ordinance and to address the unique physical characteristics, including average landscaped areas, within the City's jurisdiction in order to ensure that this Ordinance will be "at least as effective as" the Model Ordinance in conserving water.

E. Although this Water Conservation in Landscaping Ordinance is more streamlined and simplified than the Model Ordinance, the City Council finds that it is "at least as effective as" the Model Ordinance for the following reasons:

(1) This Ordinance applies to more accounts than the Model Ordinance does because it lowers the size threshold for applicable landscapes from 2,500 square feet (or, in the case of single-family residences, from 5,000 square feet) to 1,000 square feet, to better reflect the typical landscaped areas located within this City's boundaries;

(2) This Ordinance includes a turf restriction of 25% of the irrigated area and requires that at least 80% of the plants in non-turf landscape areas be native plants, low-water using plants, or no-water using plants (unless the applicant elects to perform a water budget); and

(3) This Ordinance expands the requirement for dedicated irrigation meters to all accounts with landscaping greater than 5,000 square feet.

The Model Ordinance does not contain any such turf restrictions or specified plant requirements and only requires dedicated irrigation meters on non-residential accounts with landscaping greater than 5,000 square feet.

F. Although this Water Conservation in Landscaping Ordinance is more streamlined and simplified than the Model Ordinance, the City Council further finds that it is "at least as effective as" the Model Ordinance because this Ordinance includes water budget parameters and values and landscape parameters that are consistent with the Model Ordinance. By using the same water budget parameters as the Model Ordinance (e.g., plant factors, irrigation efficiency), this Ordinance will be as effective as the Model Ordinance in developing landscape water budgets. By using the same landscape parameters as the Model Ordinance for, among other things, slope restrictions and width restrictions for turf, irrigation times, and minimum mulch requirements, this Ordinance will be at least as effective as the Model Ordinance in achieving water savings.

G. Article X, Section 2 of the California Constitution and Section 100 of the California Water Code declare that the general welfare requires water resources be put to beneficial use, waste or unreasonable use or unreasonable method of use of water be prevented, and conservation of water be fully exercised with a view to the reasonable and beneficial use thereof.

H. The San Francisco Public Utilities Commission has imposed an interim water supply limitation on its wholesale customers, including local water suppliers, until at least 2018.

I. Current supply and demand projections for the Bay Area Water Supply and Conservation Agency ("BAWSCA") member agencies indicate that, in the absence of increased water conservation, water demands will exceed available water supplies in 2015 and implementation of water conserving ordinances is one mechanism by which agencies can reduce future water demands and remain within existing supplies.

J. The City Council finds and determines that this Ordinance is consistent with the provisions requiring reductions in outdoor water use for landscaping in the California Green Building Standards Code, as such provisions will be implemented in the coming years. Such requirements include the development of a water budget for landscape irrigation in accordance with methodology outlined in either the Model Ordinance or pursuant to a locally adopted ordinance.

K. The State Legislature has identified the provision of a more reliable water supply and the protection, restoration and enhancement of the Delta ecosystem as a high priority for the state. Pursuant to this, in November 2009, the State Legislature passed Senate Bill 7 (7th Extraordinary Session) requiring a 20% reduction in urban per capita water use by the year 2020. Accordingly, the City Council finds that implementation of this Ordinance is consistent with the policies and goals established by the State Legislature in enacting SB 7 (7th Extraordinary Session).

L. Article XI, Section 7 of the California Constitution declares that a city or county may make and enforce within its limits all local, policy, sanitary, and other ordinances and regulations not in conflict with general laws.

M. The City Council finds and determines that this Ordinance is not subject to the California Environmental Quality Act (Public Resources Code Section 2100 et seq.) ("CEQA")

pursuant to Section 15307 (the activity assures the maintenance, restoration, enhancement, or protection of a natural resource) and Section 15378(b)(2) (the activity is not a project as it involves general policy and procedure making) of the State CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, since it makes and implements policies and procedures to ensure that water resources are conserved by reducing water consumption through the establishment of a structure for planning, designing, installing, maintaining and managing water-efficient landscapes.

N. The adoption and enforcement of this Ordinance is necessary to manage the City's potable water supply in the short and long-term and to avoid or minimize the effects of drought and shortage within the City. This Ordinance is essential to ensure a reliable and sustainable minimum supply of water for the public health, safety and welfare.

SECTION 2: Chapter 15.70 in Title 15 of the Municipal Code is amended in its entirety to read as follows:

Chapter 15.70
WATER CONSERVATION IN LANDSCAPING

Sections:

15.70.010 Title
15.70.020 Applicability
15.70.030 Definitions
15.70.040 Compliance With Chapter
15.70.050 Application and Approval
15.70.060 Outdoor Water Use Efficiency Checklist
15.70.070 Water Budget Calculations
15.70.080 Landscape and Irrigation Design Plans
15.70.090 Landscape Audit Report
15.70.100 Landscape and Irrigation Maintenance Schedule
15.70.110 Stormwater Management
15.70.120 Provisions for Existing Landscapes Over One Acre in Size
15.70.130 Enforcement of Chapter
15.70.140 Public Education

§15.70.010 Title

This Chapter shall be known as the City of Brisbane Water Conservation in Landscaping Ordinance.

15.70.020 Applicability

A. The provisions of this Chapter shall apply to all new construction and rehabilitated, irrigated landscape areas equal to or greater than 1,000 square feet These landscapes are further defined as Tier 1 and Tier 2 Landscapes. The provisions of this Chapter shall also apply to existing irrigated landscapes over one acre in size and existing irrigated

landscapes equal to or greater than 1,000 square feet where additions or alterations to an existing structure are greater than 50 percent in area or value.

(1) Tier 1 Landscapes: All new construction and rehabilitated landscapes with irrigated landscape areas equal to or greater than 1,000 square feet and less than 2,500 square feet.

(2) Tier 2 Landscapes: All new construction and rehabilitated landscapes with irrigated landscape areas equal to or greater than 2,500 square feet.

(3) Existing landscapes over one acre (43,560 square feet) in size shall be subject to the provisions for existing landscapes set forth in Section 15.70.120 of this Chapter.

(4) Additions or alterations to an existing structure that are subject to the provisions of Section 15.08.140 of this Title, and have an existing irrigated landscape that meet the applicable Tier 1 or Tier 2 size thresholds, will be subject to the provisions for existing landscapes set forth in Section 15.70.120 of this Chapter.

B. The provisions of this Chapter shall not apply to any of the following:

(1) New construction and rehabilitated landscapes with irrigated landscape areas less than 1,000 square feet.

(2) Landscapes, or portions of landscapes, that are only irrigated for an establishment period.

(3) Registered local, state or federal historical sites where landscaping establishes a historical landscape style, as determined by a public board or commission responsible for architectural review or historic preservation.

(4) Ecological restoration or mined-land reclamation projects that do not require a permanent irrigation system.

(5) Community gardens or plant collections, as part of botanical gardens and arboretums open to the public, agricultural uses, commercial nurseries and sod farms

§15.70.030 Definitions

A. As used in this Chapter, certain words and phrases shall be defined as follows:

(1) **Applied water** means the portion of water supplied by the irrigation system to the landscape.

(2) **Automatic irrigation controller** means an automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.

(3) **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.

(4) **Certified irrigation designer** means a person certified to design irrigation systems by an accredited academic institution, a professional trade organization, or other program such as the US Environmental Protection Agency's WaterSense irrigation designer certification program or the Irrigation Association's Certified Irrigation Designer program.

(5) **Certified landscape irrigation auditor** means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization, or other program such as the US Environmental Protection Agency's WaterSense irrigation auditor certification program or the Irrigation Association's Certified Landscape Irrigation Auditor program.

(6) **Certified professional** or **authorized professional** means a certified irrigation designer, a certified landscape irrigation auditor, a licensed landscape architect, a licensed landscape contractor, a licensed professional engineer, or any other person authorized by the state to design a landscape, an irrigation system, or authorized to complete a water budget.

(7) **City** means the City of Brisbane.

(8) **Conversion factor (0.62)** means the number that converts acre-inches per acre per year to gallons per square foot per year

(9) **Drip irrigation** means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

(10) **Ecological restoration project** means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem or restoration of habitat for endangered species following a disturbance of the area.

(11) **Effective precipitation** or **usable rainfall (Eppt)** means the portion of total precipitation which becomes available for plant growth.

(12) **Establishment period** means within the first two years after installing the plant in the landscape. Typically, most plants are established after one or two years of growth.

(13) **Estimated Total Water Use (ETWU)** means the total water used for the landscape as described in Section 15.70.070 of this Chapter concerning water budget calculations.

(14) **ET adjustment factor (ETAF)** means a factor of 0.7, 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. ETAF for a Special Landscape Area shall not exceed 1.0. ETAF for existing non-rehabilitated landscapes shall not exceed 0.8.

(15) **Evapotranspiration rate** means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

(16) **Expanded water service** means the installation of a larger meter or addition of a new meter.

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

(18) **Hardscapes** means any durable material (pervious and non-pervious).

(19) **Hydrozone** means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.

(20) **Invasive plant species** means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. **Noxious weeds** means any weed designated by the Weed Control Regulations in the Weed Control Act and identified on a Regional District noxious weed control list. It also means any plants that are detrimental to a designated habitat preservation area. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database. Also, refer to the San Bruno Mountain Habitat Conservation Plan (HCP) Management Plan for plant lists.

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

(22) **Irrigation efficiency (IE)** means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this Chapter is 70%. Greater irrigation efficiency can be expected from well-designed and maintained systems.

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

(24) **Irrigation water use analysis** means an analysis of water use data based on meter readings and billing data.

(25) **Landscape architect** means a person who holds a license to practice landscape architecture in California as further defined by the California Business and Professions Code, Section 5615.

(26) **Landscape area** means all the planting areas, turf areas, and water features (such as swimming pools, hot tubs, ponds and fountains) in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation), agricultural uses, commercial nurseries and sod farms.

(27) **Landscape contractor** means a person licensed by the State of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

(28) **Landscape project** means the total area comprising the landscape area, as defined in this Chapter.

(29) **Lateral line** means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.

(30) **Local water purveyor** means any entity other than the City of Brisbane, including a public agency, city, county, district or private water company that provides retail water service.

(31) **Low volume irrigation** means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers.

(32) **Low water use plant** means a plant species whose water needs are compatible with local climate and soil conditions. Species classified as "very low water use" and "low water use" by WUCOLS, having a regionally adjusted plant factor of 0.0 through 0.3, shall be considered low water use plants.

(33) **Maximum Applied Water Allowance (MAWA)** means the upper limit of annual applied water for the established landscaped area as specified in Section 15.70.070 of this Chapter concerning water budget calculations.

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

(35) **Mulch** means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

(36) **Native plant** means a plant indigenous to a specific area of consideration. For the purposes of this Chapter, the term shall refer to plants indigenous to the coastal ranges of Central and Northern California, and more specifically to such plants that are suited to the ecology of the present or historic natural community(ies) of the project's vicinity.

(37) **New construction** means the construction of a new building or structure containing a landscape or other new land improvement, such as a park, playground, or greenbelt without an associated building.

(38) **No-water using plant** means a plant species with water needs that are compatible with local climate and soil conditions such that regular supplemental irrigation is not required to sustain the plant after it has become established.

(39) **Operating pressure** means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

(40) **Overhead sprinkler irrigation systems** means systems that deliver water through the air (e.g., spray heads and rotors).

(41) **Overspray** means the irrigation water which is delivered beyond the target area.

(42) **Permit** means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.

(43) **Pervious** means any surface or material that allows the passage of water through the material and into the underlying soil.

(44) **Plant factor** or **plant water use factor** is a factor, when multiplied by ETo, estimates the amount of water needed by plants.

(45) **Precipitation rate** means the rate of application of water measured in inches per hour.

(46) **Project applicant** means the individual or entity submitting a Project Landscape Application required under Section 15.70.050, to request a permit, plan check, or design review from the City or requesting new or expanded water service. A project applicant may be the property owner or his or her designee.

(47) **Rain sensor** or **rain sensing shutoff device** means a component which automatically suspends an irrigation event when it rains.

(48) **Recreational area** means areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.

(49) **Reference evapotranspiration** or **ETo** means a standard measurement of environmental parameters which affect the water use of plants.

(50) **Rehabilitated landscape** means any re-landscaping project that requires a permit, plan check, design review, or requires a new or expanded water service application.

(51) **Runoff** means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area.

(52) **Soil moisture sensing device** or **soil moisture sensor** means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.

(53) **Special Landscape Area (SLA)** means an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.

(54) **Sprinkler head** means a device which delivers water through a nozzle.

(55) **Station** means an area served by one valve or by a set of valves that operate simultaneously.

(56) **Turf** means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermuda grass, Kikuyu grass, Seashore Paspalum, St. Augustine grass, Zoysia grass, and Buffalo grass are warm-season grasses.

(57) **Valve** means a device used to control the flow of water in the irrigation system.

(58) **Water feature** means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied).

(59) **WUCOLS** means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2000.

§15.70.040 Compliance With Chapter

A. All owners of new construction and rehabilitated landscapes of applicable sizes shall: (1) complete the Landscape Project Application (Section 15.70.050) and (2) comply with the Landscape and Irrigation Maintenance Schedule (Section 15.70.100) requirements of this Chapter.

B. All owners of existing landscapes over one acre in size, even if installed before enactment of this Chapter, shall: (1) comply with City programs that may be instituted relating to irrigation audits, surveys and water use analysis, and (2) maintain landscape irrigation facilities to prevent water waste and runoff.

C. As the approving authority, the City will:

(1) Provide the project applicant with a copy of this Chapter and the Landscape Project Application requirements and the procedures for obtaining applicable permits, plan checks, design reviews, or new or expanded water service.

(2) Review the Landscape Project Application submitted by the project applicant.

(3) Approve or deny the project applicant's Landscape Project Application submittal.

(4) Issue or approve a permit, plan check or design review that complies with the approved Landscape Project Application or approve a new or expanded water service application that complies with the approved Landscape Project Application, provided that all other requirements applicable to the issuance or approval of such permit, plan check, or design review or approval of new or expanded water service have been satisfied.

D. The project applicant shall:

(1) Prior to construction, submit all portions of the Landscape Project Application, except the Landscape Audit Report, to the City; and

(2) After construction, submit the Landscape Audit Report portion of the Landscape Project Application to the City.

§15.70.050 Application and Approval

A. The elements of a landscape must be designed to achieve water efficiency and will comply with the criteria described in this Chapter. In completing the Landscape Project Application, project applicants may choose one of two options to demonstrate that the landscape meets the Chapter's water efficiency goals. Regardless of which option is selected, the applicant must complete and comply with all other elements of this Chapter. The options include:

(1) Planting restrictions option:

(a) The turf area may not be more than 25% of the landscape area; and

(b) At least 80% of the plants in non-turf landscape areas shall be native plants, low-water using plants, or no-water using plants; or the

(2) Water Budget Calculation option (Section 15.70.070).

B. The Landscape Project Application shall include the following elements:

(1) Project Information;

(2) Outdoor Water Use Efficiency Checklist (Section 15.70.060);

(3) Water Budget Calculations, if applicant selects to use a water budget approach rather than comply with the turf area limitations or specified plant type restrictions (Section 15.70.070);

(4) Landscape and Irrigation System Design Plans (Section 15.70.080); and

(5) Landscape Audit Report (Section 15.70.090).

§15.70.060 Outdoor Water Use Efficiency Checklist

The City has developed an Outdoor Water Use Efficiency Checklist (Checklist), based on the criteria described below. For Tier 1 projects, either the project applicant or a certified or authorized professional shall complete the Checklist and submit it to the City along with the Landscape and Irrigation Design Plan. For Tier 2 projects, the Checklist shall be completed by a certified or authorized professional and submitted to the City along with the Landscape and Irrigation Design Plan.

A. Plant Material.

(1) Each hydrozone shall have plant materials with similar water use that are selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site.

(2) The turf area shall not be more than 25% of the landscape area unless the project applicant develops a site-specific water budget and the ETWU of the landscape area does not exceed the MAWA.

(3) Turf shall not be planted on slopes greater than 25% or in areas that are less than eight feet wide, unless irrigated with subsurface irrigation or a low volume irrigation system.

(4) At least 80% of the plants in non-turf landscape areas shall be native plants, low-water using plants, or no-water using plants, unless the project applicant develops a site-specific water budget and the ETWU of the landscaped area does not exceed the MAWA.

(5) The architectural guidelines of a common interest development shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

(6) Fire-prone plant materials and highly flammable mulches should be avoided.

(7) The use of invasive and/or noxious plant species is prohibited within the habitat conservation plan (HCP) area and is strongly discouraged elsewhere in the City.

B. Mulch. A minimum two-inch layer of mulch shall be applied on all exposed soil surfaces of planting areas, although a three-inch layer is recommended.

C. Irrigation System. An irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance.

(1) Dedicated landscape water meters shall be required for landscape areas greater than 5,000 square feet and are highly recommended for landscape areas greater than 2,500 square feet.

(2) Tier 2 Landscapes are required to have automatic irrigation controllers that utilize either evapotranspiration or soil moisture sensor data for irrigation scheduling.

(3) Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems.

(4) The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions.

(5) Low volume irrigation is required in mulched areas, in areas with slope greater than 25%, and within 24-inches of a non-permeable surface, or in narrow or irregularly shaped areas that are less than eight feet in width in any direction.

(6) Average irrigation efficiency is assumed to be 70%. Irrigation systems shall be designed, maintained, and managed to meet or exceed an average landscape irrigation efficiency of 70%.

(7) Irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m., unless unfavorable weather prevents it or otherwise renders irrigation unnecessary.

D. Hydrozone.

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

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

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

(4) Individual hydrozones that mix plants with different water uses may be allowed if a water budget is performed, and the plant factor calculation is based on the proportion of the respective plant water uses or the plant factor of the higher water using plant is used.

E. Water Features.

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

(2) The surface area of a water feature shall not exceed 10% of the landscape area and will be counted as a high-water using plant for purposes of a water budget calculation.

(3) Pool and spa covers are highly recommended.

F. Soil Amendments. Soil amendments, such as compost, shall be incorporated according to the soil conditions at the project site and based on what is appropriate for the selected plants.

§15.70.070 Water Budget Calculations.

The project applicant may elect to complete a water budget calculation for the landscape project. A Tier 1 water budget may be developed and completed by the project applicant. A Tier 2 water budget calculation must be completed by a certified or authorized professional. Water budget calculations, if prepared, shall adhere to the following requirements:

A. The plant factor used shall be from WUCOLS. The plant factor ranges from 0.0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.

B. All water features shall be included in the high water use hydrozone.

C. All Special Landscape Areas (SLA) shall be identified and their water use included in the water budget calculations.

D. The reference evapotranspiration adjustment factor (ETAF) for SLA shall not exceed 1.0. The ETAF for all other landscaped areas shall not exceed 0.7.

E. Irrigation system efficiency shall be greater than or equal to 70%.

F. Maximum Applied Water Allowance (MAWA) shall be calculated using the equation below:

$$MAWA = (ETo)\ (0.62)\ [(0.7 \times LA) + (0.3 \times SLA)]$$

Where:
MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration (inches per year)
0.62 = Conversion Factor (to gallons)
0.7 = Reference Evapotranspiration Adjustment Factor (ETAF)
LA = Landscape Area including SLA (square feet)
0.3 = Additional Water Allowance for SLA
SLA = Special Landscape Area (square feet)

G. The project applicant may consider Effective Precipitation (25% of annual precipitation) in tracking water use and may use the following equation to calculate the MAWA:

$$MAWA = (ETo - Eppt)\ (0.62)\ [(0.7 \times LA) + (0.3 \times SLA)]$$

H. Estimated Total Water Use (ETWU) will be calculated using the equation below. The sum of the ETWU calculated for all hydrozones will not exceed the MAWA.

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

Where:
ETWU = Estimated Total Water Use per year (gallons)
ETo = Reference Evapotranspiration (inches)

PF = Plant Factor from WUCOLS (see Section 491)
HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
SLA = Special Landscape Area (square feet)
0.62 = Conversion Factor
IE = Irrigation Efficiency (minimum 0.70)

§15.70.080 Landscape and Irrigation Design Plans.

A. Tier 1 Landscapes. The Landscape and Irrigation Design Plan for Tier 1 landscapes may be prepared by, and bear the signature of, the project applicant, or that of a certified or authorized professional.

B. Tier 2 Landscapes. The components of the Landscape and Irrigation Design Plan for Tier 2 landscapes shall be prepared as follows:

(1) The landscape design portion shall be prepared by, and bear the signature of, a licensed landscape architect, licensed landscape contractor, or that of a certified or authorized professional; and

(2) The irrigation design portion shall be prepared by, and bear the signature of, a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or that of a certified or authorized professional.

C. The landscape design portion of the Landscape and Irrigation Design Plan, at a minimum, shall:

(1) Delineate and label each hydrozone;

(2) Identify each hydrozone as low, moderate, high water, or mixed water use;

(3) Identify Special Landscape Areas (i.e., recreational areas; areas permanently and solely dedicated to edible plants; areas irrigated with recycled water);

(4) Identify type of mulch and application depth;

(5) Identify type and surface area of water features;

(6) Identify hardscapes (pervious and non-pervious); and

(7) Contain the following statement: "I have complied with the criteria of the Water Conservation in Landscaping Ordinance and applied them for the efficient use of water in the Landscape and Irrigation Design Plan."

D. The irrigation design portion of the Landscape and Irrigation Design Plan, at a minimum, shall contain:

(1) Location and size of separate water meters for landscape;

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

(3) Static water pressure at the point of connection to the public water supply;

(4) Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;

(5) Irrigation schedule;

(6) The following statement: "I have complied with the criteria of the Water Conservation in Landscaping Ordinance and applied them accordingly for the efficient use of water in the Landscape and Irrigation Design Plan."

E. Grading. If the Landscape Project will be graded, then the grading shall be designed to minimize soil erosion, runoff, and water waste. All grading should be conducted to:

(1) Maintain all irrigation within property lines and avoid drainage on to non-permeable hardscapes;

(2) Avoid disruption of natural drainage patterns and undisturbed soil;

(3) Avoid soil compaction in landscape areas; and

(4) Be consistent with city and county grading requirements.

§15.70.090 Landscape Audit Report.

A. Tier 1 Landscapes. Landscape irrigation audits for new or rehabilitated landscapes installed after the effective date of this Chapter shall be conducted after the landscaping and irrigation systems have been installed. The audit may be conducted by the project applicant or by a certified landscape irrigation auditor.

B. Tier 2 Landscapes. Landscape irrigation audits for new or rehabilitated landscapes installed after the effective date of this Chapter shall be conducted by a certified landscape irrigation auditor after the landscaping and irrigation system have been installed.

C. The Landscape Audit Report shall include, but is not limited to: inspection to confirm that the landscaping and irrigation system were installed as specified in the Landscape and Irrigation Design Plan, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule.

D. The Landscape Audit Report shall include the following statement: "The landscape and irrigation system has been installed as specified in the Landscape and Irrigation Design Plan and complies with the criteria of Chapter 15.70 of the Brisbane Municipal Code".

E. At its discretion the City will administer on-going programs such as, post-installation landscape inspection, irrigation water use analysis, irrigation audits, irrigation surveys and water budget calculations to evaluate compliance with the MAWA.

§15.70.100 Landscape and Irrigation Maintenance Schedule.

Landscapes shall be maintained to ensure water use efficiency.

A. A regular maintenance schedule shall include, but not be limited to, routine inspection; adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; weeding in all landscape areas; and removing obstructions to emission devices.

B. Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.

C. A Project applicant is encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance. These practices include, but are not limited to, minimizing waste to be hauled off site and separating green waste, composting plant debris, producing mulch on-site, pruning selectively, avoiding shearing plants, using fertilizer judiciously, avoiding synthetic quick release fertilizers, and minimizing the use of chemical pesticides. Information on such practices will be made available to project applicants, and to the public, from the Community Development Department.

§15.70.110 Stormwater Management.

Stormwater best management practices should be implemented into the landscape and grading design plans to minimize runoff and to increase on-site retention and infiltration and should be consistent with City and County stormwater management requirements.

§15.70.120 Provisions for Existing Landscapes.

This section shall apply to all existing landscapes that were installed before the effective date of this Chapter and are over one acre in size, and any existing landscape that meet the Tier 1 or Tier 2 size threshold and is located on the same site as an existing structure for which additions or alterations are being made are subject to the provisions of Section 15.08.140 of this Title 15.

A. Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.

(1) For landscapes that have a water meter, the City may administer programs such as, irrigation water use analyses, irrigation surveys, and irrigation audits to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the MAWA for existing landscapes. The MAWA for existing landscapes shall be calculated as:

$$MAWA = (0.8)\ (ETo)(LA)(0.62).$$

(2) For landscapes that do not have a meter, the City may administer programs such as, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.

(3) All landscape irrigation audits for existing landscapes that are greater than one acre in size shall be conducted by a certified landscape irrigation auditor.

B. Water Waste Prevention. Inefficient landscape irrigation resulting in runoff leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures shall be prohibited.

§15.70.130 Enforcement of Chapter.

A. It is unlawful for any person, firm, partnership, association, or corporation subject to the requirements of this Chapter to fail to comply with the provisions of this Chapter or any permit or approval granted pursuant to this Chapter. A violation of this Chapter, or any permit or approval issued pursuant to this Chapter, shall constitute an infraction and a public nuisance. Every day any violation of this Chapter, or any permit or approval issued pursuant to this Chapter, shall continue shall constitute a separate offense.

B. Every violation of this Chapter, or any permit or approval granted pursuant to this Chapter, determined to be an infraction is punishable by a fine not exceeding one hundred dollars ($100.00) for a first violation; a fine not exceeding two hundred dollars ($200.00) for a second violation of the same provision within one year; and a fine not exceeding five hundred dollars ($500.00) for each additional violation of the same provision within one year. In addition, where more than three violations of the same provision occur within one year, the City Attorney may elect to treat the fourth and each subsequent violation as a misdemeanor offense, subject to a fine not exceeding one thousand dollars ($1,000.00), or imprisonment for a period not exceeding six months, or both.

C. In addition to any criminal enforcement proceedings, every violation of this Chapter, or any permit or approval granted pursuant to this Chapter, determined to be a public nuisance may be abated by the City in accordance with the provisions of Chapter 8.36 of the Brisbane Municipal Code.

D. This Chapter may be enforced by the City Manager and his authorized representatives (the "Enforcement Official"). The Director of Community Development, the Director of Public Works/City Engineer, and the City Building Inspector are hereby designated as authorized representatives of the City Manager, with full power to enforce the provisions of this Chapter.

E. The Enforcement Official has the authority to conduct such inquiries, audits inspections, or surveys to ensure compliance with the requirements of this Chapter. Whenever the Enforcement Official determines that a violation of this Chapter has occurred, the Enforcement Official may serve a notice of violation on the owner(s) or other person(s) having possession and control of the property on which the violation is situated. The notice shall set forth the nature of the violation and the corrective that must be taken as a result thereof. The owner(s) or occupant(s) shall have ninety (90) days to take the corrective action specified in the notice. If the violation is not corrected to the satisfaction of the Enforcement Official within the

ninety (90) day period, or such additional time as the Enforcement Official may allow, the Enforcement Official may commence civil or criminal proceedings, or both, and exercise any other rights and remedies that may be provided by law

§15.70.140 Public Education.

A. The City shall provide information to all applicants regarding the design, installation, management, and maintenance of water-efficient landscapes and irrigation systems.

B. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water-efficient landscapes that are described in this Chapter.

C. The City will provide information to the public, via the City's website and/or mailings, regarding water-efficient landscapes and irrigation systems.

§15.70.150 Severability

SECTION 3: If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held by a court of competent jurisdiction to be invalid or unconstitutional, such decision shall not affect the validity of the remaining portions of this Ordinance. The City Council of the City of Brisbane hereby declares that it would have passed this Ordinance and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that one or more sections, subsections, sentences, clauses or phrases may be held invalid or unconstitutional.

SECTION 4: This Ordinance shall be in full force and effect thirty days after its passage and adoption.

* * *

The above and foregoing Ordinance was regularly introduced and after the waiting time required by law, was thereafter passed and adopted at a regular meeting of the City Council of the City of Brisbane held on the _____ day of _____, 2010, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Mayor

ATTEST:

_____

City Clerk

APPROVED AS TO FORM:

_____

City Attorney

OUTDOOR WATER USE EFFICIENCY CHECKLIST

To Be Completed by Applicant

I certify that the subject project meets the specified requirements of the Water Conservation in Landscaping Ordinance.

Signature _____ Date _____

Project Information

☐ Single Family ☐ Multi-Family ☐ Commercial ☐ Institutional ☐ Irrigation only ☐ Industrial ☐ Other:

Applicant Name (print): Contact Phone #:

Project Site Address:

Project Area (sq.ft. or acre): # of Units: # of Meters:

			Agency Review (Pass)	Agency Review (Fail)
For a single family project, or a single family development project, enter this information on an average, per unit basis. For all other projects, input an aggregate value for the entire project.	Total Landscape Area (sq.ft.):	☐ Tier 1 (1,000 - 2,500 sq.ft.) ☐ Tier 2 (> 2,500 sq.ft.)	☐	☐
	Turf Irrigated Area (sq.ft.):		☐	☐
	Non-Turf Irrigated Area (sq.ft.):		☐	☐
	Special Landscape Area (SLA) (sq.ft.):		☐	☐
	Water Feature Surface Area (sq.ft.):			

Landscape Parameter	Requirements	Project Compliance	Agency Review (Pass)	Agency Review (Fail)
Turf	Less than 25% of the landscape area is turf	☐ Yes ☐ No, See Water Budget	☐	☐
	All turf areas are > 8 feet wide	☐ Yes	☐	☐
	All turf is planted on slopes < 25%	☐ Yes	☐	☐
Non-Turf	At least 80% of non-turf area is native or low water use plants	☐ Yes ☐ No, See Water Budget	☐	☐
Hydrozones	Plants are grouped by Hydrozones	☐ Yes	☐	☐
Mulch	At least 2-inches of mulch on exposed soil surfaces	☐ Yes	☐	☐
Irrigation System Efficiency	70% ETo (100% ETo for SLAs)	☐ Yes	☐	☐
	No overspray or runoff	☐ Yes	☐	☐
Irrigation System Design	System efficiency > 70%	☐ Yes	☐	☐
	Automatic, self-adjusting irrigation controllers	☐ No, not required for Tier 1 ☐ Yes	☐	☐
	Moisture sensor/rain sensor shutoffs	☐ Yes	☐	☐
	No sprayheads in < 8-ft wide area	☐ Yes	☐	☐
Irrigation Time	System only operates between 8 PM and 10 AM	☐ Yes	☐	☐
Metering	Separate irrigation meter	☐ No, not required because < 5,000 sq.ft. ☐ Yes	☐	☐
Swimming Pools / Spas	Cover highly recommended	☐ Yes ☐ No, not required	☐	☐
Water Features	Recirculating	☐ Yes	☐	☐
	Less than 10% of landscape area	☐ Yes	☐	☐
Documentation	Checklist	☐ Yes	☐	☐
	Landscape and Irrigation Design Plan	☐ Prepared by applicant ☐ Prepared by professional	☐	☐
	Water Budget (optional)	☐ Prepared by applicant ☐ Prepared by professional	☐	☐
Audit	Post-installation audit completed	☐ Completed by applicant ☐ Completed by professional	☐	☐

OUTDOOR WATER USE EFFICIENCY CHECKLIST

To Be Completed by Agency

Auditor:

Materials Received and Reviewed:

- ☐ Outdoor Water Use Efficiency Checklist
- ☐ Water Budget
- ☐ Landscape Plan
- ☐ Post-Installation Audit

Date Reviewed:

- ☐ Follow up required (explain):

Date Resubmitted:

Date Approved:

Dedicated Irrigation Meter Required:

Meter sizing:

Material Distributed to Applicant

- ☐ Water Conservation in Landscaping Ordinance
- ☐ Outdoor Water Use Efficiency Checklist
- ☐ Water Budget Calculation Worksheets
- ☐ Plant List
- ☐ Other:

Measures Recommended to Applicant

- ☐ Drip irrigation
- ☐ Self-adjusting Irrigation Controller
- ☐ Plant palate
- ☐ Three (3) inches of mulch
- ☐ Soil amendment (e.g., compost)
- ☐ Grading
- ☐ Pool and/or spa cover
- ☐ Dedicated irrigation meter
- ☐ Other:

Comments:

Selected Definitions:

Tier 1	New construction and rehabilitated landscapes with irrigated landscape areas between 1,000 and 2,500 square feet requiring a building or landscape permit, plan check or design review, or new or expanded water service.
Tier 2	New construction and rehabilitated landscapes with irrigated landscape areas greater than 2,500 square feet requiring a building or landscape permit, plan check or design review.
ETo	Reference evapotranspiration means the quantity of water evaporated from a large field of four- to seven-inch tall, cool-season grass that is well watered. Reference evapotranspiration is used as the basis of estimating water budgets so that regional differences in climate can be accommodated.
SLA	Special Landscaped Area. Includes edible plants, areas irrigated with recycled water, surface water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.
Professional	Professional is a "certified professional" or "authorized professional" that is a certified irrigation designer, a certified landscape irrigation auditor, a licensed landscape architect, a licensed landscape contractor, a licensed professional engineer, or any other person authorized by the state to design a landscape, an irrigation system, or authorized to complete a water budget, irrigation survey or irrigation audit.
Water Feature	A design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied).

WATER BUDGET CALCULATION WORKSHEETS

SECTION A. HYDROZONE INFORMATION TABLE

Please complete the hydrozone table(s) for each hydrozone. Use as many tables as necessary to provide the square footage of landscape area per hydrozone.

Hydrozone (a)	Zone or Valve Number	Irrigation Method (b)	Area (Sq. Ft.)	Percent (%) of Landscape Area
Total				100%

(a) Hydrozone:
HW = High Water Use Plants
MW = Moderate Water Use Plants
LW = Low Water Use Plants

(b) Irrigation Method:
MS = Micro-spray
S = Spray
R = Rotor
B= Bubbler
D= Drip
O = Other

WATER BUDGET CALCULATION WORKSHEETS

SECTION B. WATER BUDGET CALCULATIONS

Section B1. Maximum Applied Water Allowance (MAWA)

The project's Maximum Applied Water Allowance shall be calculated using this equation:

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

where:

MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration (inches per year)
0.62 = Conversion factor (to gallons per square foot)
0.7 = ET Adjustment Factor (ETAF)
LA = Landscaped Area includes Special Landscape Area (square feet)
0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 - 0.7 = 0.3)
SLA = Portion of the landscape area identified as Special Landscape Area (square feet)

Maximum Applied Water Allowance = _____gallons per year

Show calculations.

Effective Precipitation (Eppt)

If considering Effective Precipitation, use 25% of annual precipitation. Use the following equation to calculate Maximum Applied Water Allowance:

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

Maximum Applied Water Allowance = _____gallons per year

Show calculations.

WATER BUDGET CALCULATION WORKSHEETS

SECTION B. WATER BUDGET CALCULATIONS

Section B2. Estimated Total Water Use (ETWU)

The project's Estimated Total Water Use is calculated using the following formula:

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

where:

ETWU = Estimated total water use per year (gallons per year)
ETo = Reference Evapotranspiration (inches per year)
PF = Plant Factor from WUCOLS
HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
SLA = Special Landscape Area (square feet)
0.62 = Conversion Factor (to gallons per square foot)
IE = Irrigation Efficiency (minimum 0.70)

Hydrozone Table for Calculating ETWU

Please complete the hydrozone table(s). Use as many tables as necessary.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)	Area (HA) (square feet)	PF x HA (square feet)

Estimated Total Water Use = _____gallons

Show calculations.

BAWSCA Template Water Conservation in Landscaping Ordinance
Frequently Asked Questions (FAQs)

Why are the BAWSCA Member Agencies developing their own Water Conservation in Landscaping Ordinance (the Ordinance) instead of adopting the State Model Water Efficient Landscape Ordinance prepared by DWR (DWR Model Ordinance)?

The Ordinance differs from the State Model Water Efficient Landscape Ordinance prepared by DWR (DWR Model Ordinance) in two main ways: (1) Size Threshold, and (2) Documentation Requirements.

Size Threshold: The DWR Model Ordinance only applies to developer-installed single family accounts and non-residential accounts that have new or rehabilitated landscaping (that require a permit) of greater than 2,500 square feet and new home-owner installed accounts with landscaping greater than 5,000 square feet. Because of the nature of development within much of the BAWSCA service area (i.e., predominately higher-density and infill development) the majority of the new accounts will not have landscaping that will be large enough to trigger application of the DWR Model Ordinance. By lowering the size threshold for applicability (i.e., to 1,000 square feet for all new or rehabilitated landscapes that require a permit or new or expanded water service), the Ordinance is designed to achieve water savings at the majority of new development that is planned within the BAWSCA service area. Other regional entities that have similar growth patterns and needs to save water (e.g., San Diego County Water Authority) have also lowered the landscape size threshold to 1,000 square feet.

Documentation Requirements: Because the applicability threshold has been lowered in an effort to capture more accounts, the Ordinance reduces the documentation requirements in order to avoid placing undue burden on the applicant and the entity that is reviewing the project applications. By simplifying the documentation requirements and the application process, the goal is to achieve greater implementation rates, and thus, greater water savings.

Is the Ordinance at least as effective as the DWR Model Ordinance in terms of saving water?
For the following reasons, the Ordinance is at least as effective as the DWR Model Ordinance in terms of saving water:

- The Ordinance applies to more accounts in the BAWSCA service area than the DWR Model Ordinance would, and therefore, will result in increased water savings.
- The Ordinance limits the allowable turf area to 25% of the irrigated area, unless the project applicant chooses to develop a water budget. The DWR Model Ordinance contains no such turf restriction and is solely water budget based. Turf restrictions have been demonstrated to have lower estimated water use than a water budget approach; therefore the Ordinance has been designed to achieve increased water savings.
- The Ordinance requires that at least 80% of the plants in non-turf landscape areas be native plants, low-water using plants, or no-water using plants, unless the project applicant chooses to develop a water budget. The DWR Model Ordinance contains no such plant restriction and is solely water budget based. By limiting the portion of a landscape that consists of high-water use plants, the Ordinance has been designed to achieve increased water savings.

BAWSCA Template Water Conservation in Landscaping Ordinance
Frequently Asked Questions (FAQs)

- The Ordinance requires dedicated irrigation meters at all accounts with landscaping that exceeds 5,000 square feet. The DWR Model Ordinance only requires dedicated irrigation meters at non-residential accounts with landscaping greater than 5,000 square feet.
- The Ordinance includes water budget parameters and values that are consistent with the DWR Model Ordinance (e.g., plant factors, irrigation efficiency).
- The Ordinance includes landscape parameters that are consistent with the DWR Model Ordinance (e.g., slope restrictions, minimum mulch requirements).
- The Ordinance has been simplified relative to the DWR Model Ordinance, which will make it easier to implement, and therefore, increase the water savings.

What will happen if an agency has not adopted its own ordinance by January 1, 2010, when the DWR Model Ordinance has been deemed effective?
By law, the DWR Model Ordinance becomes effective by statute on January 1, 2010 unless an agency has adopted its own ordinance. However, at this time it is not clear how this law will be enforced by the state. BAWSCA has developed a form letter that each agency can send to DWR in January 2010 that explains that they are in the process of developing their own ordinance in lieu of adopting the DWR Model Ordinance and that they will be providing copies of the DWR Model Ordinance and other materials to project applicants until such time that their local ordinance comes into effect.

How much water will the Ordinance save?
The Ordinance has been designed to achieve a 25% savings on outdoor water use at applicable projects. Actual water savings will likely vary based on among others things, final landscape design and the long-term maintenance of the landscaping and irrigation systems.

Does the Ordinance apply to landscape rehabilitations?
The Ordinance applies to rehabilitated landscapes if that landscape is greater than 1,000 square feet, and if a landscape permit, plan check or design review or expanded water service is required.

How do is a water budget calculated?
There are two components of the water budget calculation: (1) The Maximum Applied Water Allowance (MAWA), and (2) the Estimated Total Water Use. The Water Budget Worksheets provided by BAWSCA are based on the DWR worksheets and present the process, data needs, and equations for estimating both the MAWA and the ETWU for a given landscape. Additional information on how to calculate the water budgets and where to get evapotranspiration values, plant factors and other inputs is available on the DWR website and from the local agency.

Can a landscape project have more than 25% turf?
If a project applicant chooses to prepare a water budget in lieu of complying with the turf restriction, and can demonstrate that the ETWU of the proposed landscape is less than the MAWA, then that turf area would be allowable pursuant to the Ordinance. However, the turf area may still be restricted if a local agency has established a maximum turf area as part of the Ordinance. If the turf area is irrigated with recycled water, then it will be considered a Special Landscape Area and different standards may apply.

BAWSCA Template Water Conservation in Landscaping Ordinance
Frequently Asked Questions (FAQs)

How does the Ordinance impact edible plants, golf courses, recreational fields, parks, areas irrigated with recycled water or gray water, or water features using recycled water?
Pursuant to the Ordinance, and consistent with the DWR Model Ordinance, all of the above are considered "Special Landscape Areas" or SLA's. For purposes of water budget calculations they are treated differently in that the Evaporation Adjustment Factor (ETAF) for SLAs is 100% of the reference evapotranspiration (ETo). For non-SLA portions of the landscape, the ETAF is 70% of the ETo. The ETAF, when applied to the ETo, adjusts for plant factors and irrigation efficiency. Therefore, the SLAs are allowed 30% more water than other, non-SLA plantings.

Some plants require water to get established, but then do not require much water on a long-term basis. How is this accounted for in the Ordinance?
The checklists and water budgets that summarize the areas of low and high water use plants are based on the long-term average water needs of the plants. The water used for the establishment period (assumed to be one to two years) is not included in the water budget or the calculation of the irrigated landscape area.

How will the water savings associated with the Ordinance be measured and tracked?
Because there are many factors that impact water use on a year-to-year basis (e.g., the weather) specific water savings associated with adoption of the Ordinance will be difficult to track on a near-term basis. What will be possible to track in the near-term, however, is the number of permits and approved water service applications that are issued by a given agency that were deemed by that agency to comply with the Ordinance requirements. On a longer-term basis, and depending on the sophistication of the metering and billing system and the level of coordination between the agency and the water purveyor, it may be possible for BAWSCA to work with the local agency to quantitatively measure the water savings associated with the implementation and enforcement of the Ordinance. BAWSCA will continue to work with the member agencies on this issue.

Is an agency allowed to modify the BAWSCA Template Ordinance?
Each agency has full latitude to modify the BAWSCA Template Ordinance to suit the particulars of its local jurisdiction. However, the Ordinance that an agency adopts must, by state law, be at least as effective as the DWR Model Ordinance in terms of conserving water.

How will the Ordinance that my agency adopts be enforced?
Each agency will decide what level of resources will be assigned to enforcement its Ordinance. The first, and most critical, enforcement step will be when an agency either grants or denies a permit or an application for new or expanded water service based on whether or not the applicant has complied with the terms of the Ordinance.

ATTACHMENT D

Comparison of Ordinance 544 to Model Ordinance (AB 1881)

The Ordinance was designed to be consistent with the State's Model Ordinance, so it includes the same water budget parameters and values (plant factors, irrigation efficiency, etc.), landscape parameters (slope and width restrictions for turf, limiting irrigation times and mulch requirements) and same method of water budget calculation. It was also designed to be simpler with the use of a checklist and planting option and more effective in reducing water use (25% versus 20% on applicable projects in addition to capturing more projects with the lower size threshold). Key features are outlined below to illustrate the differences between Ordinance 544 and the Model Ordinance. The planting option was designed to be at least as water efficient as the water budget approach.

Key Feature	Model Ordinance (AB 1881)	Ordinance 544
Initial Applicability Size Threshold	2,500 sq ft (public, commercial, residential developer installed) 5,000 sq ft (residential owner installed)	1,000 square feet of irrigated landscape.
Certification Requirements – Tiers	See initial applicability size thresholds above. All plans are to be certified by a licensed professional	Tier 1: Irrigated landscapes between 1,000 sq ft and 2,500 sq ft. Tier 1 landscape plans, irrigation plans and audits may be self certified by the applicant. Tier 2 is 2,500 sq ft and above. Tier 2 plans must be certified by a licensed professional.
Application Options	No options: Water budget calculation required for all applications.	Two options: 1) Planting restrictions (maximum of 25% turf and 80% of plants in non-turf areas native, low or no water use plant); or 2) Water budget calculation.
Documentation Requirements	Project Information Water Budget Calculations Landscape Design Plans Irrigation System Design Plans Landscape Audit Report	Project Information Efficiency Checklist Landscape Design Plans Irrigation System Design Plans Landscape Audit Report (Optional: Water Budget Calculations)
Dedicated Water Meters	Required on non-residential accounts with irrigated landscaping exceeding 5,000 sq ft	Required on all accounts with irrigated landscaping exceeding 5,000 sq ft
Irrigation Controllers	Determined case-by-case	Tier 2 landscapes required to have automatic irrigation controllers (use evapotranspiration or soil moisture sensor data) for irrigation scheduling.
Requirements on Existing, Irrigated Landscapes	Existing, irrigated landscapes over one (1) acre in size (43,560 sq ft) will be subject to audit by the City and water waste prohibitions.	Existing, irrigated landscapes over one (1) acre in size (43,560 sq ft) and irrigated landscapes over 1,000 sq ft on sites where the main structure is being remodeled to over 50 percent in size or value (consistent with Brisbane Municipal Code (BMC) Section 15.15.08.140) will be subject to audit by the City and water waste prohibitions.

ATTACHMENT E

Proposed Landscape Efficiency Standards

Parameter	Tier 1	Tier 2
Applicability	New construction with landscaped area between 1,000 and 2,500 sq. ft., if permit or new or expanded water service required	New construction with landscaped area greater than 2,500 sq. ft., if permit or new or expanded water service required
	Rehabilitated landscaped area between 1,000 and 2,500 sq. ft., if permit or new or expanded water service required	Rehabilitated landscaped area greater than 2,500 sq. ft., if permit or new or expanded water service required
	Remodels of 50 % in value or area, where the existing irrigated landscaped area is between 1,000 and 2,500 sq. ft.	Remodels of 50 % in value or area, where the existing irrigated landscaped area is greater than 2,500 sq ft.
Turf Area	Less than 25% of landscaped area	Less than 25% of landscaped area
	Water Budget (optional)	Water Budget (optional)
	Turf areas must be greater than 8 feet wide	Turf areas must be greater than 8 feet wide
	No turf on slopes greater than 25%	No turf on slopes greater than 25%
Non-Turf Landscaped Area	80% of non-turf area must be native or low water use	80% of non-turf area must be native or low water use
	Water Budget (optional)	Water Budget (optional)
Hydrozones	Plants must be grouped in hydrozones	Plants must be grouped in hydrozones
Mulch	At least 2 inches of mulch required on all exposed soil surfaces	At least 2 inches of mulch required on all exposed soil surfaces
Overall Irrigation Efficiency	No overspray or runoff	No overspray or runoff
	70% Eto	70% Eto
	Special Landscape Areas allowed 100% Eto	Special Landscape Areas allowed 100% Eto
Irrigation Systems	Irrigation system efficiency ≥70%	Irrigation system efficiency ≥70%
	Moisture sensor and/or rain sensor shutoffs	Moisture sensor and/or rain sensor shutoffs
	Sprayheads not allowed in areas less than 8 ft wide	Sprayheads not allowed in areas less than 8 ft wide
	--	Automatic, self-adjusting irrigation controllers
Irrigation Times	8 PM to 10 AM	8 PM to 10 AM
Metering	--	Separate meter recommended for landscaped areas greater than 2,500 sq. ft.
		Separate meter required for landscaped areas greater than 5,000 sq. ft.
Water Features (including swimming pools, spas and fountains, etc.)	Recirculating	Recirculating
	Surface area considered high water use plant	Surface area considered high water use plant
	Less than 10% of landscaped area	Less than 10% of landscaped area
Swimming Pools and Spas	Covers recommended	Covers recommended
Documentation	Checklist	Checklist
	Landscape and Irrigation Design Plan	Landscape and Irrigation Design Plan prepared by Certified or Authorized Professional
	Water Budget (optional)	Water Budget (optional) prepared by Certified or Authorized Professional
Audits	Post-installation audit	Post-installation audit conducted by Certified or Authorized Professional

OPEN SPACE AND ECOLOGY COMMITTEE

ACTION MINUTES

April 14, 2010 7:00PM
Main Conference Room
Brisbane City Hall
50 Park Place, Brisbane, CA 94005

Call to order

Chair Fieldman called the meeting to order at 7:05pm.

Committee members present:
Gutekanst, Miller, Whitten-Greenlee and Chair Fieldman
Committee members absent:
None
Staff members present:
Assistant to the City Manager Smith
Associate Planner Ken Johnson

1. Adoption of the agenda.

Chair Fieldman noted that staff had requested that the Water Conservation Ordinances item be move up to item 4 on the Agenda. MC Miller moved and MC Gutekanst seconded to adopt the agenda as amended. The motion passed unanimously.

2. Oral Communications for items not on the agenda.

There were no public comments under Oral Communications.

3. Recognition of former Committee member, Lori Liu.

Chair Fieldman thanked former MC Liu for her service on the Committee. MC Whitten-Greenlee read a letter of appreciation to former MC Liu from the Open Space and Ecology Committee and presented her with a gift.

MC Whitten-Greenlee left the meeting at 7:30PM.

4. Water Conservation Ordinances.

Chair Fieldman introduced Associate Planner Ken Johnson who summarized the proposed indoor and outdoor water conservation ordinances and answered questions from the

Committee members. Following a discussion, MC Miller made and MC Gutekanst seconded a motion stating that "the Open Space and Committee has reviewed the two water conservation ordinances and offers its support for passage of the ordinances. The Open Space and Ecology Committee has offered a number of suggested changes and also recommends that the next phase of the water conservation effort give further consideration to how the ordinances can be enforced." The motion passed unanimously.

MC Whitten-Greenlee returned to the meeting at 8:15PM.

5. Brisbane Energy Strategy.

a. Subcommittee report

Assistant to the City Manager Smith summarized the March 31st meeting of the Energy Strategy subcommittee

b. Resource Management and Climate Protection Committee

Assistant to the City Manager Smith relayed to the Committee the information that Management Analyst Pontecorvo had received on the mission of the newly named C/CAG Resource Management and Climate Protection Committee.

MC Miller moved and Chair Fieldman seconded that the Committee invite Council member Sepi Richardson to a future Open Space and Ecology Meeting to report on the efforts of the Resource Management and Climate Protection Committee, particularly integrating transportation issues and the use of Federal Stimulus funds received by the County. CM Richardson is a member of the Resource Management and Climate Protection Committee. The motion passed unanimously.

c. Forum on energy efficiency and renewables

The Committee discussed the suggestion of holding a community forum on energy efficiency and renewables and agreed that the best way to proceed with this is to coordinate with the upcoming community forum to be held by the County in Brisbane on the CaliforniaFIRST and ABAG Retrofit Bay Area retrofit programs. The Committee agreed to table this item until the County forum has been scheduled.

6. Other Committee Matters.

a. Status of Committee vacancies

Assistant to the City Manager Smith reported that there are three applicants for the two open Committee seats and that the City Council will interview the applicants on April 26th.

b. CAG update

MC Gutekanst reported on the March 16th CAG meeting.