State of California California Natural Resources Agency

Memorandum

Date: July 9, 2015

To: California Water Commission

From: **Department of Water Resources**

Subject: Proposed Revisions to the Model Water Efficient Landscape Ordinance based on public comment received on the June 12th draft

Governor Brown's Drought Executive Order B-29-15 of April 1, 2015 (EO B-29-15) directed DWR to update the State's Model Water Efficient Landscape Ordinance (MWELO or Ordinance) through an expedited regulation. The directive specifically lists five items to address in revising the ordinance:

- More efficient irrigation systems
- Greywater usage
- Onsite stormwater capture
- Limiting the percentage of turf planted in landscapes
- Require reporting on the implementation and enforcement of the ordinance by local agencies

In undertaking this task, DWR sought input from stakeholder groups and trade organizations. The revised ordinance is attached and addresses each of required items of the Executive Order. DWR released a public draft of the revised ordinance on June 12th and held public meetings on June 16th and 19th with written comments submitted by June 26th. Comments were submitted by approximately 170 individuals, companies and organizations.

DWR has reviewed all comments and made revisions to the public draft. This memo lists significant changes to the MWELO proposed in the public draft, summarizes public comments received on these key topics, and then describes revisions made to the ordinance in response to public comments in the July 9th public draft.

Proposed Revisions to the MWELO

Landscape Size Threshold

June 12th Draft: Proposed reducing the landscape size threshold (the square footage above which landscape projects are subject to the ordinance) from 2500 sq. ft. to 500 sq. ft. for new residential, commercial, industrial and institutional (CII) projects.

Public Comment: A number of commenters stated that the ordinance requirements were too onerous and burdensome for small landscape projects now subject to the ordinance.

July 9th Revisions: DWR is proposing to keep the 500 sq. ft. as a threshold, but is including a prescriptive checklist approach as an option for compliance for landscapes under 2500 sq. ft. (See Appendix D of the Ordinance). The checklist specifies key items that must be installed or completed as part of the landscape project but does not require the submittal of soil tests, irrigation audits and grading plans. The checklist will significantly reduce compliance costs while ensuring the installations of efficient low water-use plants and irrigation systems.

Efficient Irrigation Systems

June 12th Draft: DWR proposed the following requirements to the ordinance:

- Dedicated landscape water meters or submeters for residential landscapes over 5000 sq. ft. and non-residential landscapes over 1000 sq. ft.
- Pressure regulators and master shut-off valves.
- Irrigation systems must be designed so that a precipitation rate of one inch per hour is not exceeded in any portion of the landscape. (This precludes the installation of standard spray heads which are often the cause of water waste and run off.)
- Flow sensors that detect and report high flow conditions due to broken pipes and/or popped sprinkler heads.
- An increase in the minimum width of turf from 8 feet to 10 feet that can be irrigated with overhead irrigation (sprinkler). Areas of turf below this threshold would have to be irrigated with subsurface drip or other technology that produces no over spray or runoff.

Public Comment: DWR received a large number of comments on the precipitation rate limitation, some in favor and many opposed. Many commenters stated that requiring low precipitation rates would not improve efficiency and would preclude the use of many efficient emission devices. Several commenters stated that flow sensing technology was only cost effective for large landscapes and that landscape submeters should not be required.

July 9th Revisions: Based on public comments, DWR decided that further study is needed before requiring lower precipitation rates and removed the one inch per hour limitation from the draft revised Ordinance. In lieu of the one inch precipitation rate and to increase the efficiency of spray nozzles, DWR has proposed that all irrigation emission devices meet the American Society of Agricultural and Biological Engineers'/International Code Council's (ASABE/ICC) 802-2014 landscape irrigation sprinkler and emitter standard and that sprinklers have a low quarter distribution uniformity over 0.65. These requirements will ensure that only high efficiency sprinklers are installed in California landscapes. Finally, the flow sensor requirement was modified in the draft revised Ordinance to only require flow sensors for landscape areas greater than 5000 sq. ft.

Graywater Usage

June 12th Draft: DWR added a proposed Section 492.15 to encourage the installation of graywater systems to provide onsite landscape irrigation water. All graywater systems would be required to conform to the California Plumbing Code (Title 24, Part 5, Chapter 16A) and any applicable local ordinance standards.

Public Comment: Several commenters stated that areas irrigated by graywater should be considered as special landscape areas similar to recycled water provisions.

July 9th Revisions: DWR did not revise the graywater section or make any changes to allow landscape areas irrigated by graywater to be considered special landscape areas. Graywater, unlike recycled water, typically only provides supplemental water for landscape irrigation. In most landscapes, potable water will continue to supply a significant portion of the water applied for irrigation. To incentivize graywater use, DWR proposes to allow landscapes that are under 2500 sq. ft. and irrigated only with graywater or captured rainwater to not be subject to the entire ordinance but only meet a simple irrigation checklist.

Onsite Stormwater Capture

June 12th Draft: DWR revised the Stormwater Management section (§492.16) to require friable soil in landscape areas to maximize water retention and infiltration and included additional recommended measures for increasing onsite stormwater retention. The draft also required the application and incorporation of four yards of compost per 1000 sq. ft. of area. The addition of organic matter and tillage increases the ability of soil to capture and hold stormwater.

Public Comment: Several commenters stated that the recommended stormwater best management practices should be required.

July 9th Revisions: DWR made minor revisions to the stormwater section in the June 12th public draft based on comments from the SWRCB. DWR did not revise the stormwater section to require the implementation of best management practices as there is not enough time in the current expedited revision process to write the detailed regulations required for onsite stormwater management and receive adequate public input. Secondly, it may be more appropriate to address detailed stormwater requirements in other California statutory regulations rather than in the landscape ordinance.

Limiting the Portion of Landscapes that can be Covered in Turf

June 12th Draft: To limit the area of turf in landscapes, DWR proposed reducing the maximum applied water allowance from 70% of the reference evapotranspiration (ETo) to 50% for residential landscape projects, and 40% of ETo for CII projects. A water allowance based on a 50% adjustment factor would reduce the landscape area that can be planted to turf in the residential landscapes from 33% to 25%, while a water allowance based on a 40% adjustment factor for CII landscapes would not provide enough water for any turf at all. However, as drafted, turf installation would still be permitted in new CII landscape areas when it is used for specific functions and purposes. The existing landscape ordinance provides extra water allowances for specific functions (sports, recreational, picnic areas and areas irrigated with recycled water.) and that was not changed.

In addition to the reduction in water allocation, DWR proposed not allowing turf in median strips or in parkways, unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles.

Finally, DWR proposed increasing the irrigation efficiency (IE) from .71 to .85 for residential landscapes and from .71 to .92 for non-residential (Irrigation efficiency is defined as water taken up by the plant(s) divided by the water applied. Irrigation systems with high efficiencies have high values.)

Public Comment: There was both support for the reduced water allowance and significant push back from many commenters as well. The water allowance is based on the ratio of plant factor (PF) to irrigation efficiency. Plant factor is a number between
0 and 1.0 with low water use plants having lower numbers and high water use plants having higher numbers. Cool season turf has a plant factor of 0.8.

Water Allowance = plant factor (PF)/irrigation efficiency (IE).

To decrease the water allowance in the June 12th public draft, DWR increased the irrigation efficiency, effectively requiring a greater area of the landscape to be irrigated with drip which has a higher efficiency than spray irrigation. Many commenters stated that the irrigation efficiency was set too high.

July 9th Revisions: In regards to irrigation efficiency, DWR has made two changes in response to public comment. First DWR lowered the irrigation efficiency from the value proposed in the June 12th draft to levels suggested by public comment, but still higher than the existing MWELO. Secondly, instead of having one default irrigation efficiency value for all landscape sites, DWR revised the ordinance worksheets to allow the irrigation efficiency to be entered for each area of the landscape. This will permit landscapes that have a high proportion of drip to document the higher efficiencies. The irrigation efficiency of drip has been defined as 0.81 and for overhead spray as 0.75.

As noted above, the water allowance for a landscape project in the MWELO is based on a percentage of the reference evapotranspiration. This percentage is the ratio of the plant factor divided by irrigation efficiency, and is known as the evapotranspiration adjustment factor (ETAF). By reducing the required irrigation efficiency from what was proposed initially, the water allowance for residential landscapes increased from 0.50 to 0.55 of reference evapotranspiration and from 0.40 to 0.45 for nonresidential, or CII landscapes. These values still represent significant reductions in water use over the existing MWELO which has a water allowance based on 0.70 of reference evapotranspiration.

Median strips cannot be landscaped with high water use plants, which will preclude the use of cool season turf. A requirement to irrigate areas less than ten feet wide with subsurface irrigation, or other means that produces no runoff or overspray, will limit the use of turf in parkways. This is a change from the June 12th draft, where turf was explicitly prohibited in medians and in parkways not providing pedestrian access to/from vehicles.

Reporting

June 12th Draft: Per EO (B-29-15), DWR proposed requirements for local agencies to report to DWR on the implementation and enforcement of the Ordinance by December 31, 2015 and then by January 31st in subsequent years. Section 495 lists 11 specific items that have to be addressed as part of the annual reporting.

Public Comment: Several local agencies stated that the new reporting requirements were onerous and burdensome. One agency requested that local agencies who have adopted regional ordinances be given extra time to revise their ordinance.

July 9th Draft: DWR added language allowing existing regional ordinances to remain in effect until February 1, 2016. Local agencies which have adopted a regional ordinance would still report to DWR by December 31, 2015 and state that they are revising a regional ordinance. Additionally they would be required to report to DWR by March 1, 2016 on the adopted regional ordinance.

Landscape Stakeholder Committee

Given the expedited revision process, there are a number of landscape issues that could not be addressed in the short time period. DWR plans to establish a Landscape Stakeholder Committee to provide guidance to DWR on future revisions and assist the Department in evaluation of statewide ordinance implementation and enforcement. DWR plans to establish the committee in early 2016.

In the fall of 2015, DWR will be providing workshops and guidance on the revised ordinance implementation and enforcement.

If we can be of further assistance or if you have any questions, please contact me at (916) 651-7034 or Diana S. Brooks, Chief of the Water Use and Efficiency Branch at (916) 651-7032.

Peter Brostrom, Manager
Water Use Efficiency Section

Attachment

cc: Diana S. Brooks, Water Use and Efficiency Branch
Kamyar Guivetchi, Statewide Integrated Water Management

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