Julie,

My name is Nathan Houx and I am the owner of NewLeaf Landscape Architecture, a California company that provides landscape and irrigation design and irrigation auditing to clients in California. I am a Landscape Architect and Certified Landscape Irrigation Auditor also. I also work as a park planner and landscape plan checker and inspector for the City of Modesto.

I wanted to provide a few comments in the hope of helping ensure that the new MWELO is effective in providing water savings in California. From the local government and the private practice side of the ordinance I think it has worked pretty well over the past few years though there are a few areas that some folks can exploit to get around it. So, as I review the new draft I will try to identify those areas also.

First, I have no issue with the 500 SF lower threshold for this ordinance to be applicable to for new projects and this is one are many designers have used by limiting landscape to 2,499 Sf to get around the ordinance. My only concern is with the amount of work a developer/designer would have to do for 500SF of landscape and then the amount of work a City staff would have to do to review these small projects. My opinion is that it should apply down to 500 SF but there should be an **optional** prescriptive approach for smaller projects from 500 SF to maybe 1500SF or even more that would allow a developer to follow set guidelines to not have to do all the paperwork, water calcs, irrigation audit, etc. But does this need to be at a state level? Maybe or maybe not as each City can put together a prescriptive approach that fits their climate that could allow for a developer to easily maneuver the water conservation requirements of a new landscape.

Second, I don't have huge issue with the ETAF being lowered to 0.5 for residential and 0.4 for non-residential but I do have a big issue with the Irrigation Efficiency being 0.85 for residential and 0.92 for non-residential. These irrigation efficiencies are nearly unattainable especially when you are looking at a park that has acres of turf for recreational purposes and would almost always use rotors. In my experience Rotors do not exceed a Distribution Uniformity (DU) of 75-80 percent when well designed and installed. My other issue with the Irrigation Efficiency (IE) is that to go from DU to IE you have to include a factor for inefficiencies in operating the system that are beyond just the DU of the system. This is really an arbitrary adjustment to efficiency as we cannot know how or who will operate, fix or adjust the irrigation system. I think it would be best just to require a certain DU of the irrigation system because that is all that is measurable and I think a DU of no more than 75-80% should be required for Residential and/or Non-Residential. These lower efficiencies might require a slightly higher ETAF of maybe 0.55 to 0.6 for residential and 0.45 to 0.5 for non-residential but would be much easier to attain with the irrigation technologies we have available to us at this time.

Third, I do not believe that a master valve and flow sensor should be required on all projects. It appears this requirement would apply to even residential single family dwellings and that really isn't feasible. Even smaller non-residential applications would probably not benefit much from these technologies. Though I don't think they need to be required to provide an efficient irrigation system, if DWR wants to

require them I would definitely recommend you only require them on projects of 5,000 SF of landscape area or larger or something like that.

Fourth, the requirement for the irrigation system to be designed and installed in such a manner that a precipitation rate of 1.0 inches per hour is not exceeded is too restrictive. Though I fully agree that lower precipitation rates are much better as they better match the infiltration rate of soils with the precipitation rate of the irrigation, I think there are technologies such as bubblers, rotors, drip products and high-efficiency spray heads that are very efficient but still have precipitation rates over 1.0 inches per hour. I think it is best to leave the precipitation rate up to the design professional since there are many applications that higher precipitation rates are not necessarily bad and may actually be better and with the new technologies in controllers higher precipitation rates can be mitigated through cycle and soak and other methods. I still think limiting precipitation rates on slopes is good as was already in the MWELO. In fact, if a High-Efficiency Rotary nozzle has a precipitation rate of 0.7 inches per hour and the heads are spaced at 75% of the throw to ensure efficient coverage due to wind then the precipitation rate would increase significantly and could exceed 1.0 inches per hour. If DWR would like to limit the precipitation rate still, I would like to recommend that you limit it to something closer to 2.0 inches per hour which would allow designers to ensure better head to head coverage with a high efficiency nozzle but would eliminate the standard and variable arc spray nozzles of most of the manufacturers which are not very efficient in my experience anyway.

Finally, though I see the need for some reporting, I feel that the lengthy list of annual reporting requirements without any funding attached to it would be very burdensome for most, if not all, local agencies. Many agencies do not necessarily keep track of the number of projects that apply to MWELO and the type, total area, etc. I can see a one-time reporting like the last ordinance that required the local agencies to state if they are using the MWELO as is or if they modified it, but annual reporting will require significant staff time in many agencies and will be very difficult to administer.

Thank you for taking my comments into consideration as you prepare the final MWELO and I hope my comments have been helpful to the DWR in obtaining the goal of decreasing water use state wide but leaving the door open to more creative design by the many design professionals in this state.

Sincerely,

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Owner/Principal
NewLeaf Landscape Architecture