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California State Water Resources Control Board
1001 I Street
Sacramento, CA 95812

Dear Sir/Madam:

Thank you for the opportunity to comment on the final draft of the 20 X 2020 Water Conservation Plan. I offer the following comments.

In the current fiscal environment, it is unlikely that large investments will be made in water efficiency improvements, anytime in the near future. For these reasons, I think it is important to identify the cost benefits of various water conservation measures and to implement measures according to the greatest "bang for the buck." To that end, I would recommend that you consider prioritizing implementing landscaping irrigation improvement efficiency in interior California (Central Valley, Inland Empire, and desert regions).

Landscape irrigation accounts for 50 to 80 percent of the total residential water use. The lower percentage of use is for the coastal areas and the higher percentage of use in the interior regions. Of that use, the largest proportion of use is for lawns by virtue of area and the propensity for inefficient irrigation (over spray, evaporation during application, and excessive application). The Southern Nevada Water Authority found that homeowners excessively water their lawns by about 40 percent on average.

In addition to the potential excessive watering of lawns, lawns and especially the cool season grasses such as the favored tall fescue have high water demands. A lawn in a typical residence (1,000 square-feet of lawn area) in Sacramento (DWR Reference ET Zone 14) and irrigated at 60 percent efficiency has a seasonal (April through October) water consumption of 38,000 gallons. Improving the irrigation efficiency from 60 to 80 percent (100 percent of the ET_o) will result in a seasonal savings of 8,300 gallons. If you consider a typical water provider such as El Dorado irrigation District (EID) where I served as Director, even achieving this modest level of water use efficiency improvement in half of the residential accounts (approximately 20,000) will provide enough water savings to supply 1,000 new residential accounts or approximately a population of 3,200.

To achieve these levels of water use efficiency improvement, I believe it is necessary to couple a conservation rate structure with practical and user friendly guidance on lawn irrigation management to homeowners. Such guidance would include recommendations for irrigation system operation including frequency and duration. Most homeowners do

not have a clue as to how long and how often to operate their sprinklers and tend to over water as a margin of safety. Thus, any guidance, even over simplified and rudimentary is a major improvement. This guidance can be provided in stages or levels of increasing sophistication to progressively increase irrigation efficiency; for example, higher levels of guidance could include linking actual daily ET to irrigation scheduling, information on more efficient sprayers, and weather based controllers.

In general, there is a lack of readily available and user friendly resources for the home owner who wants to reduce their landscape water use. Beyond irrigation management guidance, the state should take the lead in providing practical information on landscape design appropriate for our Mediterranean climate. This would involve information on xeric ornamentals but also landscape design information such combinations of plants and layout. This would allow the home owner motivated by conservation rate structure to phase in xeric landscaping without having to resort to a landscape architect. Many home owners may not be willing or unable to contract the services of a landscape architect. Plant selection and irrigation management should be linked to fertilization management. An example of excellent, simple fertilization guidance for lawns can be found at http://anrcatalog.ucdavis.edu/pdf/8065.pdf and can serve as a model for the type of irrigation guidance that can be provided for the home owner.

In its effort to improve landscape use efficiency, the state should consider promoting alternatives to tall fescue lawns. These could include the replacement of tall fescue lawns with warm season grasses such as zoysiagrass, St Agustine, and buffalograss. These grasses have a water demand that us half that of the cool season tall fescue. Switching to warm season grasses and efficient irrigation could reduce seasonal water requirements for 1,000 square feet of lawn from 38,000 gallons to 15,000 gallons. The state could also consider using limited bond funding to assist park districts in converting turf areas to artificial turf. For every 5,000 square-feet of turf converted to artificial turf, enough water is made available to supply a new family. While the cost of this turf is higher than the capital costs involved in a new reservoir, there are no new operational and maintenance costs associated with this new water supply or additional energy cost or environmental impacts.

In summary, the focus of implementation of water efficiency measures should be on measures that are likely to produce the largest efficiency improvements for the least amount of investment. These I believe to be irrigation efficiency improvement in lawn irrigation. To achieve irrigation efficiency improvements, simplified and user friendly resource tools need to be developed and disseminated. To induce the home owner to adopt more efficient irrigation methods, a conservation rate structure needs to be implemented jointly with the availability of tools.

Thank you for the opportunity to comment.

Sincerely,

Al Vargas