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Testimony Submitted to the Joint Interim Hearing of the Texas Senate Natural Resources & Economic Development Committee and the Texas Senate Water & Rural Affairs Committee on “Future Water Supply” – January 22, 2020

The Lone Star Chapter of the Sierra Club appreciates the opportunity to submit this written testimony and an oral summary of these comments as part of the record of public comments at the January 22nd joint interim hearing on “Future Water Supply.” Accompanying this written testimony is a hard copy of a publication titled *Best Bets for Texas Water*, a work product of the Texas Living Waters Project, a joint water education and policy project. Project partners include the Lone Star Chapter of the Sierra Club, National Wildlife Federation, and regional partners Galveston Bay Foundation and the Hill Country Alliance.

Best Bets for Texas Water was released early in 2019 in both print version and an online version (accessible at <https://texaslivingwaters.org/bestbets/>). The publication was prepared as a resource for Texas policy makers and indeed all Texans to aid in evaluating different water supply options for Texas, including but not limited to water conservation, integrated water management (the “One Water” concept), nature-based solutions (sometimes termed “green infrastructure”), aquifer storage & recovery, water reuse, groundwater withdrawal, brackish water and seawater desalination, and others. *Best Bets* discusses the pros and cons of these various water supply options. We hope that the Senate committee members and staff will find this publication a useful resource as they tackle the important interim study topic of “Future Water Supply” for our state.

Although this written testimony will refer to information in *Best Bets* and in other products of the work of the Texas Living Waters Project, the testimony is being presented solely on behalf of the Lone Star Chapter of the Sierra Club and will focus on one major but critical aspect of assuring a dependable future water supply for Texas: managing our sometimes insatiable demand for water for consumptive use. “Demand management” involves many different water management strategies, and the 2017 Texas State Water Plan projects that the recommended demand management strategies in that Plan will account for almost one-third (30.3 %) of the total volume of the additional Texas water resources needed by 2070, the 50-year state water planning horizon. A new round of regional water planning in Texas will conclude with the

submittal of updated regional water plans to the Texas Water Development Board (TWDB) by January 2021 and will be aggregated into the 2022 State Plan.

The Sierra Club believes that demand management – which includes water conservation and drought management – might well be able to meet even more of our state’s future water needs than what has been projected thus far by the regional and state water plans. Texas has made great progress in water conservation over the last two or three decades, reducing per capita water consumption in the state by about 40 gallons (the 2017 State Water Plan projects a per capita water consumption – based on dividing total water use by projected population – of only 124 gallons per day by 2070, down from about 162 gallons per capita per day 15 years ago).

Although this progress is impressive, Texas can do even better in stretching our existing and future water supplies through conservation. For example, water conservation efforts by retail water utilities across Texas vary widely and, in some instances, amount to little more than minimal public education brochures or requests to customers to “save water” on a voluntary basis. This fact was demonstrated in the Texas Water Conservation Scorecard produced by the Texas Living Waters Project and released in the spring of 2016 (available online at www.texaswaterconservationscorecard.org).

This scorecard, which assessed the water conservation efforts of over 300 retail water utilities in Texas, found some municipal utilities such as Austin, El Paso, Frisco, San Angelo, San Marcos, and others got excellent or good marks for their water conservation efforts. However, the assessment found that even utilities with good records on conservation – for example, San Antonio Water System – could enhance efforts in certain areas such as water loss control.

Moreover, dozens of retail utilities were undertaking few water conservation initiatives at the time, including major cities such as Houston. Indeed, of the 126 large and medium water utilities studied (those serving a population of approximately 25,000 or more), over half scored less than 60 out of 100 points on the scorecard of water conservation efforts. Hopefully, some of those utilities have made progress since that time, although the updated water loss data that has been obtained from TWDB and posted to the scorecard website have not demonstrated that. However, the Texas Living Waters Project is currently doing a comprehensive update of the entire scorecard, which is planned for release in May of this year, and that update will provide more current information on water conservation efforts by those utilities. That information will be made available to the public and to the Senate committees studying the topic of future water supply.

The bottom line, however, is that Texas water utilities as a whole can do more to manage water demands in their communities than they have been doing and that an increased level of effort could go far in helping the state to meet future water needs. While we do not believe that water demand management – or any other water management strategy such as desalination or aquifer storage & recovery – is a panacea, something that will meet all of our state’s future water needs, it should be considered the priority and the foundation for all other strategies. After all, traditionally municipal water supply capacity and infrastructure has been built to meet

peak customer demands, which in Texas usually comes during the summer, the hottest times of the year. Much of that capacity is unneeded for most of the year, however, because summer water use – largely driven by outdoor landscape watering – is as much as 50% to 100% more during the summer months than during the winter months. Thus, to the extent that peak water demands can be reduced, the need for costly and sometimes environmentally problematic water development can be reduced as well.

As noted above, demand management involves many water management strategies. We want to highlight three of those strategies that the joint interim Senate study of future water supply might wish to explore further: outdoor landscape watering restrictions and other options for reducing such water use, control of water loss in municipal water distribution systems, and the preparation and implementation of more effective drought response plans.

Reducing Water Use for Outdoor Landscapes

A 2012 research report found that approximately 31% of annual water use by single-family residences in Texas was attributed to outdoor water use. That primarily means outdoor landscape watering. Those statistics may have changed over the past several years as some utilities have taken steps to reduce outdoor landscape watering, but the bottom line is that such water use is significant part of the consumption of municipal water supplies, especially when one considers that many commercial, institutional, and even industrial entities also use water on outdoor landscapes (lawns, trees, shrubbery, golf courses, parks, many ball fields, and the like). Although only one component of water conservation, reducing the volume of water – especially potable water – applied to outdoor landscapes is potentially critical.

An increasing number of municipal water suppliers in Texas have undertaken programs to reduce outdoor water use. The 2016 Texas Water Conservation Scorecard found that about one-third of the large and medium retail water utilities in Texas placed time-of-day and/or times per week limitations on outdoor watering during non-drought periods. These include cities or utilities such as Austin, Dallas, Fort Worth, Frisco, Georgetown, Lubbock, and The Woodlands, among others. However, in a state where outdoor landscape watering is such a significant volume of water use, the other side of the coin is that 2/3 of the large and medium retail water utilities in Texas do **not** have those limitations in place.

Yet outdoor landscape watering limitations have the potential to save significant volumes of water for cities looking to assure a long-term water supply. There is more and more research to quantify that potential savings. The Texas Living Waters Project in 2018 updated its report *Water Conservation by the Yard: A Statewide Analysis of Outdoor Water Savings Potential*. That analysis found that if cities throughout Texas implemented no-more-than-twice-a-week outdoor watering limitations (which is what the cities identified above do) this year and coupled that with a strong education and enforcement effort, the total statewide municipal water demand projected for 2020 by the 2017 State Water Plan could be reduced by more than 460,000 acre feet. By 2070, the total projected municipal water demand that could be reduced

through the implementation of this outdoor water limitation is estimated to be as much as 760,000 acre-feet per year.

As of 2070, that volume of water would represent about 22% of the total statewide municipal water needs projected by the 2017 State Water Plan for each year of that decade (note: that the Water Plan defines “need” as the difference between the volume of water available from existing water supplies and the projected demands for water at the beginning of each decade). This latter savings would vary from water planning region to region, of course, ranging – for example – from a low of 17% in Region H (the planning region that includes Houston) to over 100% in Region I (the planning region that includes Beaumont).

The full *Water Conservation by the Yard* report, which has much more data and region by region breakdowns, may be accessed online at the following web address:

[https://texaslivingwaters.org/wp-content/uploads/2018/03/WCBTY-](https://texaslivingwaters.org/wp-content/uploads/2018/03/WCBTY-II_Final_031918.pdf?pdf=WCBTY-2018)

[II_Final_031918.pdf?pdf=WCBTY-2018](https://texaslivingwaters.org/wp-content/uploads/2018/03/WCBTY-II_Final_031918.pdf?pdf=WCBTY-2018). We respectfully request that Senators and their staff access this report for more information and that the report be incorporated into the record for this interim study of future water supply.

Verification of the positive impacts of outdoor water restrictions in the real world, not just in predictions from research, comes from a recent briefing before a Dallas City Council committee by Dallas Water Utilities Director Terry Lowery. A media report of that briefing noted that:

“Lowery says Dallas has made strides since the hot and dry summer of 2000, when the city used at least 600 million gallons of water [each day] over 75 days. And 33 times, it topped 700 million gallons [a day] in usage. In 2001, the city passed an ordinance restricting the time of day people can water their lawns and gardens using irrigation systems. Since 2012, when the city added a restriction that made it illegal to water more than twice a week, Dallas has only used more than 600 million gallons on six days....Overall, Dallas offset a 10 percent population increase since 2001 with conservation efforts that reduced average water use per person by 30 percent.”

Lowery noted in the briefing: “That is a significant impact to our system and a very positive one. It extends the need for a very expensive water supply and it reduces pressure on our system.”

We note that the types of limitations we are discussing here do not require a change of the types of landscapes that Texas single-family residences usually have, which include extensive amounts of grass or turf. Reduction or elimination of turf and replacement with more climate specific outdoor landscapes on a wide-scale basis would result in greater reduction in outdoor water use. However, making progress in reducing outdoor water use in Texas and helping to reduce the pressure for future water supplies does not necessarily require wholesale changes in landscapes but rather reasonable limitations on watering. Indeed, *Water Conservation by the Yard* noted that: “Studies show that homeowners have a tendency to overwater landscapes by as much as two or three times the amount needed....” Educating the public about appropriate outdoor landscape watering, therefore, is a key component of addressing outdoor use.

Possible legislative initiatives to promote reductions in outdoor water use include requiring applicants for state financial assistance for new water supply projects to have in place or adopt time-of-day and/or times-per-week outdoor watering limitations and appropriating funds to the statewide water public awareness program created by statute in 2007 to promote better understanding of appropriate outdoor landscape choices and watering needs.

Controlling Municipal Water Loss

Another important component of municipal water conservation is getting control of "water loss" in municipal water distribution systems. That includes both what are called "real losses" (physical loss of water in distribution systems as a result of leaking pipelines, broken water mains, and the like) and "apparent losses" (which may be accounting errors, illegal taps into water systems, faulty water meters) that reduce the volume of water that is actually available to provide to meet water needs and/or reduces the amount of revenue that water utilities receive for the water supplies that they have developed.

Water loss control is not perhaps the same as other actions that we call water demand management, but it is generally considered part of a comprehensive water conservation approach because it seeks to stretch existing water supplies and reduce water waste.

The Legislature has taken some steps in the past to address this issue:

- passing legislation requiring all water utilities to conduct and file (with the Texas Water Development Board) water loss audits every five years and requiring certain water utilities (including those with more than 3300 connections, which equates to a population of about 10,000 served) to do so annually;
- requiring those who conduct those water loss audits to go through training in the preparation of the audits (TWDB has set up an online training option and actually is currently holding water loss audit workshops in 23 cities around Texas for water utility personnel who conduct audits);
- enacting a requirement that utilities with a water loss above a threshold set by the Water Development Board that apply for a loan from TWDB have to use part of those funds or some other funding option to address their water loss, unless they receive a variance because they are already taking steps to reduce water loss.

Despite these useful measures, water losses in many utilities remain high. See the relevant updated water loss statistics in the Texas Water Conservation Scorecard online. In fact, the Scorecard website notes that:

“Looking at water loss based on water planning regions reveals that 12 out of the 16 water planning regions saw an increase in percent water loss between 2015 and 2018. Regions B (north central Texas) and O (southern high plains) were the only regions to observe a decrease in percent water loss. The remaining regions, Regions P (Jackson and

Lavaca counties) and E (Far West Texas), did not have sufficient data to make a comparison.

In terms of the average percent water loss based on utility size, medium and large utilities (those utilities serving a population greater than 25,000) experienced an average 13.5 percent water loss while small utilities (utilities serving a population of less than 25,000) had a slightly greater water loss percentage of 16.6 percent.”

Moreover, a number of water loss audits turned into TWDB have errors (some even show more water lost than the total amount pumped - which is not possible, that's clearly erroneous. The state Water Conservation Advisory Council has identified the advisability of having third party validations of water loss audits prepared by municipal utilities and submitted to TWDB, something that is actually required now in certain states such as Georgia. See the Council's 2018 report: https://savetexaswater.org/resources/doc/2018_WCAC_Lege_Report.pdf. Having accurate information about water loss is critical for water utilities to be able to pinpoint the most efficacious ways to reduce their water loss and decrease the pressure for new supplies.

Possible legislative initiatives to get a better handle on the extent of municipal water loss in Texas and to pinpoint more precisely what steps are needed to reduce that water loss would be funding to the TWDB to oversee a program for third-party validation of water loss audits and/or requirements that water utilities themselves contract for third-party validation of the audits they submit to TWDB and use to guide their water loss control efforts.

Preparing and Implementing More Effective Drought Response Plans

Reducing outdoor landscape watering on an ongoing basis and controlling water loss in municipal water distribution systems are actions to extend existing water supplies and avoid or delay the need for expensive new water development projects or decrease their size. However, from time to time, Texas finds itself in drought situations where additional reductions in non-essential water use are needed to get through the dry periods. Texas has taken steps over the past 20 years to address the issue through requirements for preparation and submittal of drought contingency plans to the State from major water rights holders and water utilities above a certain size. The Legislature has also required entities in counties declared by the Governor as disaster areas due to drought conditions to implement those plans.

However, there are no real requirements to assure that those drought contingency plans actually incorporate effective measures that will be put into effect early enough to forestall the worst consequences of a drought. **The Legislature should consider appropriating funds to TWDB to evaluate the effectiveness of current drought contingency plans and recommend any necessary requirements to be included in drought contingency plans to enhance their effectiveness, including possible penalties for failure to implement a drought plan.**

The above are only some aspects of water demand management that may help assure a future water supply, but they are part of a comprehensive approach toward achieving that goal.