OWASA provides the following responses to questions posed by Town of Chapel Hill Council Members. The responses are brief, and we are happy to provide additional details if needed. Please contact Ruth Rouse at rrouse@owasa.org or at 919-345-3742 for additional information.

1. Is there a water supply not currently in the ownership of OWASA that could contribute to OWASA's Long-Range Water Supply Plan? If so, what is/are the water supply/supplies?

   We assumed this question was asking if we could purchase water from another utility. OWASA has been working with other Triangle utilities since 2009 to collaboratively plan for the region's water supply to improve the reliability and resilience of the area's water resources. One of the results of this collaboration is the Triangle Regional Water Supply Plan. This Plan identified allocations for each utility from Jordan Lake and other supplies to meet their needs through 2060.

   OWASA also considered purchasing water from the City of Burlington. However, this alternative was not evaluated in detail as it would have required longer transmission lines than accessing our Jordan Lake allocation (i.e. less cost effective). In addition, it may not have been viable in the long-term given the growth occurring in the Triad.

2. What was the rationale for looking 50 years into the future and not for a longer period than that?

   Evaluating our needs out 50 years provides us the time to develop new supplies, but acknowledges the uncertainty in extrapolating our needs further into the future. There is a lot of uncertainty in our demand projections when we forecast 50 years into the future. There is also much uncertainty regarding climate change and the impact it may have on water supply and demand. OWASA will continue to evaluate its water supply needs every five to ten years to determine when we need to update our Long-Range Water Supply Plan.

3. Is there any chance that OWASA's allocation of 5 percent of Jordan Lake's water supply pool increases over the next few decades?

   As noted above, there is much we do not know, but we believe the chance of OWASA's allocation increasing in the future is low. Utilities within the Triangle Region worked together to develop their allocation requests for water during the 4th round of allocations from Jordan Lake. One of the results of this collaboration is the Triangle Regional Water Supply Plan. This Plan notes that Jordan Lake's water supply has been 91 percent allocated (based on demands through 2045), and based on 2060 demands will be 99 percent allocated (assumes OWASA maintains its allocation of 5 percent of Jordan Lake's water supply pool).

4. How are decisions about percent allocations of Jordan Lake's water supply made?

   The federal government assigned the use of Jordan Lake's water supply storage to the State of North Carolina, and the Environmental Management Commission (EMC) authorizes allocations. The North Carolina Administrative Code at 15A NCAC 02G .0500 describes the procedures used to allocate the water. Applicants for water supply allocations must include similar information that is included in our LRWSP: projected water needs, yield of existing sources, alternative water supplies, and a description of conservation practices. Allocation requests are based on needs thirty years into the future. Four rounds of allocations have been completed to date; a fifth round would occur upon request of an allocation from a local government or utility in accordance with the regulations. When a fifth round of allocations is opened, OWASA would have to submit an application to maintain its allocation. If other utilities have greater needs, and OWASA has not used its allocation, the EMC could reduce or rescind the allocation.

5. Out of the approx. 10.5 million gallons per day that OWASA's three local reservoirs can provide, how much of that is actually used per day over the course of a year, assuming the drought-of-record?

   The estimated current yield of our reservoirs (10.5 mgd) assumes the 2001-02 drought of record. During an average day (pre-pandemic), OWASA withdrew about 7 mgd. That number is variable (higher during hotter, dry weather and lower during cooler, wetter weather).

6. Under what circumstances can OWASA access the allocation from Jordan Lake, under its mutual aid agreements with the Town of Cary and the City of Durham?

   Our mutual aid agreements do not define the circumstances in which we can access water from our Jordan Lake allocation. However, the agreements state that the utility providing water may choose not to transfer water or transfer less water than requested if the requested transfer amount will jeopardize their ability to meet their needs.

7. What potential is there for the system to recycle water within the Jones Ferry Road Water Treatment Plant, which saves about 7% of the drinking water, to save an even higher percentage over the next few decades?

   We have maximized the amount of process water recycled at the water treatment plant under the approval of the Public Water Supply Section of NC DEQ. The small amount of process water not recycled, about 0.6% of the water treated, is due to limits on allowable recycle and suspension of recycling during facility cleaning and maintenance.

8. Would any of the alternatives laid out under any of the management strategies require financial assistance? If so, is there a sense of the cost associated with each alternative?

There are costs associated with each alternative. Some include capital and operating costs, and some include only operating costs. Costs associated any alternative would need to be recovered through OWASA's rates, fees and charges. The attached tables summarize the cost of each alternative.

9. What potential is there for new water supplies to develop over the next 50 years that OWASA could have access to?

   The potential for traditional new supplies is small since new reservoirs are difficult to site due to growth in the area and onerous permitting requirements. Groundwater is also not an option in the North Carolina piedmont for utilities due to the number of wells that would be required by the utility, which would impact neighboring private wells. Potable reuse is a potential alternative supply that we have evaluated. Potable reuse is the use of highly treated wastewater for drinking water purposes. Currently legal requirements in North Carolina limit its use. However, it is used in other states and around the world. If the North Carolina General Assembly modified the General Statutes, this is a potentially viable alternative.

Attachment 1: Cost Summary Tables of Alternatives

Table 1: Cost Summary of Supply Alternatives

Alt #	Name	Assumed Estimated Yield of Project (MGD)	Capital Cost in 2020 $		Net Present Cost	
			Project Design and Construction (Million $)	$ Per GPD of Additional Yield Provided	(Million $)	Per 1,000 Gallons of Yield
1	Jordan Lake - Full Partner in New Intake and WTP on West Side	5	$37.0	$7.41	$33.9	$0.65
2	Jordan Lake - Continue with Mutual Aid Agreements	*THIS ALTERNATIVE MAINTAINS OUR EXISTING LEVEL OF WATER SUPPLY. WATER PRICE OUTLINED IN MUTUAL AID AGREEMENTS. THEREFORE, A FINANCIAL ANALYSIS WAS NOT COMPLETED FOR THIS ALTERNATIVE.*				
3	Jordan Lake - Develop New Agreement with Town of Cary to Guarantee Access	*A FINANCIAL ANALYSIS WAS NOT COMPLETED FOR THIS ALTERNATIVE SINCE CARY STAFF HAS ADVISED THEY WOULD LIKE TO OPERATE WITHIN PROVISIONS OF EXISTING MUTUAL AID AGREEMENTS AT THIS TIME.*				
4	Jordan Lake - Develop Agreement with Western Intake Partners to Guarantee Access	*A FINANCIAL ANALYSIS WAS NOT COMPLETED FOR THIS ALTERNATIVE. THE POTENTIAL PARTNERS ON THE WESTERN INTAKE AND WATER PLANT ARE IN THE EARLY STAGES OF CONSIDERING THEIR RESPECTIVE PARTICIPATION LEVELS, RELATED COSTS, AND GOVERNING STRUCTURE.*				
5	Shallow Quarry Reservoir	2.1	$0.3	$0.14	$2.4	$0.07
6	Deep Quarry Reservoir	3.4	$77.3 (w/trans)	$22.74	$65.5	$1.39
		3.4	$35.8 (no trans)	$10.53	$31.0	$0.66
7A	Indirect Potable Reuse - New Pretreatment Mixing Basin	4	$105.9	$26.48	$36.9	$1.33
7B	Indirect Potable Reuse - Storage and Mixing in Quarry Reservoir	4	$100.9	$25.23	$36.1	$1.30
8	Indirect Potable Reuse with Return to University Lake	*A FINANCIAL ANALYSIS WAS NOT COMPLETED FOR THIS ALTERNATIVE, SINCE ALTERNATIVE 7A (AND POSSIBLY 7B) IS MORE VIABLE FROM A REGULATORY AND ECONOMIC PERSPECTIVE.*				
9 - C	Direct Potable Reuse - Carbon-Based Treatment	4	$46.0	$11.50	$18.0	$0.65
9 - RO	Direct Potable Reuse - MF/RO Treatment	4	$59.4	$14.85	$31.4	$1.13

Table 2: Cost Summary of Demand Management Alternatives

Alt #	Name	Estimated 2070 Water Savings of Project (MGD)	Capital Cost in 2020 $		Net Present Cost (Millions)	Net Present Levelized Costs Per 1,000 Gallons Projected to be Saved
			Project Design and Construction (Millions)	Per GPD of Savings Provided		
10	Reclaimed Water Use at UNC Cogeneration Facility	0.2	$13.2	$66	$17.9	$5.99
11	Reclaimed Water Use for Toilet Flushing in New UNC Buildings	0.055	$1.7	$31	$1.0	$1.11
12	On-Site Wastewater and NPW Treatment and Reuse	0.154	$4.5	$29	$8.8	$4.18
13A	Unit Sub-Metering and WaterSense Installation	0.17	*Operating Program*	*N/A*	$0.4	$0.27
13B	Water Efficiency Design Assistance	0.23	*Operating Program*	*N/A*	$2.0	$1.02
13C	On-Bill Financing Program for Investments in Water Efficiency	0.03	*Operating Program*	*N/A*	$0.3	$248
13D	Minimize System Flushing	0.047	$6.2	$132	$5.7	$6.78