

Appendix G: Public and Agency Comments

Public Scoping Comments, 2020



TECHNICAL MEMORANDUM

To:

Jay Meyers, PE, Town of Fuquay-Varina
Vic Czar, PE, City of Sanford

Copies:

Michael Wang, PE, Hazen and Sawyer
Reed Palmer, PE, Hazen and Sawyer
Linda Diebolt, Hazen and Sawyer
Keven Arrance, Hazen and Sawyer

From:

Mary Sadler, PE

Date:

January 7, 2021

Subject:

Summary of Public and Agency Scoping Comments
Town of Fuquay-Varina Water Supply and Interbasin Transfer Project

General Statute §143-215.22L outlines the requirements for public notification that are triggered when an applicant files a Notice of Intent to File (NOI) a Petition. The Town submitted the NOI to the Environmental Management Commission (EMC) on September 3, 2020. Three public meetings were required within 90 days of the NOI submittal. The public meetings were held in specific locations as mandated by the Statute. The meetings were held in the Town of Cary (receiving basin), Chatham County (source river basin upstream of point of withdrawal), and the City of Fayetteville (source river basin downstream of the point of withdrawal). The public comment period closed on November 20, 2020.

Concurrent with the public notification process, agency scoping comments were solicited in accordance with the State Environmental Policy Act (SEPA). A scoping letter was submitted to the Department of Administration (DOA) Review Clearinghouse on October 7, 2020. The project was assigned the number SCH File # 21-E-0000-0754. The Clearinghouse comment period closed on November 9, 2020.

Hazen assembled a database of all comments received during the scoping process. Attachment A provides a summary of the comments as entered into the comment database.

The following is a summary of the comments received from the public:

- General opposition to transfer.
- "Massive" amount of water being "stolen" from the Cape Fear River.
- Triangle communities need to establish sustainable water supply mechanisms that do not deprive downstream residents.
- "Strong" water flow in the Cape Fear River crucial to provide a buffer for times of drought, to dilute chemicals and pollutants contaminating water supply, and to provide recreational opportunities.
- Water conservation and efficiency lacking. Consider incorporating measures into Town's Municipal Ordinance.

- Impact of climate change on future condition.
- Drought impacts.
- Reduction in stream flow and the impact of pollution and chemical releases.
- Social inequity of diverting “critical water resources” from poorer more diverse downstream users to sprawling, wealthier, and whiter suburban communities.
- Return water to the Cape Fear River at a reasonable rate and quality.
- Public education and awareness to encourage property owners to conserve water.
- Request for City and Town to actively participate in the Triangle Water Partnership to facilitate evaluation of Sanford as a regional water and wastewater provider and as neighboring communities evaluate costs and benefits of multiple regional water supply and regional wastewater treatment options.
- Request for Town to consider buying water from other regional suppliers to satisfy peak day demand.
- Consider change in growth patterns if transfer is not approved.
- Assess impervious surface impacts of growth.
- Assess cost of service (water, sewer, stormwater, civic) for the growth that transfer will support. Excess revenue as a result of the transfer should be used to offset impacts of induced development on water quality and environment in receiving basin.
- Assess cost of energy between alternatives and impact of carbon reduction limits shifting land use spatial patterns.
- Consider the impact of future total withdrawal from the Cape Fear River by Sanford and its partners and not just the incremental increase in withdrawal to serve Fuquay-Varina.
- Address condition and fate of Buckhorn Dam and impact on fish passage.
- Contamination concern regarding PFAS compounds, 1,4-dioxane, and other emerging contaminants.
- Recommendation for Sanford and partners to develop a conservation plan for the lower Deep and lower Haw Rivers that would identify properties with high conservation and water resources values. The Triangle Land Conservancy, Triangle J Council of Governments, and the Fund developed a Watershed Conservation Plan as a component of the Jordan Lake One Water Initiative in 2019. More at <https://www.triangleland.org/cms/wp-content/uploads/2019/08/jordan-river-watershed.pdf>. The Triangle Land Conservancy also prepared a conservation assessment of the Lower Deep and Upper Cape Fear Rivers in 2001. More at <https://www.triangleland.org/cms/wp-content/uploads/2015/12/deep-riv-public-complete.pdf>.
- Potential impact to protected and candidate species in each watershed.
- Question regarding the Town’s stormwater management ordinances and policies relative to the capture, reuse, infiltration, treatment, and reduction of stormwater and flooding from new development. Provide incentives to capture and reuse rainwater and stormwater for non-potable purposes or incentives for nature-based green stormwater infrastructure to both reduce flooding

and prevent water pollution.

- Trends in per capita usage.
- Impact of transfer on financing the project.
- Wake County should consider strengthening its stormwater management/flood reduction policies.
- Request that Town propose a sustainable solution to the water management issue in the Cape Fear and the Neuse River basins.
- Consider water supply protection policies for Hector Creek, Neils Creek, and Harnett County's water supply.

The following is a summary of the comments from utilities, persons representing utilities, or municipal government:

- General opposition to transfer.
- Water quality issues from industrial dischargers and emerging contaminants.
- Town's Local Water Supply Plan (LWSP) does not reflect interbasin transfer.
- Impacts to communities downstream have not been identified.
- Other alternatives have not been explored or identified.
- Concern over water diversion and long-term water supply impact on downstream communities in the Cape Fear River basin.
- Negative ecological impacts.
- Concern that an adjustment in the 7Q10 will affect downstream users and increase the likelihood of water shortages. Consider USGS work to update the 1994 report "Low-flow Characteristics of Streams in North Carolina."
- Reduction of streamflow will exacerbate pollutant concentrations and algal blooms, particularly in low flow.
- No guaranteed reservoir storage (e.g., Jordan Lake) during drought conditions.
- Precedent for significant IBT (Cary, Apex) returning water to Cape Fear River.
- No evidence that the Town is unable to obtain water from the Neuse.
- Town is required to prove that the amount of the transfer does not exceed the amount of the projected shortfall under the applicant's water supply plan after first accounting for all other sources of water available to the applicant.
- Instream flow studies to assess the quantity and quality of wildlife habitat as a function of flow is appropriate for addressing fish and wildlife habitat.
- Return of water to the Cape Fear as mitigation for adverse water quantity and quality effects of IBT.
- Fayetteville region depends on having surplus water supply to attract new industry. Approximately 72 mgd is needed by 2060.

- Town should review water system improvements in lieu of the transfer, including replacing existing water meters and developing a leak detection program.
- Implement water conservation measures and a program to educate residents, particularly through better irrigation practices.
- Fayetteville did not receive an allocation from Jordan Lake. The Jordan Lake Allocation Recommendation and Surface Water Supply Plan did not account for any future withdrawals between Jordan Lake outfall and Fayetteville Lock and Dam #3. This study should be updated before additional transfers or withdrawals can be permitted.
- Lower Cape Fear Water and Sewer Authority, Brunswick County, and Cape Fear Public Utilities do not support any action that reduces the available water supply to the Lower Cape Fear, as significant capital investments have been made to use the 106 mgd permitted allocation.

The following is a summary of agency comments from SEPA scoping through the Review Clearinghouse:

- Include an analysis for a return of water to the Cape Fear River.
- Include verification that Town's wastewater treatment plant has the capacity to treat any increase in overall volume and waste load to the Neuse River to remain in compliance with the NPDES permitted nitrogen limit.
- Based on the City's LWSP, future sales of 6 mgd will cause the City to exceed their total available supply. The preferred alternative must show that the demand-supply ratio for the City is maintained at no more than 80%.
- Concern over stormwater from highly urbanized areas (e.g., Swift and Middle Creeks are of particular concern due to several state listed threatened and endangered species).
- Secondary impacts from increased water supply will facilitate growth and an increase in impervious surface and severe stormwater runoff. Increased runoff may cause degradation of aquatic habitats through accelerated stream bank erosion, channel changes, bedload changes, altered substrates and scouring of stream channels.
- Consider additional measures to protect aquatic and terrestrial wildlife species in developing landscapes.
- Concern over habitat loss, degradation, or fragmentation of wildlife.
- Reduction in water flow in the Cape Fear River could impede reproduction of sensitive species.
- Discuss cumulative impacts of secondary development facilitated by the proposed project. Weigh economic benefits of growth against costs of associated environmental degradation.
- Address specific measures to control stormwater, stream corridor protection, riparian habitat, and floodplain development.

American Rivers • NC Conservation Network • Sound Rivers

November 20, 2020

Mary Sadler, PE
Hazen and Sawyer,
4011 WestChase Blvd, Suite 500,
Raleigh, NC 27607

Re: Scoping comments on the proposed Fuquay-Varina interbasin transfer

Dear Ms. Sadler,

We appreciate the opportunity to offer our thoughts during this scoping process for the proposed interbasin transfer to feed growing demand in and around Fuquay-Varina. The request comes at a time of ongoing rapid growth in the Triangle, substantial ongoing impacts in the receiving basin, and increasing concerns about the availability and quality of water resources in the source basin. Below we have gathered a set of questions around potential impacts and mitigation measures, to fold into your environmental impact assessment and review of the proposal.

Perfluorinated compounds and water quality

Perfluorinated compounds are present at relatively high concentrations in the Haw and Deep Rivers and therefore in the Upper Cape Fear sourcewater for the proposed IBT. Does Fuquay-Varina intend to expose its customers to these contaminants? How does Fuquay-Varina intend to remove PFAS – most of which are not regulated – from drinking water? How much will it cost the utility to manage this pollution? Are these costs factored in to the relative costs of alternatives in the alternatives analysis?

If the utility plans to discharge wastewater into the Neuse rather than returning it to the Cape Fear, the transfer will release PFAS into a basin where they have not been found in significant concentrations, and will likely contaminate the sourcewater of downstream water users. How does the utility weigh its potential liability for that pollution and for increased water treatment costs incurred by downstream utilities?

Alternatives to the proposed transfer

Once approved, interbasin transfers are relatively permanent, even if in theory they could be rescinded – so transfers tend to lock in patterns of capital investment and demand, excluding alternatives that were viable to that point. The alternative analysis for an interbasin transfer is often the last chance to seriously consider other potential futures, with all the ramifications of that for municipal finances and flexibility, along with impacts to residents' quality of life and jurisdictions' economic competitiveness.

What is the per capita water usage in the receiving jurisdiction, and what are the trends? Most utilities have found declining per capita usage over the last 15 years. What are the trends in Fuquay-Varina's per capita financial liability for infrastructure? What are the upcoming infrastructure burdens that Fuquay-

Varina expects to carry, and how will the new obligations of financing the interbasin transfer interact with that? What is the return on investment in greater efficiency of water use as compared to the anticipated return on investing in the transfer?

What are the options for Fuquay-Varina to continue to buy water from other regional water suppliers rather than taking on the infrastructure and compliance costs of becoming a supplier itself? To the extent that the town is managing risk, trying not to invest too little or too much, are there contractual instruments with other regional supplier that can help distribute or hedge this risk? For example, can Fuquay-Varina negotiate a contract with another regional supplier to ensure that, if demand spikes in Fuquay-Varina, the town will have access to the water it needs – but if, as a result of various factors, that growth mostly lands in the center cities, Fuquay-Varina won't have over-invested in expensive infrastructure?

Impacts of growth and mitigation of those impacts

How will Fuquay-Varina grow differently (population, spatial pattern, mix of uses) if the transfer is approved versus if the transfer is not approved? What is the anticipated increase in impervious surface area that will result from that growth? How will it be distributed across the subwatersheds served by the utility?

What is the anticipated marginal cost of service (for water, sewer, and stormwater, and for all civic services) for the growth that the transfer will support? Growth dependent on the transfer will increase the jurisdiction's revenue base, and presumably also the per capita demand for services. How will the jurisdiction capture a portion of that increased value, and how will it use that revenue to offset impacts of induced development to water quality and the environment in the receiving basin?

What are similar patterns of anticipated impacts across the jurisdictions to which Fuquay-Varina may sell or supply water?

Ideally, local stormwater, sediment, and floodplain regulations limit the impacts of induced development on the ecosystem services and natural resources of the receiving basin. In practice, that rarely happens. What policies and ordinances are in place in the receiving jurisdictions?

As a result of climate change, North Carolina is receiving more intense storms more frequently, and design standards for infrastructure are not performing as intended. What steps are the receiving jurisdictions taking to ensure their ordinances and standards continue to provide the intended level of protection in the face of ongoing climate change?

Both the Neuse basin and the Cape Fear basin are home to a number of state- and federal- protected species that are susceptible to changes in water chemistry and quantity, including impacts from induced development. What impacts will the proposed transfer and its impacts have on protected and candidate species in each watershed? How does the applicant propose to avoid or mitigate those impacts?

Interaction with a low-carbon future

Scientists have recognized that to limit climate change, we must transition to carbon neutral energy and transportation systems. Many states, towns, and policy leaders have articulated the goal of achieving carbon neutrality by 2050. While the mechanism by which North Carolina or the United States will reach

this goal is not clear, the probability that one or more mechanisms are adopted is sufficiently large that the Environmental Impact Statement (EIS) for the project should address that future.

Any mechanism to reduce carbon emissions is likely to raise the relative cost of fossil-fuel based energy, including the energy used to transfer water from the Cape Fear to Fuquay-Varina (and to return wastewater, if that ends up being a mitigation measure). How does the cost of energy factor in to the choice between project alternatives, including the 'no action' alternative?

Carbon reduction limits are very likely also to shift the spatial pattern of land uses – and therefore water demand – in southern Wake County. These shifts may move away from patterns that require significant individual travel and towards more dense patterns of development (if transit options are available) or towards lower overall growth in demand and tax base (if new residents instead gravitate towards Raleigh, Cary, and other larger cities). The EIS should assess the impact of these changing patterns on the demand for water, the cost of service, and the financial capacity of Fuquay-Varina to invest in and maintain the substantial infrastructure needed both to transfer and to distribute the water.

Source Water

Sanford's primary water intake is from the Cape Fear River near the Avents Ferry Rd bridge. This portion of the Cape Fear River has only minimal regulated protections as a Water Supply IV designated water body from contaminations associated with point and non-point source pollution. The study should address the feasibility of developing a watershed protection and restoration program funded via a fee on water utility bills.

The Buckhorn Dam creates a minimal impoundment from which water in the Cape Fear is withdrawn currently. That dam is reaching the end of its design life and no longer serves the purposes for which it was initially built. Additionally, it is a complete barrier to fish migration up and down stream and a hazard for recreational boaters. Will the study address options for water supply that could be implemented to improve the reliability of the water intake in a run-of-river condition?

Carrying capacity and other water supply needs

A perspective underlying many interbasin transfers in North Carolina to date has been the view that water is essentially fungible – that as long as sufficient demand is present, water can and should be moved from basin to basin to meet demand wherever that demand appears. Yet, ultimately, our watersheds have limits to the supply they can provide, and even tighter limits to the supplies they can provide and still serve other values. Where does Fuquay-Varina propose that state environmental managers draw that line? When would Fuquay-Varina say it has grown its raw water supply enough for the next century, or maxed out its proper share of the available resource? What policies is the town putting into place to ensure that it arrives at that point gently, without overshooting at the expense of surrounding towns and the natural environment?

We recognize this is essentially asking Fuquay-Varina, in the EIS, to propose a sustainable solution to the puzzle of water management not just for itself, but for the larger web of communities in both the source and receiving basins. We think that is appropriate, since by the terms of the proposed transfer, Fuquay-Varina intends to position itself to be a regional water supplier – the town is already not thinking of itself as a lone actor. We also suspect that the Triangle Water Supply Partnership could be a source of

information and analytical support as Fuquay-Varina wrestles with this challenge; such a complicated problem is often best solved together rather than through solo, uncoordinated strategies.

The Cape Fear River watershed has been the source of longstanding controversy over interbasin transfers, including most recently the contested transfer of water associated with the Western Wake Wastewater Treatment plant. Those cases have demonstrated that downstream water demand in places like Fayetteville is critical to the success of the region. How will Fuquay-Varina and the City of Sanford work collaboratively to ensure that enough water is returned to the Cape Fear River to protect existing and future needs of downstream communities, especially considering climate change?

Conclusion

We appreciate the chance to offer these comments in the scoping process, and look forward to reviewing and commenting on the draft environmental documents in depth.

Sincerely,

Peter Raabe
North Carolina Director
American Rivers

Grady McCallie
Policy Director
NC Conservation Network

Matthew Starr
Upper Neuse Riverkeeper
Sound Rivers

DARSWEIL L. ROGERS, COMMISSIONER
WADE R. FOWLER, JR., COMMISSIONER
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November 17, 2020

Ms. Mary Sadler, PE
Hazen and Sawyer
4011 West Chase Blvd, Suite 500
Raleigh, NC 27607

Subject: Town of Fuquay-Varina Proposed IBT

Dear Ms. Sadler,

The Fayetteville Public Works Commission submits the following comments concerning the Town of Fuquay-Varina Proposed Interbasin Transfer:

1. Fuquay-Varina is required to prove that there are no reasonable alternatives to the proposed inter-basin transfer, and to date, we have seen no analysis or other evidence that Fuquay-Varina is unable to get additional water from the Neuse River Basin or any other source. In considering such alternatives, the EMC is not limited to consideration of alternatives that have been proposed, studied or considered by Fuquay-Varina. Except in circumstances of technical or economic infeasibility or adverse environmental impact, the EMC's determination as to reasonable alternatives must give preference to alternatives that would involve a transfer from one sub-basin to another within the Neuse River Basin (i.e., major receiving river basin) over Fuquay-Varina's proposed alternative that would involve a transfer from one major river basin (Cape Fear) to another major river basin (Neuse).
2. Fuquay-Varina is also required to prove that the amount of the transfer does not exceed the amount of the projected shortfall under the applicant's water supply plan after first taking into account all other sources of water that are available to the applicant, and to date, we have seen no analysis or other evidence of that from Fuquay-Varina.
3. Fuquay-Varina is required to prove that the benefits of the proposed transfer outweigh the detriments of the proposed transfer and that the detriments have to be mitigated to the maximum degree practicable, and to date, we have seen no analysis or other evidence of that from Fuquay-Varina. In that regard, Fuquay-Varina must address, and EMC must consider all of the following:
 - a. The EMC must consider the necessity and reasonableness of the amount of surface water proposed to be transferred and its proposed uses. The Sanford WTP is quite a distance from Fuquay-Varina. Fuquay-Varina should identify the geographic boundaries within which the water being requested would be used, including whether that area is entirely within Fuquay-Varina town limits.

- b. The EMC must consider present and reasonably foreseeable future detrimental effects on the source river basin, including effects on wastewater assimilation and water quality. In recent years, the Cape Fear River upstream and downstream of Fayetteville has been fraught with numerous water quality issues stemming from industrial discharges and other sources. During low-flow periods, further reduction of streamflow can exacerbate pollutant concentrations. Environmental impact assessment of this proposed IBT must address both water quantity and water quality in the Cape Fear River.
- c. The EMC must consider present and reasonably foreseeable future detrimental effects on the source river basin, including effects on fish and wildlife habitat. Instream flow studies which assess the quantity and quality of wildlife habitat as a function of flow levels are the appropriate means to assess this concern. Reduction of streamflow may negatively impact fish and wildlife which depend on the Cape Fear River.
- d. The EMC must make a specific finding as to measures that are necessary or advisable to mitigate or avoid detrimental impacts on the source river basin. In this regard, Fuquay-Varina should identify how and in what quantities treated wastewater can be returned to the source basin to reduce the net transfer. Fuquay-Varina has decided to make a major water supply investment in expansion of the Sanford WTP. Consequently, Fayetteville PWC expects that major investments in wastewater pumping and treatment infrastructure will likewise be considered to return water to the source basin. The Cary-Apex IBT has established a clear precedent that return of wastewater to the Cape Fear River can serve as mitigation for adverse water quantity and quality effects of IBT.

In summary, unless Fuquay-Varina meets its substantial evidentiary burden, the certificate needs to be denied. If the certificate is granted without sufficient evidence to support it or without a condition to return sufficient quantities of treated wastewater to the Cape Fear River Basin, Fayetteville PWC will contest it, and it is anticipated that other water systems in the lower Cape Fear region would consider joining us in doing so.

Sincerely,

Fayetteville Public Works Commission



Mick Noland, PE
Chief Operations Officer
Water Resources Division

Cc: David Trego
Elaina Ball
Jamie West
Paul Peterson

**RESOLUTION OPPOSING THE PROPOSED INTERBASIN TRANSFER ("IBT")
CERTIFICATE REQUEST BY THE TOWN OF FUQUAY-VARINA FOR WATER FROM THE
CAPE FEAR RIVER BASIN TO THE NEUSE RIVER BASIN**

WHEREAS, maintaining the quantity and quality of water in the Cape Fear River is of paramount importance to the public health, security and economic welfare of Cumberland County, North Carolina, and surrounding communities; and

WHEREAS, the County of Cumberland believes the Interbasin Transfer ("IBT") Certificate request submitted by the Town of Fuquay-Varina poses increased risks to the water supply of Cumberland County and other counties downstream; and

WHEREAS, the Cumberland County Board of Commissioners has determined it is in the public interest of Cumberland County citizens as well as the citizens of all communities benefited by the Cape Fear River and its waters to oppose any permanent transfer of water from the Cape Fear River to other river basins; and

WHEREAS, in recent years, the Cape Fear River upstream and downstream of Fayetteville has been fraught with numerous water quality issues stemming from industrial discharges and emerging contaminants from other sources; and

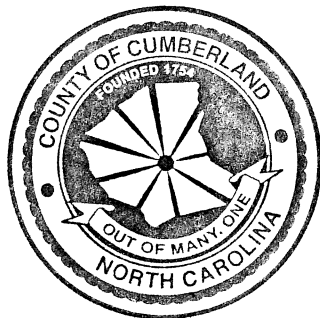
WHEREAS, reduction of streamflow through IBT would exacerbate pollutant concentrations and water quality issues such as algae blooms that are more likely during low-flow periods; and

WHEREAS, communities which are largely in the Triangle area have been successful in obtaining water supply allocations from Jordan Lake that leave Cumberland County and other downstream communities without guaranteed reservoir storage during drought; and

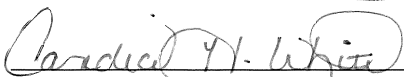
WHEREAS, significant IBT is already occurring from the Cape Fear Basin including the largest permitted IBT by the Towns of Cary and Apex, which established a clear precedent that return of wastewater to the source basin can help mitigate for the impacts of IBT; and

NOW, THEREFORE, BE IT RESOLVED THAT the Cumberland County Board of Commissioners opposes the interbasin transfer of water from the Cape Fear River Basin without the requirement that the same level of treated wastewater be returned back to the Cape Fear River Basin.

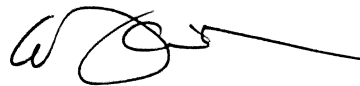
Adopted this 16th day of November, 2020.



Attest:


Candice H. White, Clerk to the Board

Cumberland County Board of Commissioners
By:



W. Marshall Faircloth, Chair

Sadler, Mary

From: Brian Gaskell <brian.gaskell@hotmail.com>
Sent: Tuesday, October 13, 2020 2:28 PM
To: Sadler, Mary
Subject: Fequay-Varina Interbasin Transfer Request Public Feedback

Caution! *External email – think before you click*

Dear Ms. Sadler,

I am a resident of Fayetteville and have intently followed the discussion regarding Fequay-Varina's Interbasin Transfer request from the Cape Fear River to the Neuse River. I regret that due to a previous commitment, I will not be able to attend the public hearing scheduled for Wednesday, October 21. Therefore, as a concerned citizen, Fayetteville Public Works Commission customer, and member of the Fayetteville Public Works Commission Citizen Advisory Board, I would like to share that I am opposed to the current request, due to the following reasons:

1. Nowhere in the plan to I see where the 4-8 million gallons of water withdrawn from the Cape Fear River must be returned to it. I also find it disturbing that related impacts to communities downstream have not been identified.
2. I find it unacceptable that there is no mention of other alternatives that have been explored or identified by Fequay-Varina. It would seem a transfer request would be a step of last resort, not the first.
3. I am concerned that diverting water flow away from the Cape Fear could inhibit the ability of adequate water resources for communities further down the Cape Fear River. After all, isn't it reasonable to expect that there could be additional growth in areas such as Fayetteville, Lillington and Wilmington, which also rely on this valuable resource? What alternatives would those communities have if this proposal is approved?
4. I do not see how this proposal could have any positive environmental impact on wildlife/fish habitats. Lower water levels almost always lead to negative ecological impacts.
5. It is my understanding that the proposed 4-8 million gallons/day is only an average figure, and that the actual withdraw could be higher or lower, depending on need. That is a significant amount of water...it is unsettling to consider that this amount could be withdrawn from its natural flow, especially considering this area's continued susceptibility to periods of dry weather/water shortage.

I appreciate the opportunity to share my concerns on this issue and thank you for your time. I look forward to a decision that will be in the best interest of ALL residents of North Carolina.

Please feel free to contact me if you would further like to discuss this matter.

Sincerely,

Brian Gaskell
brian.Gaskell@Hotmail.com

616-690-5236

558 Lambert Street, Fayetteville, NC 28305

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Sadler, Mary

From: Lindsey Hallock <Lindsey.Hallock@cfpua.org>
Sent: Wednesday, October 14, 2020 12:58 PM
To: Sadler, Mary
Cc: Jim Flechtner
Subject: Cape Fear Public Utility Authority Comments on Proposed Fuquay Varina IBT

Caution! *External email – think before you click*

Ms. Sadler,

North Carolina has experienced rapid growth over the past decade, a trend that has impacted communities up and down the Cape Fear River and is projected to continue. As communities begin to plan for a larger population, they are simultaneously working to understand the future impacts of climate change on the region. These two forces, increased demand and climate change, introduce uncertainty into water resources planning and may disproportionately impact downstream communities if interbasin transfers (IBTs) are approved in the basin.

The U.S. Environmental Protection Agency estimates that most of the state of North Carolina has already warmed between one-half and one degree over the last century. Additionally, sea levels on the North Carolina coast are rising nearly one inch every decade. For coastal communities like the one Cape Fear Public Utility Authority (CFPUA) serves, increased temperatures may increase local water demand while also drawing moisture out of the basin. In addition, reduced groundwater capacity and higher treatment costs resulting from saltwater intrusion could increase our reliance on the Cape Fear River as a source of raw water for the community.

Long-term supply allocations from the Cape Fear River are calculated using an estimate of expected low flow levels called the “7Q10.” The 7Q10 is equal to the lowest average flow for seven consecutive days expected to occur once in 10 years on average based on the historic record. The maximum allowable withdrawal is 20 percent of the 7Q10, which is currently set at 106 million gallons per day (MGD) at Lock & Dam Number 1 –the raw water intake CFPUA shares with our partners in the region.

In 2019, CFPUA and its partners acknowledged that a regional approach to water resources planning was needed to formalize allocations at Lock & Dam Number 1 and provide a level of certainty to communities as they plan for future needs. That year CFPUA, Brunswick County, and the Lower Cape Fear Water and Sewer Authority signed an interlocal agreement (ILA) that allocated the 106 MGD allotment among the communities served by each partner. The ILA now serves as the foundation for several large capital investment projects in southeastern North Carolina. In addition, CFPUA and our partners have already invested public funds and constructed the permitted infrastructure necessary to withdraw up to 106 MGD from the Cape fear River at Lock & Dam #1 to supply their customers in southeastern North Carolina.

It is CFPUA’s opinion that IBTs from upstream users, such as the proposed transfer from Fuquay Varina, may negatively impact source water availability for downstream communities that are already dealing with uncertainties related to future growth, climate change, and a 7Q10 number that has not been assessed in decades. By decreasing the amount of available surface water today, an approval of Fuquay Varina’s IBT or any other upstream IBTs increases the risk that downstream communities may face shortages in the future.

As a result, CFPUA recommends that Fuquay Varina’s request for an IBT certificate be denied.

CFPUA also recommends that future projections of various flow data scenarios for the Cape Fear River be made available to communities dependent on the river as source water. It is CFPUA’s understanding that the U.S. Geological Survey is

currently considering an update to the 1994 report produced by Giese and Mason, “Low-flow Characteristics of Streams in North Carolina,” to provide more complete river flow data for North Carolina. CFPUA recommends that NCDEQ support this project in any way possible and use the findings to assist all communities in planning for the future.

Thank you,

Lindsey Hallock, AICP
Director of Public and Environmental Policy
Cape Fear Public Utility Authority
o: 910-332-6625 | c: 470-208-0631
235 Government Center Dr., Wilmington, NC 28403
www.cfpua.org | [Facebook](#) | [Twitter](#)



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Sadler, Mary

From: O. C. Holloway <omegaman2212@gmail.com>
Sent: Monday, October 19, 2020 2:51 PM
To: Sadler, Mary
Subject: Opposition to Water Transfer

Caution! External email – think before you click

MS Sadler;

I am in opposition to the Cape Fear River Basin Water Transfer.

O C Holloway
Fayetteville, NC

Sent from my iPad

Sadler, Mary

From: David Trego <david.trego@faypwc.com>
Sent: Wednesday, October 21, 2020 5:23 PM
To: Sadler, Mary
Subject: Fuquay - Varina Proposed Inter basin Transfer Request Comments

Caution! *External email – think before you click*

I would like to provide the following comments related to the proposed request from Fuquay-Varina for an 4 MGD inter basin transfer from the Cape Fear Basin to the Neuse Basin via a proposed wholesale agreement with Sanford.

My comments are being provided in my official capacity as CEO and General Manager of PWC which depends upon the Cape Fear River for the water supply needs of 80,000 retail customers as well as providing wholesale water to Stedman, Spring Lake, Aqua Water of North Carolina as well as for Fort. Bragg.

As a growing community Fuquay-Varina as well as other communities in the Neuse River Basin have increasing needs for water supply. In order to meet these growing needs communities such as Fuquay-Varina examine options to increase supply and more and more they look to the Cape Fear Basin as a resource. As a utility that depends on the Cape Fear River for its water supply and who is downstream of Fuquay-Varina this is of a major concern for PWC. Such transfers can impact our ability to meet our customers' needs during drought conditions, reduce available future supply that might be needed for economic development and during periods of low flow can impact water quality by reducing the dilution effect of contaminants and increasing the possibility of algae blooms. Additionally, as I mentioned above, PWC supplies Fort Bragg the largest military installation in the United States with wholesale water. Thus, PWC ability to have a secure long term water supply to meet the current and future needs of this base, also has national security implications.

North Carolina Law requires that impacts of Inter Basin transfers such as these shall be mitigated to the maximum degree practicable. This sometimes means it is not the lowest cost option which should be considered when looking to increase water supply. Options such as seeking a supply source within the Neuse River basin or returning treated wastewater back into the Cape Fear basin should be the first options investigated and exhausted before an Inter Basin transfer is requested or considered. It is this standard that PWC requests Fuquay-Varina and any Inter Basin transfer request be held to by the State.

Thank you for allowing me to comment.

David W. Trego
CEO/General Manager
Fayetteville Public Works Commission



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301 Springbrook Pl
Fayetteville, NC 20305
October 21, 2021

Hazen and Sawyer
Attn: Ms Mary Sadler PE

Dear Ms Sadler:

Subject: Response to Town of Fuquay-Varina IBT Request

As a resident of Fayetteville, I'm concerned about the IBT request initiated by the Town of Fuquay-Varina. We are dependent on the Cape Fear River for our water supply and I am concerned that IBT transfer request, if approved may have a permanent negative impact on our community as well as all other communities below the City of Sanford.

Previous IBT certificates included requirements for water to be returned to the Cape Fear River. It is my understanding that Fayetteville and PWC expect that:

1. A thorough process be completed that includes full consideration of the impact on all communities downstream/dependent on the Cape Fear River.
2. Before any IBT certificate is issued, it has been demonstrated that no alternate option that would eliminate the need for an IBT is available.

History has shown the potential disastrous result on a river's viability if indiscriminate water use without returning the water back to its basin. There is basically no water flow into the Gulf of California at the mouth of the Colorado River. Israel and Jordan are considering a Red Sea to Dead Sea canal to replace was removed from the Jordan River basin.

Previous decisions have exasperated the situation. Currently 96% of Jordan Lake's supply pool has already been allocated, with no allocation having been granted to PWC despite multiple requests. Fayetteville and other nearby communities are thus highly dependent on widely fluctuation flows in the Cape Fear River as opposed to stored water in Jordan Lake. As a result, during drought conditions, communities downstream of Jordan Lake must hope that the Corps of Engineers will release enough water to assimilate and flush out pollutants and maintain an adequate water supply. The more IBT out of the Cape Fear Basin which occurs, the more difficult this task.

Under NC law, when IBTs are approved, the impacts must be mitigated to the maximum degree practicable. Consequently, source alternatives within the Neuse River Basin should be fully evaluated by Fuquay-Varina and, for any remaining IBT, treated waste water should be returned to the Cape Fear Basin.

Fuquay-Varina has decided to make a major water supply investment in expansion of the Sanford WTP. Consequently, if this IBT goes forward, major investments in wastewater pumping and treatment infrastructure should likewise be considered to return water back into the Cape Fear Basin.

Thank you for your consideration.

James R Konneker

Sadler, Mary

From: Arleen Fields <arleen.fields@nc.rr.com>
Sent: Tuesday, November 10, 2020 9:59 PM
To: Sadler, Mary
Subject: Fuquay-Varina request for an IBWT from the Cape Fear River

Caution! *External email – think before you click*

Dear Ms. Sadler,

As a resident of Fayetteville **I adamantly oppose the town of Fuquay-Varina's request for a massive interbasin water transfer from the Cape Fear River to the Neuse River.** I understand that the Triangle area is developing rapidly, but those communities need to establish sustainable water supply mechanisms that don't deprive downriver residents. A strong water flow in the Cape Fear River is crucial to provide a buffer for times of drought, and to dilute the chemicals and pollutants which are contaminating our water supply in ever-increasing amounts, and to provide recreational opportunities for our residents.

Thank you for your attention.

All the best,
Arleen Fields
5318 Hampton Rd.
Fayetteville, NC 28311
910-797-0292

Sadler, Mary

From: anna.chott21 <anna.chott21@gmail.com>
Sent: Wednesday, November 11, 2020 9:09 AM
To: Sadler, Mary
Subject: Interbasin Water Transfer from Cape Fear River

Caution! *External email – think before you click*

Good morning Ms. Sadler,

I am reaching out to you as a friend of Sustainable Sandhills, an organization that notified my community of plans for implementation of an interbasin water transfer from the Cape Fear River.

I implore you to consider a water conservation strategy, rather than moving forward with the IBWT. Our water supply is not infinite, and IBWTs are not sustainable without clear replenishment plans.

There are many, many things we as citizens can do to conserve water. However, if the river flow is reduced, our options will be much more limited.

Thank you so much for your consideration of this request.

Kind regards,
Anna

Sent from my Galaxy

Sadler, Mary

From: Ruth Gillis <ruthgillis@gmail.com>
Sent: Wednesday, November 11, 2020 10:54 AM
To: Sadler, Mary
Subject: Water

Caution! *External email – think before you click*

I'm sorry you are having water problems in Fuquay-Varina, but taking Cape Fear River water doesn't solve problems for anyone - especially Cape Fear River water users.
You will need to find another solution to your water needs - like maybe a big campaign for water conservation.
Anyway, please leave our water alone.

Ruth Gillis
Fayetteville NC

Sadler, Mary

From: Jaye White <jayebrdwh@gmail.com>
Sent: Wednesday, November 11, 2020 4:15 PM
To: Sadler, Mary
Subject: Cape Fear River water transfer

Caution! *External email – think before you click*

Dear Ms. Sadler,

Do the people of Fuquay-Varina really want to deprive their neighbors to the south? Does hoarding natural resources seem prudent? I am adamantly opposed to the plan to take so much water from the Cape Fear to deposit it into the Neuse, as many North Carolinians will suffer as a consequence.

"Hundreds of thousands of people in the Sandhills rely on our Cape Fear River for accessible and dependable municipal water resources as well as transportation and recreation opportunities. We want to ensure the viability of our river for current and future generations.

Several municipalities and utilities across North Carolina currently draw water from our Cape Fear River. Continuous interbasin transfers are not sustainable without clear replenishment and conservation plans so we are advocating for improved water efficiency and public education campaigns in these municipalities to save water and alleviate their supply issues.

Droughts have affected our Cape Fear River in the past. IBWTs further reduce river flows during droughts. We want to insulate our water supply against droughts as much as possible.

Our Cape Fear River has been impacted by pollution from chemical releases and other recent water quality issues. A reduction in flow as a result of another IBWT will only exacerbate these concerns."

Please reconsider your proposal. It seems selfish and unreasonable.

Sincerely,

Rev. Jaye White
St.

Fayetteville, NC 28305

1008 Clarendon

Sadler, Mary

From: Jennessa Peterson <jennessa.peterson@outlook.com>
Sent: Tuesday, November 17, 2020 12:59 PM
To: Sadler, Mary
Subject: IBWT

Caution! External email – think before you click

Hi Mary,

I'm a resident of Fayetteville and highly concerned about the proposed IBWT from the cape fear river. Particularly because the town requesting has zero water conservation or mitigating strategies in place.

Kindest regards,
Jennessa Peterson

Sadler, Mary

From: Starling, Jane <jstarling@townofhopemills.com>
Sent: Thursday, November 19, 2020 8:43 AM
To: Sadler, Mary
Cc: PWC Rep Carolyn Hinson; PWC Venus Durant; Sally Shutt
Subject: Town of Hope Mills Resolution requesting limits on Interbasin Transfer - related to Fuquay Varina proposed
Attachments: RES R2020-36 - Requesting Limits on Interbasin Transfer from Cape Fear River Basin.pdf

Caution! *External email – think before you click*

Ms. Sadler,

Please see the attached resolution passed unanimously by the Town of Hope Mills Board of Commissioners, regarding the Proposed Interbasin Transfer for the Town of Fuquay-Varina.

Very respectfully,

*Jane G. Starling, CMC, NCCMC
Town Clerk
Town of Hope Mills
5770 Rockfish Road
Hope Mills, NC 28348
Ph: 910-426-4113*

jstarling@townofhopemills.com

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RESOLUTION REQUESTING LIMITS ON INTERBASINTRANSFER FROM THE CAPE FEAR RIVER BASIN

RESOLUTION NO. R2020-36

WHEREAS the Town of Fuquay-Varina is requesting an Interbasin Transfer; and

WHEREAS, maintaining the quantity and quality of water in the Cape Fear River is of paramount importance to the public health, security and economic welfare of Fayetteville and surrounding communities.

- Approximately 250,000 people depend on PWC being able to provide a safe and reliable water supply.
- Fort Bragg, which plays a key role in our national security, depends on PWC being able to provide the military base with a safe and reliable water supply 8 million gallons per day on a daily basis and 16 million gallons per day on an emergency basis.
- Fayetteville region depends on having surplus water supply to attract new industry and jobs. By 2060, it is projected that PWC water demands will reach approximately 72 million gallons per day; and

WHEREAS, Communities which are largely in the Triangle area have been successful in obtaining water supply allocations from Jordan Lake ---- leaving Fayetteville and other downstream communities without guaranteed reservoir storage during drought.

- 96% of Jordan Lake's water supply pool has already been allocated, with no allocation having been granted to PWC despite multiple requests.
- Fayetteville and other nearby communities are thus highly dependent on widely fluctuating flows in the Cape Fear River as opposed to stored water in Jordan Lake.
- During drought conditions, communities downstream of Jordan Lake must hope that the Corps of Engineers will release enough water to assimilate and flush out pollutants and maintain an adequate water supply. The more Interbasin-transfer out of the Cape Fear Basin which occurs, the more difficult this task; and

WHEREAS, Significant Interbasin transfer is already occurring from the Cape Fear Basin.

- Piedmont Triad Regional Water Authority (30.5 million gallons per day), Brunswick County (17 million gallons per day) and Pender County (14.5 million gallons per day) each have permitted Interbasin-transfer from the Cape Fear Basin
- Towns of Cary and Apex have the largest permitted Interbasin-transfer from the Cape Fear Basin (31 million gallons per day) and have established a clear precedent that return of wastewater to the source basin can help mitigate for the impacts of Interbasin-transfer.
- Now Fuquay-Varina is requesting significant Interbasin transfer from the Cape Fear Basin. If the Neuse River Basin has a chronic water supply issue combined with rapid growth in the Triangle area, are we to expect more and more Interbasin-transfer requests

impacting the Cape Fear Basin, or will Neuse River Basin water supply solutions be developed that don't depend on depleting their neighbor's water; and

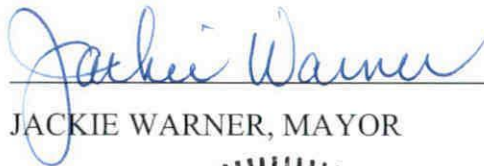
WHEREAS, in recent years, the Cape Fear River upstream and downstream of Fayetteville has been fraught with numerous water quality issues stemming from industrial discharges and emerging contaminants from other sources. During low-flow periods, algae blooms become more likely and further impact water quality. Reduction of streamflow through Interbasin-transfer would exacerbate pollutant concentrations and water quality issues; and

WHEREAS, Climate is not static, but changes over time. This means that droughts experienced in the future will look different than in the past. We won't know how low river flows will be until they happen. Interbasin-transfer further reduces minimum flows experienced during droughts; and

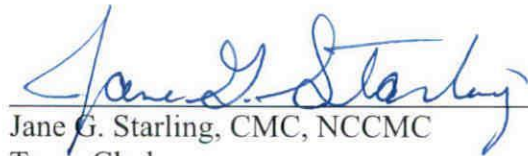
WHEREAS, Under NC law, when Interbasin-transfers are approved, the impacts must be mitigated to the maximum degree practicable. Consequently, source alternatives within the Neuse River Basin should be fully evaluated by Fuquay-Varina and, for any remaining Interbasin-transfer, treated wastewater should be returned to the Cape Fear Basin; and

NOW, THEREFORE, BE IT RESOLVED BY THE Board of Commissioners of the Town of Hope Mills to request; since Fuquay-Varina has decided to make a major water supply investment in expansion of the Sanford WTP, major investments in wastewater pumping and treatment infrastructure should likewise be considered to return water back to the Cape Fear Basin, if this Interbasin-transfer goes forward.

ADOPTED the 2nd day of November, 2020.


JACKIE WARNER, MAYOR

ATTEST:


Jane G. Starling, CMC, NCCMC
Town Clerk



DARSWEIL L. ROGERS, COMMISSIONER
WADE R. FOWLER, JR., COMMISSIONER
EVELYN O. SHAW, COMMISSIONER
D. RALPH HUFF, III, COMMISSIONER
DAVID W. TREGO, CEO/GENERAL MANAGER



FAYETTEVILLE PUBLIC WORKS COMMISSION
955 OLD WILMINGTON RD
P.O. BOX 1089
FAYETTEVILLE, NORTH CAROLINA 28302-1089
TELEPHONE (910) 483-1401
WWW.FAYPWC.COM

November 17, 2020

Ms. Mary Sadler, PE
Hazen and Sawyer
4011 West Chase Blvd, Suite 500
Raleigh, NC 27607

Subject: Town of Fuquay-Varina Proposed IBT

Dear Ms. Sadler,

The Fayetteville Public Works Commission submits the following comments concerning the Town of Fuquay-Varina Proposed Interbasin Transfer:

1. Fuquay-Varina is required to prove that there are no reasonable alternatives to the proposed inter-basin transfer, and to date, we have seen no analysis or other evidence that Fuquay-Varina is unable to get additional water from the Neuse River Basin or any other source. In considering such alternatives, the EMC is not limited to consideration of alternatives that have been proposed, studied or considered by Fuquay-Varina. Except in circumstances of technical or economic infeasibility or adverse environmental impact, the EMC's determination as to reasonable alternatives must give preference to alternatives that would involve a transfer from one sub-basin to another within the Neuse River Basin (i.e., major receiving river basin) over Fuquay-Varina's proposed alternative that would involve a transfer from one major river basin (Cape Fear) to another major river basin (Neuse).
2. Fuquay-Varina is also required to prove that the amount of the transfer does not exceed the amount of the projected shortfall under the applicant's water supply plan after first taking into account all other sources of water that are available to the applicant, and to date, we have seen no analysis or other evidence of that from Fuquay-Varina.
3. Fuquay-Varina is required to prove that the benefits of the proposed transfer outweigh the detriments of the proposed transfer and that the detriments have to be mitigated to the maximum degree practicable, and to date, we have seen no analysis or other evidence of that from Fuquay-Varina. In that regard, Fuquay-Varina must address, and EMC must consider all of the following:
 - a. The EMC must consider the necessity and reasonableness of the amount of surface water proposed to be transferred and its proposed uses. The Sanford WTP is quite a distance from Fuquay-Varina. Fuquay-Varina should identify the geographic boundaries within which the water being requested would be used, including whether that area is entirely within Fuquay-Varina town limits.

Sadler, Mary

From: Starling, Jane <jstarling@townofhopemills.com>
Sent: Thursday, November 19, 2020 2:17 PM
To: Sadler, Mary
Cc: Sally Shutt; PWC Venus Durant; PWC Rep Carolyn Hinson
Subject: Cumberland County Mayor's Coalition Resolution Opposing Interbasin transfer
Attachments: DOC001.pdf

Caution! *External email – think before you click*

Ms. Sadler,

Please see the attached resolution passed unanimously by the Cumberland County Mayor's Coalition, in opposition of the Proposed Interbasin Transfer for the Town of Fuquay-Varina. For the purpose of clarification, this is a separate document from the one I sent earlier for the Town of Hope Mills.

Very respectfully,

Jane G. Starling, CMC, NCCMC
Secretary Treasure
Cumberland County Mayor's Coalition
5770 Rockfish Road
Hope Mills, NC 28348
Ph: 910-426-4113
jstarling@townofhopemills.com



- b. The EMC must consider present and reasonably foreseeable future detrimental effects on the source river basin, including effects on wastewater assimilation and water quality. In recent years, the Cape Fear River upstream and downstream of Fayetteville has been fraught with numerous water quality issues stemming from industrial discharges and other sources. During low-flow periods, further reduction of streamflow can exacerbate pollutant concentrations. Environmental impact assessment of this proposed IBT must address both water quantity and water quality in the Cape Fear River.
- c. The EMC must consider present and reasonably foreseeable future detrimental effects on the source river basin, including effects on fish and wildlife habitat. Instream flow studies which assess the quantity and quality of wildlife habitat as a function of flow levels are the appropriate means to assess this concern. Reduction of streamflow may negatively impact fish and wildlife which depend on the Cape Fear River.
- d. The EMC must make a specific finding as to measures that are necessary or advisable to mitigate or avoid detrimental impacts on the source river basin. In this regard, Fuquay-Varina should identify how and in what quantities treated wastewater can be returned to the source basin to reduce the net transfer. Fuquay-Varina has decided to make a major water supply investment in expansion of the Sanford WTP. Consequently, Fayetteville PWC expects that major investments in wastewater pumping and treatment infrastructure will likewise be considered to return water to the source basin. The Cary-Apex IBT has established a clear precedent that return of wastewater to the Cape Fear River can serve as mitigation for adverse water quantity and quality effects of IBT.

In summary, unless Fuquay-Varina meets its substantial evidentiary burden, the certificate needs to be denied. If the certificate is granted without sufficient evidence to support it or without a condition to return sufficient quantities of treated wastewater to the Cape Fear River Basin, Fayetteville PWC will contest it, and it is anticipated that other water systems in the lower Cape Fear region would consider joining us in doing so.

Sincerely,

Fayetteville Public Works Commission



Mick Noland, PE
Chief Operations Officer
Water Resources Division

Cc: David Trego
Elaina Ball
Jamie West
Paul Peterson

**RESOLUTION OPPOSING THE PROPOSED INTERBASIN TRANSFER ("IBT")
CERTIFICATE REQUEST BY THE TOWN OF FUQUAY-VARINA FOR WATER FROM THE
CAPE FEAR RIVER BASIN TO THE NEUSE RIVER BASIN**

WHEREAS, maintaining the quantity and quality of water in the Cape Fear River is of paramount importance to the public health, security and economic welfare of Cumberland County, North Carolina, and surrounding communities; and

WHEREAS, the Cumberland County Mayors' Coalition believes the Interbasin Transfer ("IBT") Certificate request submitted by the Town of Fuquay-Varina poses increased risks to the water supply of Cumberland County and other counties downstream; and

WHEREAS, the Cumberland County Mayors' Coalition has determined it is in the public interest of the citizens of our combined nine municipalities of Fayetteville, Spring Lake, Hope Mills, Godwin, Falcon, Wade, Linden, Eastover and Stedman, as well as the residents of all communities benefited by the Cape Fear River and its waters to oppose any permanent transfer of water from the Cape Fear River to other river basins; and

WHEREAS, in recent years, the Cape Fear River upstream and downstream of Cumberland County has been fraught with numerous water quality issues stemming from industrial discharges and emerging contaminants from other sources; and

WHEREAS, reduction of streamflow through IBT would exacerbate pollutant concentrations and water quality issues such as algae blooms that are more likely during low-flow periods; and

WHEREAS, communities which are largely in the Triangle area have been successful in obtaining water supply allocations from Jordan Lake that leave Cumberland County and other downstream communities without guaranteed reservoir storage during drought conditions; and

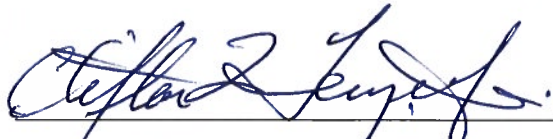
WHEREAS, significant IBT is already occurring from the Cape Fear Basin including the largest permitted IBT by the Towns of Cary and Apex, which established a clear precedent that return of wastewater to the source basin can help mitigate for the impacts of IBT; and

NOW, THEREFORE, BE IT RESOLVED THAT the Cumberland County Mayors' Coalition opposes the interbasin transfer of water from the Cape Fear River Basin without the requirement that the same level of treated wastewater be returned back to the Cape Fear River Basin.

Adopted this 6th day of November, 2020.

Cumberland County Mayors' Coalition

By:



Clifton Turpin, Coalition Chair and Mayor of Falcon

Attest:


Jane Starling, Clerk to the Coalition

Sadler, Mary

From: arthur ingalls <joanart.ingalls@gmail.com>
Sent: Thursday, November 19, 2020 3:47 PM
To: Sadler, Mary; arthur ingalls

Caution! *External email – think before you click*

Water supply

I just want to add my comments to the water supply issue. It sounds as if the water supply issue for our area has been resolved for now. The question is what will happen when severe drought occurs. Climatic changes may affect water supply and quality. How will demands be solved? What happens if water qualities are altered? Decisions made now may not be adequate in future. Those of us in Cumberland County may not like our status in years to come. Permanent installations are not easily changed.

SUSTAINABLE SANDHILLS

18 November 2020

Dear Ms. Sadler:

Please accept this letter as official comments on behalf of Sustainable Sandhills and its Board of Directors regarding the Town of Fuquay-Varina's proposed interbasin water transfer (IBWT) from the Cape Fear River to the Neuse River.

Sustainable Sandhills strives to strengthen communities in our nine-county region by creating resilient environmental, economic and social resources. One of our impact areas is water quality. We work to maintain accessible, dependable and affordable water for our residents and are concerned about the impact of the proposed IBWT on the Cape Fear River, which is the Sandhills' primary source of potable water.

Water demands are increasing in the Sandhills and throughout North Carolina, and several municipalities across the state currently draw water through IBWTs from the Cape Fear River. Our residents need our water in our Sandhills. Continuous IBWTs are simply not sustainable for us. Fort Bragg - the world's largest military installation and our neighbor - also relies on the Cape Fear River for water. Thus, our water resources here are a matter of national security.

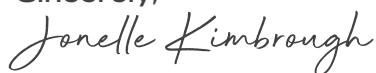
Droughts have affected the Cape Fear River in the past, and potential flow reductions coupled with IBWTs are bound to have significant effects on the viability of our water in the Sandhills. Furthermore, the Cape Fear River and our residents have faced major water quality and pollution issues as a result of chemical releases into the river. Flow reductions will only exacerbate the concerns created by these threats.

Sustainable Sandhills is opposed to the proposed IBWT and encourages its prevention unless Fuquay-Varina can implement clear and forward-thinking stewardship plans for 1) returning our water to the Cape Fear River at a reasonable rate and quality; 2) incorporating and enforcing water efficiency considerations into Town construction codes, operation standards and other regulations that advocate for more sustainable development; and 3) creating and disseminating a public education and awareness campaign for Town property owners to encourage them to conserve as much water as possible.

We cannot afford to lose our water in the Sandhills.

Thank you for your consideration.

Sincerely,



Jonelle Kimbrough
Executive Director, Sustainable Sandhills

THE CONSERVATION FUND

77 Vilcom Center Drive #340 Chapel Hill, North Carolina 27514 | (919) 967-2223
www.conservationfund.org

November 20, 2020

Ms. Mary Sadler, PE
Hazen & Sawyer
4011 WestChase Boulevard #500
Raleigh, North Carolina 27607

Re: Scoping for Interbasin Transfer of Water from Sanford to Fuquay-Varina

Dear Ms. Sadler:

Thank you and the NC Division of Water Resources for requesting public comments on the request of the Town of Fuquay-Varina for an Interbasin Transfer (IBT) certificate to transfer an average of 4 MGD and a maximum of 8 MGD from the City of Sanford in the Cape Fear River Basin to Fuquay-Varina in the Neuse & Cape Fear River Basins.

I appreciated the opportunity to ask questions at the public meeting held in Pittsboro on October 14, 2020.

I am writing on behalf of the Conservation Fund and the Triangle Land Conservancy (TLC) to urge Fuquay-Varina, Sanford, DWR and Hazen & Sawyer to address the following questions and concerns in the environmental studies and documents for the proposed project.

Regional Water Supply & Wastewater Planning

Many communities share and depend upon water resources in both the Cape Fear and Neuse River Basins.

The Fund & TLC commend the high levels of planning and collaboration among water utilities, local governments, Triangle J Council of Governments, NC Division of Water Resources, conservation organizations and other partners in the Research Triangle Region, spanning both the Upper Cape Fear and Upper Neuse River Basins.

The Triangle Water Supply Partnership encourages collaboration, information sharing and identification of cost-effective investments to provide water supply and wastewater treatment for a growing region. Most utilities in the region are active members, including Harnett County, Chatham County, Holly Springs and Pittsboro. Sanford and Fuquay-Varina are currently not members.

We encourage Sanford and Fuquay-Varina to join their neighbors and actively participate in the Triangle Water Partnership. We believe this is particularly important as Sanford considers major expansions of capacity to become a regional water and wastewater provider and as neighboring communities evaluate the costs and benefits of multiple regional water supply and regional wastewater treatment options.

Sanford has the capacity to treat 12 MGD and already provides water to Broadway, Lee County and Chatham County. Sanford will likely increase sales of water to Lee and Chatham County in the future. We understand other communities like Pittsboro and Holly Springs are considering purchasing water from Sanford as well.

Environmental studies and documents should consider the impacts of future total withdrawal from the Cape Fear River by Sanford and its partners and not just the incremental increase in withdrawal to serve Fuquay-Varina.

Buckhorn Dam

Buckhorn Dam was constructed in 1908 to generate electricity. It is currently owned by Duke Energy. The dam creates Buckhorn reservoir. Sanford's intake is upstream from the dam near Avents Ferry/NC 42. The dam stopped generating electricity many years ago. Duke has decommissioned its former coal-fired Cape Fear Steam Station at Moncure, and the reservoir is no longer needed for cooling water.

The dam is a major barrier for fish passage, a major hazard for paddlers, and a liability for its owner, Duke Energy.

The condition and fate of Buckhorn Dam and reservoir should be addressed in the study.

The Fund has been a partner with the Town of Madison, NC Wildlife Resources Commission, US Fish & Wildlife Service, Dan River Basin Association and others to lower the Lindsey Bridge Dam on the Dan River to secure the Town's water supply, improve fish passage, provide canoe access and increase public safety. The Lindsey Bridge Dam project on the Dan River may be a good model for Buckhorn Dam.

Source Water Protection

The 2019 Annual Water Quality Report, prepared to comply with the Safe Drinking Water Act's Source Water Protection requirements, rates the Sanford's drinking water source as having a *higher* inherent vulnerability rating, a *moderate* contamination rating and a *higher* susceptibility rating.

The Environmental Management Commission has classified the Cape Fear River at Buckhorn as Water Supply IV, which provides minimal protection from point and non-point sources of pollution.

Like Pittsboro and other communities that withdraw from the Haw River and Cape Fear River Sanford is concerned about contamination of its drinking water by PFAS compounds, 1, 4-

dioxane and other emerging contaminants that neither US EPA nor the EMC have developed drinking water standards or maximum contaminant levels for.

EPA and the EMC will eventually establish standards or MCLs for these compounds to protect public health. Will expanded water treatment capacity be designed to anticipate and meet future standards or MCLs?

Will the EPA or DEQ increase their efforts to prevent and reduce pollution from wastewater discharges into the Haw, Deep and Cape Fear Rivers to protect public health and the environment?

The Fund & TLC commend the efforts of the Jordan Lake One Water Association (JLOW) and the Upper Neuse River Basin Association (UNRBA) in collaborating and jointly raising funds to reduce pollution in Jordan Lake and Falls Lake, respectively. The Fund & TLC note that the Town of Cary set aside \$750,000 in its 2020-21 water utility budget for watershed protection efforts. Cary plans to make this an ongoing investment. Other users of Jordan Lake are expected to follow Cary's lead.

The Fund & TLC encourage Sanford, its existing partners, and its future partners, including Fuquay-Varina, to set aside funds to protect their water supplies as they also budget millions for expansion of drinking water treatment and distribution infrastructure. Cary and Raleigh budget their watershed protection efforts at 15 cents/1000 gallons consumed.

The Fund & TLC recommend that Sanford and its partners to develop a conservation plan for the lower Deep and lower Haw Rivers that would identify properties with high conservation and water resources values.

Triangle Land Conservancy, Triangle J Council of Governments, and the Fund developed a Watershed Conservation Plan as a component of the Jordan Lake One Water Initiative in 2019. More at <https://www.triangleland.org/cms/wp-content/uploads/2019/08/jordan-river-watershed.pdf>.

Triangle Land Conservancy also prepared a conservation assessment of the Lower Deep and Upper Cape Fear Rivers (from House in the Horseshoe to Raven Rock State Park) in 2001. More at <https://www.triangleland.org/cms/wp-content/uploads/2015/12/deep-riv-public-complete.pdf>.

Threatened & Endangered Species

Both the Neuse River Basin and the Cape Fear Basin are home to a number of state- and federal- protected species, including amphibians and fish that are susceptible to changes in water chemistry and quantity, including impacts from induced development. What impacts will the proposed transfer and its impacts have on protected and candidate species in each watershed?

Managing Growth

Southern Wake and Northern Harnett Counties are growing rapidly. Fuquay-Varina is seeking additional water from the Cape Fear River Basin to sustain its growth.

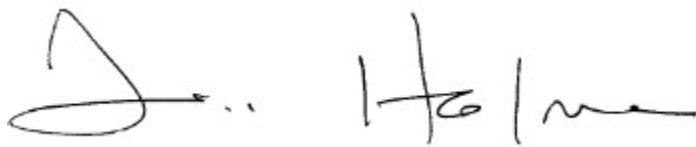
Will Fuquay-Varina's stormwater management ordinances and policies ensure the capture, reuse, infiltration, treatment, and reduction of stormwater and flooding that new development can cause? Does Fuquay-Varina provide incentives to capture and reuse rainwater and stormwater for non-potable purposes or incentives for nature based green stormwater infrastructure to both reduce flooding and prevent water pollution?

Wake County should also consider strengthening its stormwater management/flood reduction policies. Wake has little capacity to ensure that stormwater control measures are maintained. Wake County could also provide more technical and financial support for watershed planning and nature based green stormwater infrastructure projects that provide benefits to the county and municipalities.

Hector and Neils Creeks rise in Northern Harnett County just south of Fuquay-Varina and join the Cape Fear River just above Harnett Water's intake and treatment works in Lillington. Fuquay-Varina currently purchases water from Harnett Water. What policies will be put in place to protect Hector, Neils and other creeks and Harnett County's water supply?

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Bill Holman". The signature is fluid and cursive, with a large initial "B" and a stylized "H".

Bill Holman
NC State Director

C: Sandy Sweitzer, Triangle Land Conservancy
Harold Brady, Division of Water Resources
Jay Meyers, Fuquay-Varina Public Utilities
Victor Czar, Sanford Public Works

Sadler, Mary

From: Mary Holmes <maryholmes2009@gmail.com>
Sent: Friday, November 20, 2020 3:47 PM
To: Sadler, Mary
Subject: Interbasin transfer

Caution! *External email – think before you click*

Hazen and Sadler
Attn: Mary Sadler, PE

I am writing to express my objection to the interbasin transfer request from Fuqua-Varina. There is no reason that the citizens of Fayetteville and downstream should bear the cost, environmental and otherwise, of poor planning of growth upstream. The Cape Fear River is already experiencing great distress due to GenX and other contamination and IBTs. Fuqua-Varina should pump water borrowed from the Cape Fear River Basin back to the same basin once it is used and cleaned.

Poorer, browner communities down river should not bear the cost of growth of wealthier, whiter communities. Do the right thing and pump the water back to the Cape Fear River Basin.

--

Mary M. Holmes
Fayetteville, NC

November 19, 2020

As residents of Fayetteville, we are writing to express our concern about the proposed Inter-basin water transfer request of Fuquay-Varina. Water is a finite resource and critical to us all. If a community uses water from upstream of Fayetteville, they should do the right thing by their neighbors and return it to the Cape Fear River Basin for other communities to use.

As we understand it, the water request is to help Fuquay-Varina grow. The communities of the Cape Fear River Basin should not pay the price for growth and development that will help Fuquay-Varina prosper. If Fuquay-Varina needs the water, they should pay to return it to the Cape Fear River Basin and not send elsewhere. While the amount of water and impact to the Fayetteville water supply may seem small, we must ensure that decisions today do not become bad decisions that have significant consequences in the future.

Please do the right thing for the citizens of Fayetteville and other communities that depend on the Cape Fear River for their water supply. Find alternatives and do not allow the water to be taken out of the Cape Fear River Basin without being returned.

Paul and Carolyn Hinson
6253 Lakehaven Drive
Fayetteville, NC 28304

Sadler, Mary

From: Rick Glazier <Rick@ncjustice.org>
Sent: Friday, November 20, 2020 4:21 PM
To: Sadler, Mary
Subject: Comment on proposed Fuquay-Varina Inter-basin transfer

Caution! *External email – think before you click*

I am writing as a former member of the NC House of Representatives in opposition to the proposed Fuquay-Varina inter-basin transfer. This proposal continues a distressing and ultimately hazardous and unsustainable path of diverting critical water resources to sprawling, wealthier, whiter suburban and exurban, and unplanned upstream users and polluters from more needed basic water resources for poorer, more diverse downstream users. That was never the purpose behind the inter-basin transfer process---indeed, it was intended to stop these grabs that occur whenever communities upstream grow in an unplanned regional manner to the detriment of those who exist downstream. Adding insult to injury, not to mention, exacerbating environmental injustice, this proposed diversion reeks of racial inequity and widens the systemic inequalities that permeate this state. More time and reflection, particularly given this moment in time, are needed before this transfer should be considered. Water resources are finite and the continued diversion of these resources to wealthier upstream users to the detriment of downstream base capacity is unfair, unnecessary, and ultimately destructive of the ecosystem, confidence in the interbasin, let alone regional planning process, and will lead to real degradation of the resource.

Sincerely,

Rick Glazier

NC Representative 2003-2015

Memo: Town of Fuquay-Varina Proposed Interbasin Transfer

To: Hazen Sawyer

From: Lower Cape Fear Water and Sewer Authority

Date: November 11, 2020

After reviewing Fuquay-Varina's water supply plan, Lower Cape Fear Water and Sewer Authority believes that Fuquay-Varina's intent to pursue an Interbasin Transfer is premature.

We believe that Fuquay Varina should look towards major system improvements of existing infrastructure. Replacing existing meters would better account for monitoring usage and provide revenue needed for system improvements. There are almost a thousand meters or approximately seven percent of their systems meters that are not being accounted for on a regular basis.

Also, the lack of a leak detection program is a key maintenance item. Although some pipes are being replaced annually, leak detection could pinpoint issues and provide better data for repairs to be included in a Capital Improvement Plan. At this point they are replacing less than one third of one percent of their existing lines annually.

Fuquay-Varina needs to show marked improvement in regards to conservation and education by implementing water conservation measures and a program to educate its residents about how to save water especially through better irrigation practices.

Fuquay proposes an eight million gallon per day maximum and four million gallon per day minimum withdrawal with little analysis of environmental impact and the accompanying need for waste treatment facilities to process the additional waste water and minimize the effect of withdrawal on the basin.

The Jordan Lake Allocation Recommendation and Surface Water Supply Plan did not account for any future withdrawals between Jordan Lake outfall and Fayetteville Lock and Dam #3 and this study needs updating before additional transfers or withdrawals can be permitted.

After the October 20, 2020 scoping meeting, it appears that the entities supplying Fuquay-Varina water may need those resources to meet their own future demands.

Before any consideration can be given to and interbasin transfer, Fuquay-Varina should be required to explore alternatives such as ground water sources, merging systems, etc. At this point, Lower Cape Fear Water and Sewer authority would like to echo Brunswick County, Pender County, Cape Fear Public Utility and Fayetteville PWC's objection to granting Fuquay-Varina an Inter Basin Transfer Permit.

Conditions that affect availability such as low flow need to be considered. The U.S. Geological Survey is considering an update to the 1994 Giese and Mason Report "Low-flow characteristics of Streams in North Carolina". This report should be considered to provide more detailed data for communities to use in future planning.

The Lower Cape Fear region is experiencing growth as well and does not support any action that reduces the available water supply to public water providers on the Lower Cape Fear. Lower Cape Fear Water, and Sewer Authority, Brunswick County and Cape Fear Public Utilities already made significant capital investment to utilize the one hundred and six million gallon per day allocation already permitted.

Agency Scoping Comments, 2020



NORTH CAROLINA
Environmental Quality

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

MICHAEL SCOTT
Director

November 3, 2020

To: Lyn Hardison, Environmental Assistance and SEPA Coordinator
Division of Environmental Assistance and Customer Service

From: Melodi Deaver, Administrative Specialist
Division of Waste Management, Hazardous Waste Section

RE: SEPA Review, Project# 21-0754, Town of Fuquay-Varina (Wake County)

The Hazardous Waste Section has reviewed the proposed for the Town of Fuquay-Varina's Water Supply and Interbasin Transfer project and would like to make the following comment:

Any hazardous waste generated from the demolition, construction, operation, maintenance, and/or remediation (e.g. excavated soil) from the proposed project must be managed in accordance with the North Carolina Hazardous Waste Rules. The demolition, construction, operation, maintenance, and remediation activities conducted will most likely generate a solid waste, and a determination must be made whether it is a hazardous waste. If a project site generates more than 220 pounds of hazardous waste in a calendar month, the HWS must be notified, and the site must comply with the small quantity generator (SQG) requirements. If a project site generates more than 2200 pounds of hazardous waste in a calendar month, the HWS must be notified, and the facility must comply with the large quantity generator (LQG) requirements.

Generators are required to determine their generator status and both SQGs & LQGs are required to obtain a site EPA Identification number for the generation of hazardous waste.

Should any questions arise, please contact Melodi Deaver at 919-707-8204

Respectfully,

Melodi Deaver

Compliance Branch
Hazardous Waste Section





November 19, 2020

MEMORANDUM

To: Lyn Hardison
Department of Environmental Quality

From: David Wainwright 
SEPA Coordinator, Division of Water Resources

Subject: SCH #21-0754
Scoping
Proposed Fuquay-Varina Interbasin Transfer
Wake County

The Division of Water Resources' (DWR) Central Office staff have reviewed the scoping letter for the Town of Fuquay-Varina's proposed interbasin transfer and purchase of water from the City of Sanford. Staff provides the following comments:

Basin Planning Branch (Nora Deamer – Nora.Deamer@ncdenr.gov or 919-707-9116):

- Please include a discussion regarding the feasibility of piping treated wastewater back to the Cape Fear basin in order to limit or reduce the interbasin transfer.
- Please include verification that the Town has the capacity to treat any increase in overall volume and waste load to the Neuse River NSW basin and remain in compliance with the NPDES permitted nitrogen limit.

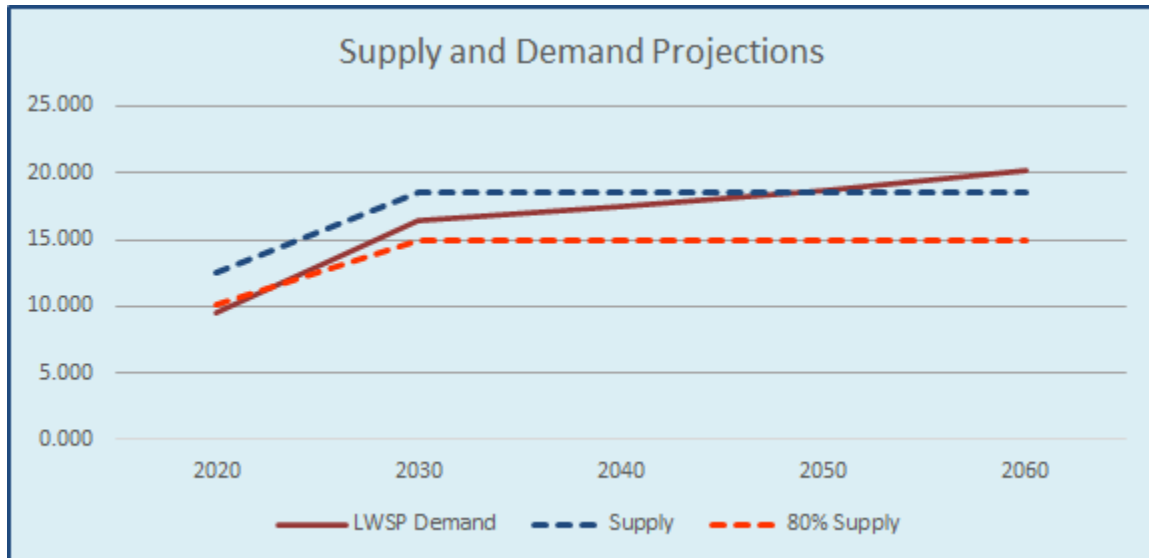
Modeling and Assessment Branch (Neela Sarwar – Neelufa.Sarwar@ncdenr.gov or 919-707-9028):

- No comment at this time.

Water Supply Planning Branch (Vardry Austin – Vardry.Austin@ncdenr.gov or 919-707-9002):

- Based on data in Sanford's 2019 LWSP, future sales of 6.0 MGD will cause them to exceed their total available supply as shown in the following chart. Although a timeframe has not been noted, the chart shows the demand-supply situation for Sanford if the additional water sales occurred by 2030. In order for the preferred alternative to be acceptable, the demand-supply ratio for Sanford would need to be maintained at no more than 80%.





The Division of Water Resources, Central Office, thanks you for the opportunity to comment. Should you have questions regarding any of the above comments, please contact the listed staff. I can be reached at either David.Wainwright@ncdenr.gov or 919-707-9045.

ec: Nora Deamer, Basin Planning Branch
Neela Sarwar, Modeling and Assessment Branch
Vardry Austin, Water Supply Planning Branch

Control No.: 21-E-0000-0754

Date Received: 10/8/2020

County.: WAKE

Agency Response: 11/9/2020

Review Closed: 11/9/2020

LYN HARDISON
CLEARINGHOUSE COORDINATOR
DEPT OF ENVIRONMENTAL QUALITY

Project Information

Type: State Environmental Policy Act ping

Applicant: Town of Fuquay-Varina

Project Desc.: Proposed project is for the Town of Fuquay-Varina's Water Supply and Interbasin Transfer project.

As a result of this review the following is submitted:

☐ No Comment

☐ Comments Below

☒ Documents Attached

Reviewed By: LYN HARDISON

Date: 11/9/2020

Control No.: 21-E-0000-0754

Date Received: 10/8/2020

County.: WAKE

Agency Response: 11/9/2020

Review Closed: 11/9/2020

JINTAO WEN
CLEARINGHOUSE COORDINATOR
DPS - DIV OF EMERGENCY MANAGEMENT

Project Information

Type: State Environmental Policy Act ping

Applicant: Town of Fuquay-Varina

Project Desc.: Proposed project is for the Town of Fuquay-Varina's Water Supply and Interbasin Transfer project.

As a result of this review the following is submitted:

☒ No Comment

☐ Comments Below

☐ Documents Attached

Reviewed By: JINTAO WEN

Date: 11/5/2020

Control No.: 21-E-0000-0754

Date Received: 10/8/2020

County.: WAKE

Agency Response: 11/9/2020

Review Closed: 11/9/2020

DEVON BORGARDT

Clearinghouse Reviewer

DEPT OF NATURAL & CULTURAL
RESOURCE

Project Information

Type: State Environmental Policy Act ping

Applicant: Town of Fuquay-Varina

Project Desc.: Proposed project is for the Town of Fuquay-Varina's Water Supply and Interbasin Transfer project.

As a result of this review the following is submitted:

☐ No Comment

☐ Comments Below

☒ Documents Attached

Reviewed By: DEVON BORGARDT

Date: 11/9/2020



STATE OF NORTH CAROLINA
DEPARTMENT OF ADMINISTRATION

Roy Cooper
GOVERNOR

Machelle Sanders
Secretary

November 12, 2020

Mary Sadler
Town of Fuquay-Varina
c/o Hazen and Sawyer
4011 West Chase Blvd., Suite 500
Raleigh, NC 27607-

Re: SCH File # 21-E-0000-0754 Proposed project is for the Town of Fuquay-Varina's Water Supply and Interbasin Transfer project.

Dear Mary Sadler:

The above referenced environmental impact information has been reviewed through the State Clearinghouse under the provisions of the North Carolina Environmental Policy Act.

Attached to this letter are comments made in the review of this document. The appropriate document should be forwarded to the State Clearinghouse for compliance with State Environmental Policy Act. Should you have any questions, please do not hesitate to call me at (919) 807-2425.

Sincerely,

CRYSTAL BEST
State Environmental Review Clearinghouse

Attachments

Mailing Address:
NC DEPARTMENT OF ADMINISTRATION
1301 MAIL SERVICE CENTER
RALEIGH, NC 27699-1301

Telephone: (919)807-2425
Fax: (919)733-9571
COURIER: #51-01-00
Email: state.clearinghouse@doa.nc.gov
Website: www.ncadmin.nc.gov

Location:
116 WEST JONES STREET
RALEIGH, NORTH CAROLINA



NORTH CAROLINA
Environmental Quality

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

JAMIE RAGAN
Director

MEMORANDUM

To: Crystal Best
State Clearinghouse Coordinator
Department of Administration

From: Lyn Hardison
Division of Environmental Assistance and Customer Service
Environmental Assistance and Project Review Coordinator
Washington Regional Office

RE: 21-0754
Scoping - Proposed project is for the Town of Fuquay-
Varina's Water Supply and Inter-basin Transfer
project.
Wake County

Date: November 9, 2020

The Department of Environmental Quality has reviewed the proposal for the referenced project. Based on the information provided, several of our agencies have identified permits that may be required and offered some valuable guidance that will help the applicant in preparing the necessary environmental documents. The comments are attached for the applicant's review.

I failed to collect comments for the Division of Water Resources within the set timeline. However, I should receive those comments at a later date. Upon receipt, I will send it to you to be forwarded to the applicant for their review.

The Department agencies will continue to be available to assist the applicant through any environmental review or permitting processes.

Thank you for the opportunity to respond.

Attachments





⊠ North Carolina Wildlife Resources Commission ⊠

Gordon Myers, Executive Director

MEMORANDUM

TO: Lyn Hardison, Environmental Assistance Coordinator
NCDEQ Division of Environmental Assistance and Customer Services

FROM: Gabriela Garrison
Eastern Piedmont Coordinator
Habitat Conservation *Gabriela Garrison*

DATE: November 4, 2020

SUBJECT: Request for Environmental Scoping for the Town of Fuquay-Varina's Water Supply and Interbasin Transfer, Wake County, DEQ Project No. 21-0754.

Biologists with the North Carolina Wildlife Resources Commission (NCWRC) have reviewed the subject document. Comments are provided in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667e), North Carolina Environmental Policy Act (G.S. 113A-1 through 113A-10; 1 NCAC 25) and North Carolina General Statutes (G.S. 113-131 et seq.).

The Town of Fuquay-Varina (Town) has requested an Interbasin Transfer (IBT) from the Cape Fear to Neuse River Basin. The Town owns and operates a 3 million gallon/day (mgd) wastewater treatment plant (WWTP) that discharges to Terrible Creek, as well as a 0.117 mgd WWTP that discharges to Middle Creek, both in the Neuse River Basin. The Town also has wastewater treatment capacity in the North Harnett Regional WWTP in the Cape Fear River basin.

The Town initiated discussion with the City of Sanford (City) to purchase 6 mgd of finished water capacity from the City's water treatment plant, located in the Cape Fear River basin. However, the Town is now requesting an IBT certificate for an average day over a maximum month transfer of 4 mgd from the Cape Fear River basin.

The NCWRC has concerns with an IBT from the Cape Fear to Neuse River basin because of impacts to receiving streams from added effluent. Streams in the Neuse River watershed have already been adversely impacted by effluent and stormwater from highly urbanized areas. The proposed effluent from the IBT could further impact aquatic resources and water quality in affected areas. Swift and Middle Creeks are of particular concern because there are records for several state listed threatened and endangered species in these systems.

The Cape Fear River basin supports several listed species as well as important sport fish populations. American shad, striped bass, Atlantic sturgeon and shortnose sturgeon are anadromous fish that use the Cape Fear River for spawning. Significant reductions in water flows could impede the reproductive

November 4, 2020
Fuquay-Varina IBT
DEQ Project No.: 21-0754

success of these and other species. Reductions in water levels may also result in the dewatering of nursery areas.

Secondary impacts from increased water supply will facilitate a surge in industrial, commercial and residential development. This will lead to increased impervious surfaces, resulting in more severe stormwater runoff. In addition to changing stream morphology, increased runoff may cause degradation of aquatic habitats through accelerated stream bank erosion, channel changes, bedload changes, altered substrates and scouring of stream channels.

The NCWRC encourages the applicant to consider additional measures to protect aquatic and terrestrial wildlife species in developing landscapes. The NCWRC's *Guidance Memorandum to Address and Mitigate Secondary and Cumulative Impacts to Aquatic and Terrestrial Wildlife Resources and Water Quality* (August 2002; http://www.ncwildlife.org/Portals/0/Conserving/documents/2002_GuidanceMemorandumforSecondaryandCumulativeImpacts.pdf) details measures to minimize secondary and cumulative impacts to aquatic and terrestrial wildlife resources; in addition, the NCWRC's Green Growth Toolbox (<https://www.ncwildlife.org/conserving/programs/Green-Growth-Toolbox>) provides information on nature-friendly planning.

In addition to addressing the concerns outlined above, the environmental document should include a detailed assessment of existing natural resources within the areas of potential development and should discuss the potential of mitigating development impacts to wetlands, waters and high-quality upland habitat. To provide a meaningful review of proposed project impacts on fish and wildlife resources, the consultants, project sponsors or permit applicants should provide the following information in the environmental document:

1. Include descriptions of fish and wildlife resources within the project area, and a listing of federally or state designated threatened, endangered or at-risk species. When practicable, potential borrow areas to be used for any anticipated project construction should be included in the inventories. A listing of designated species can be developed through consultation with the NC Natural Heritage Program.
2. Surveys should be conducted by biologists with both state and federal endangered species permits.
3. Include descriptions of any streams or wetlands affected by the project.
4. Include project maps identifying wetland areas. Identification of wetlands may be accomplished through coordination with the U.S. Army Corps of Engineers (COE). If the COE is not consulted, the person delineating wetlands should be identified, and criteria listed.
5. Provide information on existing, planned and projected sewer and water infrastructure service throughout the service area. A map showing the location of the existing and projected lines and areas containing special resources should be included.
6. Define the service area for the project, including any ETJs (extra-territorial jurisdiction), and provide a map of the service area. The map and description should provide the NCDEQ designated 14-digit hydrologic unit codes (HUC) included in the service area.
7. Provide a description of project activities that will occur within wetlands, such as fill or channel alteration. Acreage of wetlands impacted by alternative project designs should be listed.
8. Provide a description and a cover type map showing acreage of upland wildlife habitat impacted by the project.

November 4, 2020
Fuquay-Varina IBT
DEQ Project No.: 21-0754

9. Discuss the extent to which the project will result in loss, degradation or fragmentation of wildlife habitat (wetlands and uplands).
10. Discuss any measures proposed to avoid or reduce impacts of the project or to mitigate unavoidable habitat losses.
11. Discuss the cumulative impacts of secondary development facilitated by the proposed project. Such discussion should weigh the economic benefits of such growth against the costs of associated environmental degradation.
 - (a) Include specific measures that will be used to address stormwater at the source. Include specific requirements for both residential and industrial developments and Best Management Practices that will be required.
 - (b) Include specific measures that will be used to protect stream corridors, riparian habitat and a minimum of the 100-year floodplain from filling and development. Commitments by the project sponsors to protect area streams with riparian buffers through purchase or conservation easement are of particular interest.
12. Include a list of document preparers that shows professional background and qualifications.

Although some of the information, requests and comments may not be applicable to certain projects, these guidelines should facilitate preparation of fish and wildlife impact assessments. This information will be very useful in the preparation of an environmental document.

Thank you for the opportunity to review and comment on this project. If I can be of further assistance, please contact me at (910) 409-7350 or gabriela.garrison@ncwildlife.org.



NORTH CAROLINA
Environmental Quality

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

MICHAEL SCOTT
Director

Date: November 4, 2020

To: Michael Scott, Director
Division of Waste Management

Through: Janet Macdonald
Inactive Hazardous Sites Branch – Special Projects Unit

From: Bonnie S. Ware
Inactive Hazardous Sites Branch

Subject: SEPA Project #21-0754, Town of Fuquay-Varina, Wake County, North Carolina

The Superfund Section has reviewed the proximity of sites under its jurisdiction to the Town of Fuquay-Varina project. Proposed project is for the Town of Fuquay-Varina's Water Supply and Interbasin Transfer project.

Nineteen (19) sites were identified within one mile of the project as shown on the attached report. The Superfund Section recommends that site files be reviewed to ensure that appropriate precautions are incorporated into any construction activities that encounter potentially contaminated soil or groundwater. Superfund Section files can be viewed at: <http://deq.nc.gov/waste-management-laserfiche>.

Please contact Janet Macdonald at 919.707.8349 if you have any questions.



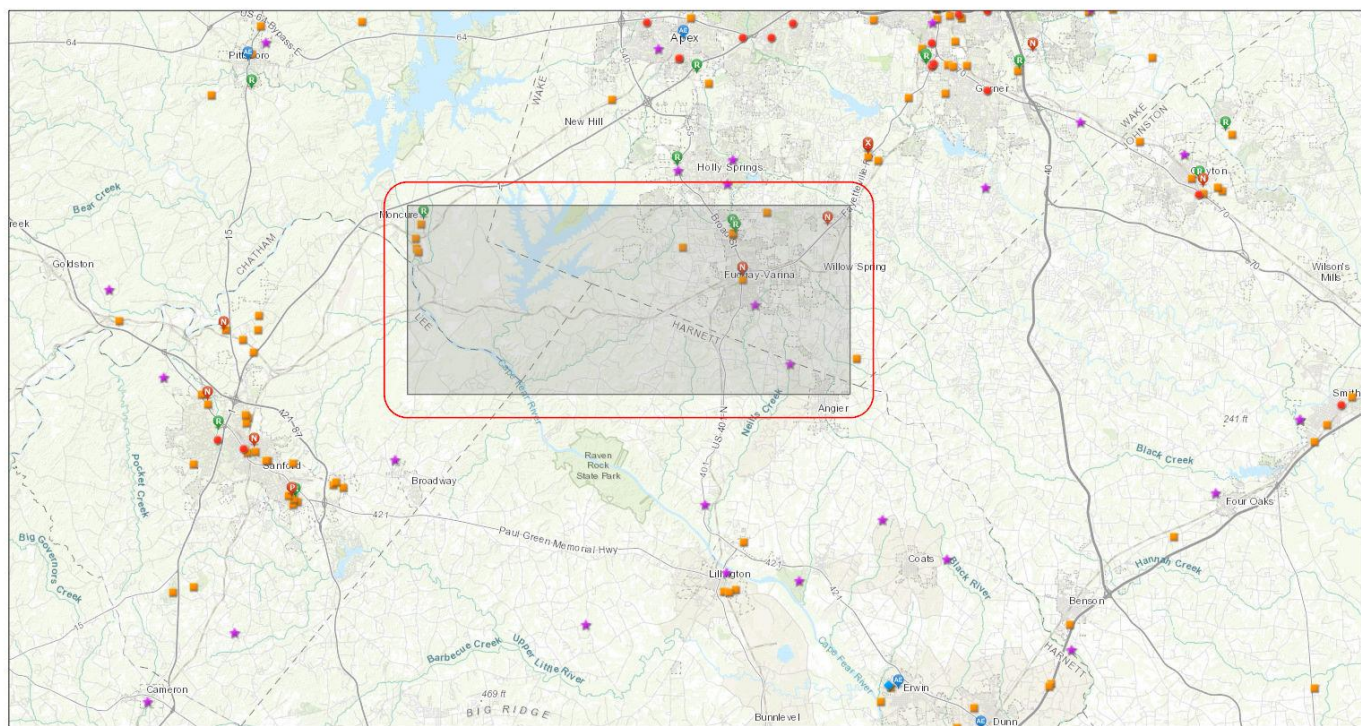


SEPA/NEPA Review Report

Area of Interest (AOI) Information

Area : 136,204.13 acres

Nov 4 2020 15:04:01 Eastern Standard Time



NC Brownfields Location_View

- Recorded
- Active Eligible
- Pending
- No Further Interest
- Ineligible
- Federal Remediation Branch
- Pre Regulatory Landfill Sites
- DSCA_Certified - Copy
- Inactive Hazardous Sites

1:288,895

0 3 6 12 mi

0 4.75 9.5 19 km

Town of Cary, State of North Carolina DOT, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS

21-0754 Wake County

Summary

Name	Count	Area(acres)	Length(mi)
Certified DSCA Sites	0	N/A	N/A
Federal Remediation Branch Sites	0	N/A	N/A
Inactive Hazardous Sites	10	N/A	N/A
Pre-Regulatory Landfill Sites	3	N/A	N/A
Brownfields Program Sites	6	N/A	N/A

Inactive Hazardous Sites

#	EPAID	SITENAME	Count
1	NCD049845548	REICHOLD CHEMICAL, INC.	1
2	NCD053488409	ALLIED CHEMICAL CORP/PERFORMANCE FIBERS	1
3	NCN000410369	JAMES AUSTIN RD TCE	1
4	NONCD0000014	BOISE CASCADE	1
5	NONCD0001064	GUILFORD MILLS PLANT	1
6	NONCD0001650	DYNEA	1
7	NONCD0001980	LAN-O-SHEEN, INC.	1
8	NONCD0002882	NEEDMORE GENERAL STORE	1
9	NONCD0002953	CORNELL DUBLIER ELECTRONICS (FRMR)	1
10	NONCD0003099	BASF	1

Pre-Regulatory Landfill Sites

#	EPAID	SITENAME	Count
1	NONCD0000349	Angier Refuse Dump	1
2	NONCD0000606	Fuquay Varina	1
3	NONCD0000605	Holly Springs Dump	1

Brownfields Program Sites

#	BF_ID	BF_Name	Count
1	1904715019	Allied Chemical (RN)	1
2	1804114092	RayChem Corp.	1
3	2100317092	Fuquay Varina Arts Center	1
4	2105317092	Guilford Mills Development	1
5	2308319092	Cornell Dubilier	1
6	1600112092	Liebherr Mining	1



NORTH CAROLINA
Environmental Quality

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

MICHAEL SCOTT
Director

November 3, 2020

To: Lyn Hardison, Environmental Assistance and SEPA Coordinator
Division of Environmental Assistance and Customer Service

From: Melodi Deaver, Administrative Specialist
Division of Waste Management, Hazardous Waste Section

RE: SEPA Review, Project# 21-0754, Town of Fuquay-Varina (Wake County)

The Hazardous Waste Section has reviewed the proposed for the Town of Fuquay-Varina's Water Supply and Interbasin Transfer project and would like to make the following comment:

Any hazardous waste generated from the demolition, construction, operation, maintenance, and/or remediation (e.g. excavated soil) from the proposed project must be managed in accordance with the North Carolina Hazardous Waste Rules. The demolition, construction, operation, maintenance, and remediation activities conducted will most likely generate a solid waste, and a determination must be made whether it is a hazardous waste. If a project site generates more than 220 pounds of hazardous waste in a calendar month, the HWS must be notified, and the site must comply with the small quantity generator (SQG) requirements. If a project site generates more than 2200 pounds of hazardous waste in a calendar month, the HWS must be notified, and the facility must comply with the large quantity generator (LQG) requirements.

Generators are required to determine their generator status and both SQGs & LQGs are required to obtain a site EPA Identification number for the generation of hazardous waste.

Should any questions arise, please contact Melodi Deaver at 919-707-8204

Respectfully,

Melodi Deaver

Compliance Branch
Hazardous Waste Section



State of North Carolina Department of Environmental Quality
INTERGOVERNMENTAL REVIEW PROJECT COMMENTS

Reviewing Regional Office: Raleigh
Project Number: 21-0754 Due Date: 11/4/2020
County: Wake

After review of this project it has been determined that the DEQ permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to construct & operate wastewater treatment facilities, non-standard sewer system extensions & sewer systems that do not discharge into state surface waters.	Application 90 days before begins construction or award of construction contracts. On-site inspection may be required. Post-application technical conference usual.	30 days (90 days)
☐	Permit to construct & operate, sewer extensions involving gravity sewers, pump stations and force mains discharging into a sewer collection system	Fast-Track Permitting program consists of the submittal of an application and an engineer's certification that the project meets all applicable State rules and Division Minimum Design Criteria.	30 days (N/A)
☐	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begins activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
☐	Water Use Permit	Pre-application technical conference usually necessary.	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a groundwater monitoring well located on property not owned by the applicant, and for a large capacity (>100,000 gallons per day) water supply well.	7 days (15 days)
☐	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
☐	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100 thru 2Q.0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q.0113).	90 days
☒	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
☒	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 20.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950	Please Note - The Health Hazards Control Unit (HHCU) of the N.C. Department of Health and Human Services, must be notified of plans to demolish a building, including residences for commercial or industrial expansion, even if no asbestos is present in the building.	60 days (90 days)
☒	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres are to be disturbed. Plan must be filed with and approved by applicable Regional Office (Land Quality Section) at least 30 days before beginning activity. A NPDES Construction Stormwater permit (NCG010000) is also usually issued should design features meet minimum requirements. A fee of \$65 for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
☐	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable Stormwater conveyances and outlets.		(30 days)
☐	Sedimentation and erosion control must be addressed in accordance with _____ Local Government's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable Stormwater conveyances and outlets.		Based on Local Program
☒	Compliance with 15A NCAC 2H .0126 - NPDES Stormwater Program which regulates three types of activities: Industrial, Municipal Separate Storm Sewer System & Construction activities that disturb ≥1 acre.		30-60 days (90 days)
☐	Compliance with 15A NCAC 2H 1000 -State Stormwater Permitting Programs regulate site development and post-construction stormwater runoff control. Areas subject to these permit programs include all 20 coastal counties, and various other counties and watersheds throughout the state.		45 days (90 days)

State of North Carolina Department of Environmental Quality
INTERGOVERNMENTAL REVIEW PROJECT COMMENTS

Reviewing Regional Office: Raleigh
Project Number: 21-0754 Due Date: 11/4/2020
County: Wake

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Mining Permit	On-site inspection usual. Surety bond filed with DEQ Bond amount varies with type mine and number of acres of affected land. Affected area greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, and certify construction is according to DEQ approved plans. May also require a permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of \$200.00 must accompany the application. An additional processing fee based on a percentage or the total project cost will be required upon completion.	30 days (60 days)
☐	Oil Refining Facilities	N/A	90-120 days (N/A)
☐	Permit to drill exploratory oil or gas well	File surety bond of \$5,000 with DEQ running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to DEQ rules and regulations.	10 days N/A
☐	Geophysical Exploration Permit	Application filed with DEQ at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days N/A
☐	State Lakes Construction Permit	Application fee based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property	15-20 days N/A
☒	401 Water Quality Certification	Compliance with the T15A 02H .0500 Certifications are required whenever construction or operation of facilities will result in a discharge into navigable water as described in 33 CFR part 323.	60 days (130 days)
☐	Compliance with Catawba, Goose Creek, Jordan Lake, Randleman, Tar Pamlico or Neuse Riparian Buffer Rules is required. Buffer requirements: http://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/401-wetlands-buffer-permits/401-riparian-buffer-protection-program		
☐	Nutrient Offset: Loading requirements for nitrogen and phosphorus in the Neuse and Tar-Pamlico River basins, and in the Jordan and Falls Lake watersheds, as part of the nutrient-management strategies in these areas. DWR nutrient offset information: http://deq.nc.gov/about/divisions/water-resources/planning/nonpoint-source-management/nutrient-offset-information		
☐	CAMA Permit for MAJOR development	\$250.00 - \$475.00 fee must accompany application	75 days (150 days)
☐	CAMA Permit for MINOR development	\$100.00 fee must accompany application	22 days (25 days)
☒	Abandonment of any wells, if required must be in accordance with Title 15A. Subchapter 2C.0100.		
☐	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
☒	Plans and specifications for the construction, expansion, or alteration of a public water system must be approved by the Division of Water Resources/Public Water Supply Section prior to the award of a contract or the initiation of construction as per 15A NCAC 18C .0300 et. seq., Plans and specifications should be submitted to 1634 Mail Service Center, Raleigh, North Carolina 27699-1634. All public water supply systems must comply with state and federal drinking water monitoring requirements. For more information, contact the Public Water Supply Section, (919) 707-9100.		30 days
☒	If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Water Resources/Public Water Supply Section at 1634 Mail Service Center, Raleigh, North Carolina 27699-1634. For more information, contact the Public Water Supply Section, (919) 707-9100.		30 days
☐	Plans and specifications for the construction, expansion, or alteration of the _____ water system must be approved through the _____ delegated plan approval authority. Please contact them at _____ for further information.		

State of North Carolina Department of Environmental Quality
INTERGOVERNMENTAL REVIEW PROJECT COMMENTS

Reviewing Regional Office: Raleigh
Project Number: 21-0754 Due Date: 11/4/2020
County: Wake

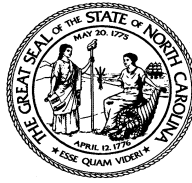
Other Comments (attach additional pages as necessary, being certain to comment authority)

Division	Initials	No comment	Comments	Date Review
DAQ	MRF	☐	See checked boxes above	10/12/2020
DWR-WQROS	JSB	☐	See checked boxes above.	10/16/2020
DWR-PWS	SG	☐	See checked boxes above.	11/4/2020
DEMLR (LQ & SW)	CDA	☐	See checked boxes above	10/16/2020
DWM – UST		☐		/ /
Other Comments		☐		/ /

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

- | | | |
|--|---|--|
| ☐ Asheville Regional Office
2090 U.S. 70 Highway
Swannanoa, NC 28778-8211
Phone: 828-296-4500
Fax: 828-299-7043 | ☐ Fayetteville Regional Office
225 Green Street, Suite 714,
Fayetteville, NC 28301-5043
Phone: 910-433-3300
Fax: 910-486-0707 | ☐ Mooreville Regional Office
610 East Center Avenue, Suite 301,
Mooreville, NC 28115
Phone: 704-663-1699
Fax: 704-663-6040 |
| ☒ Raleigh Regional Office
3800 Barrett Drive,
Raleigh, NC 27609
Phone: 919-791-4200
Fax: 919-571-4718 | ☐ Washington Regional Office
943 Washington Square Mall,
Washington, NC 27889
Phone: 252-946-6481
Fax: 252-975-3716 | ☐ Wilmington Regional Office
127 Cardinal Drive Ext.,
Wilmington, NC 28405
Phone: 910-796-7215
Fax: 910-350-2004 |
| | ☐ Winston-Salem Regional Office
450 Hanes Mill Road, Suite 300,
Winston-Salem, NC 27105
Phone: 336-776-9800
Fax: 336-776-9797 | |



**North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office**

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary Susi H. Hamilton

Office of Archives and History
Deputy Secretary Kevin Cherry

November 9, 2020

MEMORANDUM

TO: Crystal Best
North Carolina State Clearinghouse
Department of Administration

FROM: Ramona M. Bartos, Deputy
State Historic Preservation Officer

Re: for Ramona M. Bartos

SUBJECT: Town of Fuquay-Varina Water Supply and Interbasin Transfer Project,
SCH # 21-E-0000-0754, Wake County, ER 20-2212

Thank you for your submission concerning the above referenced project. We have reviewed the materials provided and offer the following comments.

The effects of the proposed undertaking on archaeological sites will depend on the precise extent and depth of ground disturbance. Once this information is available, we request draft project plans be forwarded to this office for review and comment.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Agency Review Comments on Draft EIS,
March 2023

ROY COOPER

Governor

ELIZABETH S. BISER

Secretary

RICHARD E. ROGERS, JR.

Director



NORTH CAROLINA
Environmental Quality

February 28, 2023

MEMORANDUM

FROM: Harold Brady, SEPA Review Coordinator - DWR – WPS

A handwritten signature in cursive script, appearing to read "Harold Brady".

TO: Mary Sadler, Hazen

SUBJECT: Town of Fuquay-Varina –Interbasin Transfer request for water supply from the Cape Fear River to the Neuse River

The Division of Water Resources (DWR) has reviewed the initial draft Environmental Impact Statement (EIS) document and has the following comments,

Neela Sarwar (Modeling and Assessment Branch):

- Model Set up:
 - Raleigh Little River Reservoir (LRR):
 - Is Raleigh LRR still an option as a future source? In the model even though it said the connection is turned off, the max flow is set to 20 mgd from LRR to Raleigh. In the set up, the initial storage is set at 1851 AF. Therefore, it's delivering up to 20 mgd as needed and reducing stress on the other Raleigh sources. This might not impact the F-V IBT that much, but it's diverting flow from LR to Neuse River and ultimately flowing through Clayton Gage.

[from F-V IBT-2055 scenario OASIS NOTE: "And finally...turned off operations and set storage to 0 for Little River Reservoir since there is no guarantee this will be built. It was in there to meet the projected 2055 demand of 109 mgd for Raleigh"]

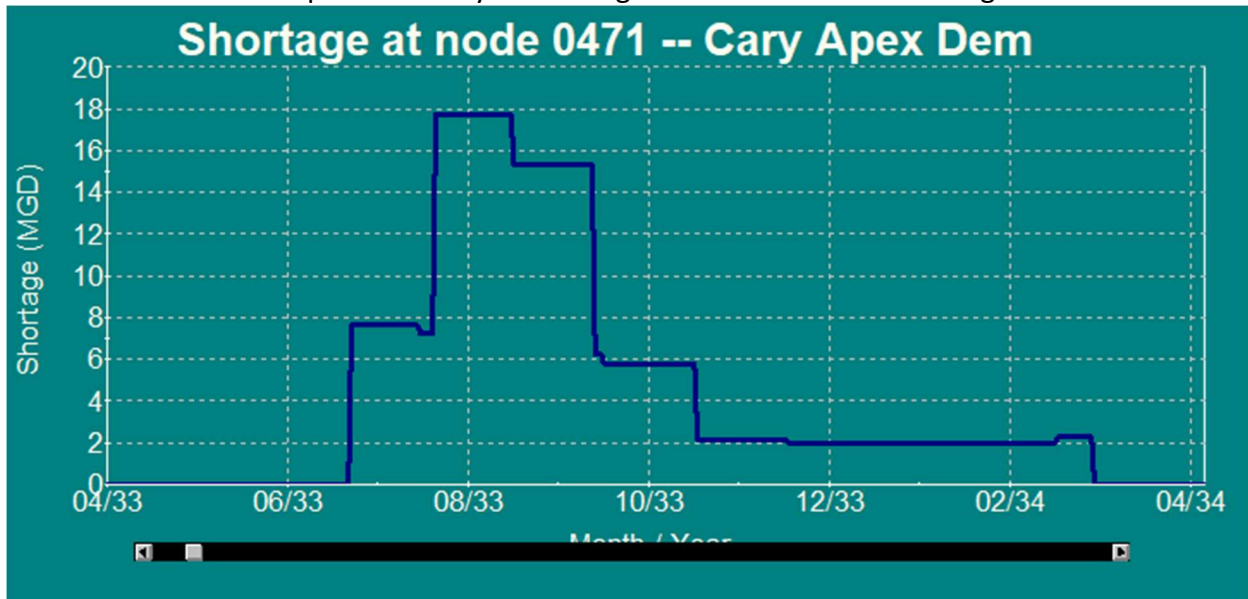
- Summary Table for Shortage Calculations:
 - The alternatives are simulated with drought plan on. However, the shortages shown in the table are calculated without drought plan. With drought plan, the systems without WSRP would show their regular shortages or no shortages anyway. Valid shortages in few systems [like Cary] shown in Table 3, Appendix C might create more questions.
 - Adding two more columns might give a different perspective of the shortage periods as is done for the climate change in Appendix C - Table 8
 - Longest duration (in days) of the shortage period.
 - No. of years impacted.



North Carolina Department of Environmental Quality | Division of Water Resources
512 North Salisbury Street | 1611 Mail Service Center | Raleigh, North Carolina 27699-1611
919.707.9000

- Frequencies/stages of drought triggered.

Example here: Cary is showing almost 8 months of shortages



- Minor flow differences noticed.
 - Climate yr 7Q10 flows are little different (even though ~1 % difference) as I calculated in the post processor.
 - Appendix C Table 2.5. Example Alt 1 and 9A-B. [just checked randomly at few key points]. At Fayetteville, my 7Q10 values are 4.56 and 3.62 mgd more than the values in the table.
 - Fayetteville 7Q10 flow for 2055 is abruptly low from 2025: 351.7cfs down to 294.9 cfs for 2025/2055 where water withdrawals are 34.74 and 62.34 mgd, respectively. Please explain the declines.
 - Between Lillington gage and Fayetteville intake there are not many major withdrawals like Fort Bragg and Fayetteville; rather, there are few returns from upstream withdrawals plus three local inflow locations with one having a few days of zero flows. Could it be for cut back of flows thru Jordan Lake for higher drought stages?

Shawn Guyer (Public Water Supply Section – Raleigh Regional Office):

On Page 3-55. Section 3.11.1 Well Yield, The EIS states: “Per the Administrative Code, a minimum of a 100 by 100-foot area is required around every well for well point protection.”

15A NCAC 18C .0203(a)(1) - The well shall be located on a lot so that the area within 100 feet of the well is owned or controlled by the person supplying the water. The supplier of water shall be able to protect the well lot from potential sources of pollution and to construct landscape features for drainage and diversion of pollution.



The rule specifies a 100' radius, not a 100' square.

Fred Tarver (Basin Planning Branch):

1. Does the OASIS model capture the proposed raw-water intake just downstream of the Haw/Deep confluence for the Moncure Megasite? This appears to be a reasonable expectation given the construction of the EV manufacturing facility in the next few years. There may be a cumulative impact on storage in Jordan to offset the combined deficits at the Lillington gage. Also, is a withdrawal from behind Buckhorn Dam of make-up water into Harris Lake included in the OASIS model? This would be a likely occurrence when the nuclear facility is expanded sometime in the future.
2. Pages 3-10, 3-19, 3-20. Table 3-8. Although a reservoir on Middle Creek is a rejected alternative, it is not prudent to be conjecturing on the flow release regime or the safe yield prior to any studies. A comparison to Lakes Benson and Wheeler on Swift Creek is not appropriate because, as mentioned in the document, a new flow regime on an existing reservoir cannot reduce the safe yield by more than 10 percent, according to the Dam Safety Rules. A hypothetical reservoir on Middle Creek would not be under such a restriction.
3. Page 5-28, Section 5.14.1. "For all stream crossings except the Cape Fear River, stream crossings will be performed by excavating an open trench, installing the transmission line, and backfilling the trench. Instream work will be performed in dry stream conditions, using a pump-around system or diversion as necessary. Transmission line crossings of the Cape Fear River and streams in which federally protected species or designated critical habitats are known to be present, if applicable, will be installed using trenchless technologies." All perennial streams should be crossed perpendicularly and using trenchless boring.
4. No mention is made in the document of the designation of the Cape Fear River as being in the Sustainable Rivers Programs (SRP), a cooperative partnership between the US Army Corps of Engineers and The Nature Conservancy. No mention is made of how the various cumulative withdrawals from the Cape Fear River will impact water quality storage and thus flow manipulations from Jordan to benefit downstream water quality and anadromous fish passage by the locks, which are associated with the SRP.
5. It is unclear whether water demand shortfalls downstream of the Lillington gage would be addressed by the water quality pool, as stated in the document, or by the water supply pool. Is this issue addressed specifically in operations protocols for Jordan?
6. Page 5-40. Typo at ninth bullet?
7. Tables 5-11 and 5-12. An accompanying table should be included in the document to present the number of days of the flow record that the benchmarks could not be attained, as well as the longest duration. Two percent may not seem like a lot but using a flow record of 33,000 days equates to 660 days.
8. Table 5-13 states "flow statistics" but does not indicate what flow statistic is being presented.



9. Although these low flows were pre-2008 they would represent Stage 3 or 4 drought conditions. I think it would be informative to model all the way downstream to L&D1 gage. It's unclear if Jordan has the capacity or will to make up flows in the Lower Cape Fear during these types of conditions. Where does the 600 cfs target come from for Fayetteville mentioned in the document? It would be interesting to see in the model whether the water systems could meet their demand during these flow events, whether or not they had WSRP in place. Perhaps the Annual 7-day minimum would be a good statistic to examine, in addition to the longest duration low flow value.

02102500 CAPE FEAR RIVER AT LILLINGTON, NC -

Water Years 1982 - 2021

Lowest daily mean	155.0	Aug 06, 2002
Annual 7-day minimum	206.3	Oct 09, 2007

02105769 CAPE FEAR RIVER AT LOCK 1 NEAR KELLY, NC

Water Years 1982 – 2021

Lowest daily mean	179.0	Aug 10, 2002
Annual 7-day minimum	322.7	Oct 13, 2007

Nora Deamer (Basin Planning Branch):

Section 3.8

Section 3.8 of this report captures many of the issues in both the Neuse and Cape Fear River Basins accurately. The Neuse River basin is NSW and Fuquay-Varina has a nitrogen allocation which they must meet in order to discharge their waste into any stream in the Neuse River Basin.

The Cape Fear River basin is not officially classified as NSW, but it has been recognized as being nutrient over enriched. A model is required before additional nutrients can be allowed into the segment of the river basin. The information provided about the latest water quality data is likely accurate but what was missing is that during periods of extended low flow, water quality conditions decline which results in high chlorophyll a concentrations. The latest water quality data doesn't include extended low flow conditions. It is also important to note that due to the water quality concerns in the central portion of the Cape Fear River basin, the Division is participating in a nutrient criteria development plan with the goal of understanding and potentially developing nutrient criteria for flowing streams. This could result in instream nitrogen and/or phosphorus concentration criteria as well as development of a different chlorophyll a criterion for flowing streams. It is recognized that the current chlorophyll a standard is not likely appropriate for flowing streams (would likely be less than 40 µg/L).

Communities in NC need to evaluate their resources prior to developing their long-term growth plans. At some point these resources can no longer support continued development. The



location of certain communities make growth more challenging. It needs to be recognized that in order to grow they will need to have in place the best available technologies to support their water supply and wastewater management needs.

Section 5.14.2

5.14.2.3

I believe this was also referenced in section 3.8.

On page 5-33 “Utilities seeking a new discharge are required to conduct independent water quality modeling to support the discharge request.”

It should be noted that the Division completed data collection in 2020 and is currently working directly with the USEPA on a modeling effort of the central portion of the Cape Fear River Basin.

This work is scheduled to be completed at the end of 2023. At that point the Nutrient Criteria Development Plan (NCDP) process can use this model to establish if there is a need for instream criterion for N and P or other response variables (like Chl A). This information is needed prior to understanding what nutrient loading can be supported in the central Cape Fear River basin and allow for nutrient allocations, reductions, or other possible steps to address over enrichment in the Cape Fear River. This could lead to refinement of the permitting strategy, a specific watershed strategy to address all sources of nutrients to the basin, a TMDL or other voluntary and/or required measures.

Note: I did not verify the actual water quality findings. I don’t think this is necessary. My comments indicate that during low flow periods there are serious water quality concerns and this is why we need to address nutrients in this section of the Cape Fear.

Forest Shepherd (Basin Planning Branch):

Comment #1:

The following statements are from the Environmental Impact Statement for Interbasin Transfer for Water Supply from Cape Fear River to Neuse River: *“The ILA with Harnett County is for the purchase of up to 2 mgd. The contract expires in 2040; however, the Town anticipates a contract renewal with Harnett County in 2040. Additionally, the Town has negotiated with Harnett County for an additional 2 mgd increase until 2035.”* (pdf page 35; document page 1-3). Table 1-1 stating: *“The Town has negotiated an additional 2 mgd until 2035 (2022).”* (Table 1-1 image below).

This *“additional 2 mgd increase until 2035”* was not included in Tables 2-5, Table 2-6, and Table 3-1 (table images below). Specifically, this *“additional 2 mgd increase until 2035”* does not appear to be included in the “Water Supply Source By Seller, mgd” column of data under the “Harnett County (Cape Fear)” data column, any other columns of data, calculated values. Please consider including the *“additional 2 mgd increase until 2035”* comment throughout the



document when discussing the water supply available to the Town of Fuquay-Varina and including it in any calculations and tables.

Additionally, if an additional 2 mgd contract for water supply is available until 2035 from Harnett County, please consider obtaining that additional water supply and/or explaining why the Town of Fuquay-Varina is not pursuing it. It appears that additional 2 mgd would improve the Town of Fuquay-Varina's projected water supply deficit (Table 2-4). An additional 2 mgd from Harnett County would provide the Town of Fuquay-Varina with a total water supply of 4 mgd from Harnett County until 2035, instead of the 2 mgd as stated in the tables. If this additional 2 mgd can be obtain it will afford the Town of Fuquay-Varina a total water supply of 7.25 mgd instead of the current 5.25 mgd. This would provide the Town of Fuquay-Varina with a water supply that could potentially meet the Maximum Day Water Demand (Table 3-1) until at least 2030 and possibly into 2035; depending on future growth.

Comment #2:

Could you please provide a citation for the sentence: "The Round 4 allocation increased the total Jordan Lake allocation to 95.9 percent. Raleigh Water rescinded their 4.7 mgd allocation from Jordan Lake in March 2019 as a result of the Falls Lake Reallocation Process for additional storage in the Falls Lake reservoir. The revised Jordan Lake allocation is 91.2 mgd."

Comment #3:

Related to these two statements:

"The Jordan Lake water quality storage never drops less than 20 percent in any alternative using either historic or climate change inflows. The water quality storage declines to less than 40 percent infrequently (e.g., less than 2 percent of the time)." "The two most concerning climate scenarios, there is a significant increase in the number of days with little or no additional runoff from the watershed area below the Lillington gage (e.g., no downstream flow gain). So, the combination of increased downstream demand, more severe drought scenarios, and cutbacks in the Jordan Lake release protocol under Stage 3 and 4 drought conditions combine to allow these brief shortages to materialize. It seems likely that with a significant volume of water left in the Jordan Lake Water Quality Pool, a change in policy and/or discretionary action by the USACE, in consultation with other stakeholders, would allow for additional releases to be made to meet these needs."

Could you please elaborate on what change in policy is expected and the timeline needed to fulfill that change in policy based on the statements above. Also, how would the discretionary action by the USACE, in consultation with other stakeholders, allow for additional releases and how long would that process take.

Comment #4:

In Table 3-21, Please explain why other municipalities (i.e. Chatham, Pittsboro, Siler City, and Holly Springs) will not be seeking water supplies from the City of Sanford.



Adrienne Weaver (Classifications and Standards Branch):

The information in Subsection 1.5.6 (Surface water reclassification) is correct.

The critical area and protected area definitions in that same subsection are correct.

Paul Clark (Water Supply Watershed Protection Coordinator, Stormwater Branch,
Division of Energy, Mineral, and Land Resources):

Recommended edits to the fifth paragraph in Subsection 3.4.1 (Proposed Middle Creek Reservoir) to make it clearer and more accurate:

“A surface water reclassification process per 15A NCAC 2B .0100 and .0200 would be required to reclassify the Middle Creek watershed as a WS-IV water supply watershed. Similar to Alternative 1 (Purchase of Finished Water from Raleigh Water), a proposed reservoir would have a significant impact on the development potential of the Middle Creek basin. The critical area is a one-half mile buffer area as measured from the normal pool elevation. The protected area is 5 miles as measured from normal pool elevation. In the protected area, the low-density option limits impervious surface to 24 percent (or 20,000 square foot lot excluding roadway ROW or one dwelling unit per half acre for single family residential development. Only the 24 percent impervious cover measurement is allowed for non-residential and all other residential development. The low-density option allows for higher density (e.g., 70 percent) in 10 percent of a jurisdiction’s service area. The WS-IV high-density option limits built upon area to 24 to 70 percent in the protected area; however, the jurisdiction must assume responsibility for operation and maintenance for engineered stormwater controls to handle the additional stormwater flow generated from greater impervious cover.”

Recommend using “area” instead of “buffer” because buffer implies little to no development in this region. One can develop in the critical area associated with a water supply, but there are restrictions associated with the development.

Mark Durway (Groundwater Management Branch):

In summary, Hazen & Sawyer concludes that Fuquay-Varina would need a 9100 acre well field and 388 wells to meet its 2055 water demand of 8.4 mgd. The study is based on 1000-ft well spacing and average well yield of 30 gpm. Hazen & Sawyer notes that groundwater within the area is vulnerable to contamination and that a full-scale water treatment plant would be required for blending, softening, iron and manganese removal, chlorination, potential contaminant treatment and removal, etc.

If further evaluation of groundwater as an IBT alternative is warranted, the following is recommended:

1. Identify one or more potential wellfield locations. The well system and wellfield should meet DWR Public Water Supply siting requirements including Wellhead Protection Area standards. Discuss site suitability and projected well yield with the Wake County hydrogeologist and DWR Groundwater Management Branch staff.



2. Conduct a Phase I Environmental Site Assessment to identify areas of known or potential groundwater contamination which could affect water quality and availability and result in additional treatment requirements and operating costs. Identify how potential water system issues will be overcome, such as reduced well yields during drought.
3. Modify the proposed wellfield plan to include a DWR-approved Wellhead Protection Area and a wellfield expansion area should additional wells be required because of unforeseen water quantity and water quality issues.

Renee Kramer (NCDEQ Title VI and Environmental Justice Coordinator):

I think overall the EJ portion is well done, and I commend them for including such a section in the report. I have reviewed the EJ portion and have the following comments:

1. In the section 4.15.2, 50% threshold for low-income is the highest I have ever seen, and I think is too high to use. For example, we use 10% greater than the state or county levels to flag as the potential for impact. I believe they also use that comparison for other metrics, so it is unclear why they don't use that for low-income.
2. I want to make sure they are aware of the DEQ Community Mapping System and our potentially underserved community layer-that can be a great way to conduct maps and visually demonstrate potential EJ impacts of projects.
3. I also didn't see any portion about community outreach and if they plan to conduct any engagement in their identified underserved communities-they should outline some outreach plan to connect with those communities if there is opportunity for public input to shape or change the project outcome.

Vann Stancil (Research Coordinator, NCWRC Habitat Conservation Division):

In general, does this project present any cause for concern regarding the cumulative transfer of water from the Cape Fear to the Neuse or to any other river basin?

There is increased discussion about possibly removing Buckhorn Dam on the Cape Fear River. Some of the biggest concerns are the intake(s) within the impoundment above Buckhorn Dam. This might be a great opportunity to reconfigure Sanford's intake to ensure it is sustainable even if the dam is removed. The DEIS alludes to that somewhat, saying that they want to move it lower in the river, but the DEIS should be clearer that the intake is in the impoundment formed by Buckhorn Dam and future plans should not assume that the dam will always be there.

SPECIFICALLY ABOUT RARE SPECIES:

The list of species on page 4-26 is somewhat misleading. First of all, while NCWRC does do some stream surveys for fish, we are usually targeting certain rare species, not doing a fish community assessment. The community assessment of stream fish is more similar to the work of the Biological Assessment Branch of DEQ. [Biological Assessment Branch | NC DEQ](#). In



addition, some of those species are only found much farther southeast, in the lower Coastal Plain of the Neuse or Cape Fear River basins. So, the list is somewhat misleading, not necessarily comprehensive, and not representative of the species found near the project.

It would be useful to include the type of taxa for species listed in Table 4-13 starting on page 4-33/173. It's confusing when the lists jump around from fishes to birds, to mammals since they are alphabetical and separated only by vertebrates and invertebrates and vascular and non-vascular plants. I'd prefer headings for fish, mussels, crayfish, bats, mammals, etc., otherwise it is difficult to determine what some species are. In addition, it would be helpful to identify if aquatic species are found only in the Cape Fear or Neuse basin or both.

The list of state listed species includes some species that can be removed. While I do not know the background behind the record(s), the American alligator is not typically found in Harnett Co. so that record deserves further investigation. Robust redhorse should be removed, in NC they are only found in the Pee Dee River below Blewett Falls Dam. Therefore, I am not sure why Chatham Co. is included. The list should be checked again for any other anomalies or errors.

The descriptions of listed species starting on pages 4-45/185 are very generic. The descriptions would be much more useful if they focused on habitat and occurrence within NC and within the counties of concern here. For instance, Atlantic sturgeon is limited to our large coastal rivers below dams. They can move upstream to Falls Lake Dam, at least theoretically, but won't pass all 3 locks and dams or Buckhorn Dam on the Cape Fear River and won't be in tributaries to the Neuse or Cape Fear River. American alligators are coastal, a Harnett Co. record is anomalous. Neuse River waterdog and Carolina madtom are also endemic to the Tar River basin (not just the Neuse). There's little discussion about the distribution and habitat of the Atlantic Pigtoe, which is what is most useful to include. The Tar spiny description is more comprehensive and would be a good template to follow for other species.

On page 4-60/200 the authors talk about Significant Aquatic Endangered Species Habitats (SAESH) designated by the WRC. That is an old designation that we no longer use, therefore all references to SAESH should be removed. This would be a good place to include Critical Habitat (designated by the FWS) as applicable, instead. For instance, Middle Creek is Critical Habitat for Neuse River waterdog for approximately 7 miles as it flows from Wake to Johnston County.

The NHP's lists of rare plants and rare animals have been updated in their 2022 publication. The state status of some species has changed since the DEIS was written. [2022 Rare Animal List | NHP \(ncnhp.org\)](#)

If there are records for Federally listed species near the project, the US Fish & Wildlife Service will need to be consulted. If they believe a Federally listed species may be impacted by the project, they will issue a Biological Opinion and address take. That is not discussed or listed in the permitting section.



Shelton Sullivan (401 & Buffer Permitting Branch):

For any of the proposed options, an environmental assessment of the jurisdictional and non-jurisdictional streams, wetlands, waters, and riparian buffers is required to accurately depict the environmental features along with the proposed temporary and permanent impacts for DWR review and evaluation. These impacts from any of the proposed alternatives will require the coverage of a 401 Water Quality Certification, as per 15A NCAC 02H Section .0500, an Isolated Wetlands and Waters (non-404) Permit, as per 15A NCAC 02H Section .1300, and/or a Federally Non-jurisdictional Wetlands or Waters permit, as per 15A NCAC 02H Section 01400. In addition, if there are proposed temporary or permanent impacts within the regulated Neuse River Riparian Buffers, as per 15A NCAC 02B .0714, then these should be evaluated to determine if a Buffer Authorization should be sought and submitted to DWR for review and approval, as per 15A NCAC 02B .0611. Please note that the applicant must also obtain and comply with all applicable federal, other state, and local regulations regarding the construction and development of this project.

David Wainwright (Water Supply Planning Branch):

- In Table ES-4, and in other places in the document, the term “politically unacceptable” is used to describe a negative aspect of some alternatives considered, primarily those associated with Johnston County. After reviewing the document, the term is understood, but is probably not a good term to use, as without context it could be taken out of context and appear that the project is politically motivated. Perhaps something like “May not be acceptable to local government” or something similar would be a better way to phrase the argument.
- At the top of page 1-2, 01 North Carolina Administrative Code (NCAC) 25 .0100 is referenced as a SEPA rule. I can see why the reference to these rules was chosen. However, it may be more appropriate to reference G.S. 143-215 .22L(d), which specifically references the requirement of an EA or EIS for a proposed IBT project and the requirements of the document.
- The very last bullet item at the bottom of page 1-4 states “Interbasin transfers are explicitly exempt from Session Law 215-90. All interbasin transfers are required to submit environmental documentation for SEPA review.” This statement is a little confusing, stating in the first sentence that IBT projects are exempt from SEPA then saying that they are required. Session Law 215-90 does not exempt IBT projects from SEPA; quite to the contrary. Section 7 of 215-90 (G.S. 143-215 .22L(d)) explicitly states that an EA or EIS for IBT projects is required.
- The purpose and need statement does not clearly define those aspects of the project. The purpose and need for any project needs to be explicitly and clearly stated as they define the project and are used to determine whether the alternatives should be carried forward for additional analysis as well as to what extent the alternative does (or does not) satisfy the purpose and need. For example, and simply stated, the purpose could be to provide additional drinking water to the Town of Fuquay-Varina; the need could be to address the anticipated growth, and hence water demands, within the Town’s water service limits. By defining the purpose in such a manner, it allows each alternative to be compared to these – does the alternative provide additional drinking water to the



Town? Will the alternative provide enough water to supply future needs? These are yes/no questions that can easily compare each alternative and whether it meets the purpose and need of the project. The degree to which each alternative meets the purpose and need can further be used to discount alternatives – if an alternative does supply water but doesn't supply enough to meet the need then it can perhaps be discounted based on this. Part of the need could be to supply the Town with an additional 4.2 MGD by 2025 (and explain why this is necessary – the P&N section does not explain why 2025 is critical to having the water supply in place) and then discount certain alternatives because they cannot meet the stated need.

- In Section 5.14.2, with respect to wastewater discharges, it is stated that, "Direct and indirect permanent and temporary impacts as a result of the discharge of treated effluent will be negligible, as these impacts are addressed in an existing CWA permit." The additional wastewater discharge created because of the transfer of water is a direct impact resulting from this project and will likely not be a negligible impact; the increased discharge is being generated due to additional water supply being made available. The effects of the additional wastewater discharge to surface waters, water quality, wild and aquatic life, etc. needs to be taken into consideration and addressed and not just stating that it will be addressed through the NPDES permit, which will likely need to be amended to account for the additional discharge as a result of this project.
- On page 1-2 in Section 1.4.1, second paragraph, line five, "Ten Road" I think should be "Ten-Ten Road." Also, page 3-38, Section 3.7.3, paragraph 4, line 2, "Har" should probably be "Haw".

Louis Murray (Water Supply Planning Branch):

I have reviewed Sections 2 and 3 based on evaluating consistency with Fuquay's LWSPs.

Section 2. Purpose and Need

1. **Section 2. Purpose and Need/Population** – historic population numbers in Table 2-1 are consistent with those referenced in the LWSPs. However, the reported 5-yr moving average growth rates should be checked, as most look a little off; for example, annualized 5-yr ma growth rates for:
 $2004 \text{ to } 2009 = (8.53+7.86+0.95+0.94+0.93)/5 = 3.84\% \text{ (not } 3.78\%);$
 $2012 \text{ to } 2017 = (0.66+9.34+5.85+13.90+5.73)/5 = 7.10\% \text{ (not } 7.00\%);$
 $2015 \text{ to } 2020 = (13.90+5.73+6.70+4.00+7.74)/5 = 7.61\% \text{ (not } 7.56\%)$
2. **2.1.2 Population Projections** – the fourth paragraph states, "The percent of population served in the Neuse and Cape Fear River basins at build-out is approximately 62 percent and 38 percent, respectively. The ratio of anticipated growth in the Cape Fear and Neuse River basins is fairly consistent throughout the planning period." Just a **comment here** - the 2021 LWSP indicates a 50/50 service-area split between the Neuse and Cape Fear Basins, different than the 62/28 shown above. It is something to keep in mind when we assume a system's demand is proportional to the areal distribution in our Basin Water Quantity plans.



3. **Table 2-2. Population Projections** – projected populations in Table 2-2 are consistent with those reported in the 2021 LWSP.
4. **2.2 Water Demand Analysis** – the first paragraph reads, “Residential accounts contributed approximately 72 percent of the water use in the service area between 2015 and 2021.” However, I get 66% if referring to the percentage of residential use to the total service-area demand.

“The number of residential accounts has increased an average of 5.5 percent per year since 2015.” However, I get 6.6% per year if accounts are equated to metered connections.

“Residential use contributes 73 percent of the total water demand.” Assuming reference to the most recent (2021) LWSP, I get 61% (1.714 mgd/2.791 mgd). If averaged over the six years from 2015-2021, I get 66%.

“Commercial use contributes 17 percent of the total water demand.” Assuming reference to the most recent (2021) LWSP, I get 15% (0.407 mgd/2.791 mgd). If averaged over the six years from 2015-2021, I get 16%.

5. **2.2.1 Per Capita Demand** – the first paragraph reads, “Since 2016, the residential per capita use is less than 54 gpcd.” However, per capita demand averaged 56 gpcd in 2019. “The sum of industrial and institutional per capita use has averaged approximately 4 gpcd over the last few years.” However, I get 6.5 gpcd over the past four years.
3rd para – “The Town’s percentage of non-revenue water has declined since 2016 at 13.8 percent to 7.6 percent in 2021.” However, assuming non-revenue water includes system process use as indicated in this paragraph, I get 12.7% in 2016 and 7.6% in 2021 (Non-revenue water equals unaccounted-for-water plus process water).

6. **Table 2-3. Summary of total Water Billed and Purchased Water Per Capita Demand** – the footnote ² at the bottom of this table defines ‘non-revenue’ water as “unaccounted-for water in Local Water Supply Plans (Section 5. Planning).” However, non-revenue water was earlier defined in this document to also include process water use. I reviewed the data for years 2015 to 2021. If Total Billed water = Total Water Purchased - (process water + unaccounted for water), then the following corrections are needed:
2020: total water billed and purchased should be 2.173 mgd and 2.517 mgd, respectively.
2019: total water billed and purchased should be 2.253 mgd and 2.478 mgd, respectively.
2018: total water billed and purchased should be 2.067 mgd and 2.306 mgd, respectively.
2017: total water billed and purchased should be 1.949 mgd and 2.186 mgd, respectively.
2016: total water billed and purchased should be 1.864 mgd and 2.136 mgd, respectively.
2015: total water billed and purchased should be 1.822 mgd and 2.008 mgd, respectively.

I would suggest also reviewing years 2002-2014. Changes likely needed here also.



7. **Table2-4 Summary of Annual Average, Max Month, and Max Day Water Demand Projections**

Correction needed – 2050 max monthly demand should be 8.9 mgd. All other values are correct and consistent with 2021 LWSP.

Suggest revising footnote ¹ to indicate that the projected populations are consistent with those in the 2021 LWSP. For example, “¹ Population projections from linear best fit regression method used for the 2021 Local Water Supply Plan.”

- **2.3 Interbasin Transfer Projections** – first paragraph indicates that “Post 2049, all of the Town’s water supply will originate from the Cape Fear River basin (2-3). The maximum month transfer in 2055 is anticipated to be 6.13 mgd. The maximum day transfer amount is anticipated to be 7.8 mgd. By 2055, approximately 12.6 mgd of water supply will be required to support peak day needs.” However, the 2021 LWSP indicates future purchases from Sanford at 11.0 mgd (avg. day) by 2055 which, using the previously referenced max month and max day peaking factors of 1.18 and 1.5, would equate to a max month supply of 13.0 mgd and a max day supply of 16.5 mgd, amounts greater than those referenced here. Please explain.
- 9. **2.4 Summary of Purpose and Need** – revise first paragraph to indicate the current population is now over 34,000 people.

Section 3. Alternative Analysis

10. **3.1 No Action** – Fuquay’s 2021 LWSP does not show an additional supply of 2.0 mgd coming from Harnett County until 2035 as mentioned in the first paragraph (maybe I am misreading this?).
11. **Table 3-2.** Sale agreement with Franklin County is not shown in Raleigh’s 2021 LWSP (maybe it was not finalized in time to include it).
12. **3.2.1 Existing Water Supply and Treatment Infrastructure** – the third paragraph indicates a safe yield of 84 mgd for Falls Lake but Raleigh’s 2021 LWSP shows a 50-yr safe yield of 88.2 mgd. The 5th paragraph indicates a capacity of 20 mgd for the Dempsey Benton WTP but the LWSP shows 16 mgd.
13. **3.3.4 Summary** -- first paragraph reads “Johnston County is unlikely to accept a new wholesale customer or water supply partner. The County’s continued long range water supply planning effort has identified a potentially feasible alternative that will satisfy the 2050 water supply deficit in the County’s service area. ***The identified alternative will not yield sufficient water supply capacity for additional wholesale customers or water supply partners, including the Town of Fuquay-Varina.*** However, this alternative was carried forward in the EIS for an environmental impact analysis”. **Agree. Johnston County’s 2021 Plan, still unapproved, shows a demand-to-supply ratio of 82% by 2030 and 86% by 2040.**



14. **3.5.1. Population and Water Demand Projections for City of Dunn** – the first paragraph states that the average day water demand in 2050 is 5.9 mgd. However, Table 3-10 below (as well as the LWSP) indicate 4.85 mgd.
15. **3.5.3 Cape Fear River Instream Flow Characterization at Dunn** – first paragraph reads “A 7Q10 value near Dunn is not documented in the 1998 USGS report. However, DWR published a Cape Fear River Basin Water Supply Plan (2002) that estimated the available water withdrawal at Dunn to be **69.8 mgd.**” What does ‘available’ water withdrawal mean? Wondering how this was defined in DWR’s report. It is much greater than the 12.0 mgd shown in the LWSP as the 20-yr safe yield.
16. **Table 3-20 Summary of City of Sanford Wholesale Water Sales Contracts** – the City sold approximately 0.87 mgd (**not 0.83 mgd**) of bulk finished water out of a total contract amount of 2.3 mgd in 2021, excluding emergency use contracts. Also, the avg. day sale to Chatham County (Asbury) in 2021 was 0.445 mgd, not 0.401 mgd.
17. I briefly reviewed the twelve alternatives and, based on my very limited knowledge of the specifics, feel comfortable with the rationale used to accept some while rejecting others. Other than no action, the GW alternative is one of the more obvious rejections.

Vardry Austin (Water Supply Planning Branch):

EIS Page 2-4 and Appendix A – Page 13:

- In the first bullet, commercial accounts should be 7.4 percent.

EIS Page 2-5:

- In the third paragraph, correct the percent of commercial accounts to 7.4 percent of total accounts.

EIS Page 3-69:

- Fifth paragraph, commercial accounts should be 7.4 percent.

Appendix A – Table 4:

- Correct the LWSP population for 2019

Appendix A – Table 8:

- Correct UAFW per capita demand as noted in the LWSP

Appendix A – Table 9 and EIS Table 2-3 (as appropriate):

- Revise total water billed and total water purchased to calculate non-revenue water (unaccounted-for water) as shown in the LWSP
- Complete table for non-revenue water for 2021
- Change heading for non-revenue water to read MGD

Appendix A – Table 11:

- Correct the maximum month water demand for 2050

EIS Page 3-27:

- Section 3.6.1 states the county’s average day withdrawal in 2020 was 19.93 mgd with a maximum day of 27.85 mgd. Confirm the source of these numbers since they are not in the 2020 LWSP.



EIS Page 3-49:

- The third paragraph states the average day water demand in 2021 for Sanford was 6.4 mgd with a maximum day demand approaching 12 mgd. Confirm the source of these numbers since they are not in the 2021 LWSP.

Harold Brady (Water Supply Planning Branch):

Executive Summary

1. Cover Page: Need to state that this Draft EIS document has been written for NCDEQ – Division of Water Resources. “Completeness review” language should be removed before issuance of the draft for public review.
2. Back Cover Page: Replace “River Basin Management” with “Water Supply Planning”
3. Executive Summary, ES.1, second paragraph, second sentence: Consider opening with, “Per GS 215-143.22G,”
4. Executive Summary, ES.1, second paragraph, last sentence: Consider referencing this location on a map, as well as identifying the HUC number.
5. Executive Summary, ES.2, second paragraph, first sentence: Consider adding that Harnett County is the Town’s current primary water supplier. The use of “temporary” is questionable, considering nearly all water supply purchase agreements are time-limited, including the ILA with Harnett County. Perhaps provide an explanation that these will not be renewed. Please include any documentation from the sellers regarding this issue. Please revise accordingly throughout the document.
6. Executive Summary, ES.2, second paragraph, third sentence: Need to describe the proposed project or preferred alternative before stating that an IBT is necessary.
7. Executive Summary, ES.2, third paragraph, third sentence: Include, “met or” between “is” and “exceeded”.
8. Executive Summary, ES.2, third paragraph, fifth sentence: Change “amount” to “amounts”, as there are multiple contract amounts.
9. Executive Summary, ES.3, second paragraph, first sentence: Replace “will support the” to “has been prepared for”. Add, “as part of the” between “(DEQ)” and “decision-making”.
10. Executive Summary, ES.3, second paragraph, last sentence: Please double-check the Administrative Code SEPA citation. Please also reference, GS 113-A, making specific note of its various subsections depending upon the subject throughout the draft document.
11. Executive Summary, Table ES-2: Include the definitions of footnotes on every page that they are used. This should be done throughout the document. The portion of table with no information on page vi should be deleted.
12. Executive Summary, ES.5, first paragraph, last sentence: These qualifiers will need to be quantitatively defined for each impact type throughout the document.



13. Executive Summary, ES.6, second paragraph, fifth bullet: Need to note specifically what the noted impacts are for downstream water users. Please ensure that the 99.9% value is not misleading. Furthermore, the four downstream water users noted are following the statutory requirements for Water Shortage Response Plans (WSRP). The document should contain an analysis (i.e., post-process) of potential impacts to those water systems whose WSRP triggers are not in the model to fully evaluate all potential impacts.
14. Executive Summary, ES.6, second paragraph, eighth bullet: Please provide the value or a quantifiable definition for “nominal”.
15. Executive Summary, ES.6, second paragraph, ninth bullet: Please explain the context and importance of this statement.
16. Executive Summary, ES.6, second paragraph, tenth bullet: Please cite the source for the 600 cfs flow target at Fayetteville.
17. Executive Summary, ES.6, fourth paragraph: Need to note the specific withdrawal amounts from the City of Sanford intake that are used in the model runs.
18. Table ES-3: All qualifiers need to be defined, quantitatively, if possible, otherwise the determinations are entirely the author’s discretion. All footnotes used on the page should defined on each page throughout the document.
19. Executive Summary, ES.6, first paragraph, fourth sentence: Limiting the available alternatives to only those that can fully achieve the 2055 (study period) project goals by 2025 is an overly restrictive consideration to the other alternatives. Due to this proposal coming to the DEQ so close to this “deadline”, the applicant may need to resolve the short-term maximum day demand issues outside of the proposed long-term IBT project.
20. Executive Summary, ES-6, Table ES-4, Alternative 5: Explain why there is no alternative that proposes expansion the Harnett County WWTP beyond the 6.0 mgd under the current long-term ILA.
21. Executive Summary, Table ES-4, Alternative 8A/B: This would have been a regional solution had the City of Raleigh been considered a partner in developing this alternative as originally discussed in Feb. 2020 with the applicant. This alternative was initially discussed with the applicant in terms of the proposal that the City of Raleigh provided to the DEQ during the Round 4 Jordan Lake Allocation process, in which the City of Raleigh proposed withdrawing water, from their proposed Jordan Lake allocation, from the Cape Fear River and returning all but 2 mgd; thereby avoiding issuance of an IBT Certificate.
22. Executive Summary, Table ES-4, Alternative 12: Consider clarifying that the Town’s water conservation measures/plan must meet or exceed those by other water systems in the Cape Fear River (source) basin. The document states that the IBT projections account for water conservation; however, these measures need to meet or exceed the most stringent measures by other water systems in the Cape Fear (source) basin to fully account for this alternative to not be viable.
23. Global: Consider embedding all maps and figures where the discussion of the topic first occurs, instead of in the back of the document.

Section 1.0

24. Section 1.4: The document needs to address the practicality and logistics of avoiding an IBT Certificate request, by utilizing the existing collection system to route flows toward the North Harnett WWTP instead of Terrible Creek WWTP. Consider providing information related to any improvements to the collection system that routed greater flows toward Terrible Creek WWTP, particularly those activities that occurred after issuance of the NOI. Where this information is presented in the document is left to the authors discretion.
25. Section 1.4.2, second paragraph, last sentence: Need documentation from Harnett County as to their interest in a cooperative expansion of the North Harnett WWTP. Also, the document needs to define the constrictive element to the 6 mgd “carrying capacity” of the interceptor line and what would be entailed in expanding that line. Perhaps this would best be addressed as an additional alternative.
26. Section 1.5.1, second paragraph: Please review this entire paragraph for accuracy avoiding misconstruing the statute. 1) The Session Law is 2015-90. 2) This session law does not modify the Administrative Rules 15A NCAC 01C, rather it added specific thresholds in statute, needed to be met before a SEPA document would be required for specific projects. 3) The statute includes more context and requirements to the third bullet than provided in the document. 4) The Session Law includes considerable language regarding IBTs; therefore, the subject and associated projects should not be characterized as “exempt”.
27. Section 1.5.4, second paragraph: Please explain the relevance of this subject to the proposed project.
28. Section 1.5.8, first paragraph, first sentence: The statute referenced compels the Department to develop hydrologic models with approval and modification responsibilities granted to the Commission. Please correct accordingly.

Section 2.0

29. Section 2, second paragraph, second sentence: Based on the most recent data presented the population growth rate based on the previous 5-year average is 5.5%, not 7%. Please correct accordingly. This change appears to be consistent with the 1st paragraph in Section 2.2.
30. Section 2.1.2, second paragraph, last sentence: Please explain the population of 17,500 that are unserved in the service area. How the value was determined and generally why they are currently not served.
31. Section 2.1.2, fourth paragraph, third sentence: Please provide details/estimates for the service population growth over the next 5-7 years, describing both the population currently unserved in the service area and the anticipated new residential growth in the service area.
32. Section 2.1.2, fifth paragraph, eighth sentence: Please consider providing a demonstration for how the linear best fit method is consistent with the TAZ build-out projections, particularly considering that the population is projected to nearly double in this relatively short time period.
33. Section 2.1.2, fifth paragraph, sentences 10 and 11: It appears that these sentences saying the same thing. Please explain the differences between these two sentences.



34. Section 2.2.1, last paragraph, last sentence: Please explain why the Town expects no reductions in the per capita demand over the planning period. Considering that the past 5-year per capita average (2017-2021) is 79.5 gpcd, please explain why 80 gpcd isn't a more reasonable, yet still conservative, per capita value when estimating long-term demand growth. NCGS 143-355(I) compels water systems to provide plans for reductions in per capita water demand. The historic record provided by LWSPs are our most commonly used method to provide a check on demand projections; however, over the past 15 years the Town has consistently not provided the necessary information to approve their LWSPs or not provided the maximum daily values in the monthly table, critical for IBT calculation of average day maximum month statistic. Therefore, the DWR is left with limited means to adequately validate the historic demands presented in this document. Below is an account of the status of the Town's LWSPs since 2007.
- 2007: not submitted
 - 2008: not submitted
 - 2009: incomplete
 - 2010: incomplete
 - 2011: incomplete
 - 2012: approved
 - 2013: incomplete
 - 2014: incomplete
 - 2015: approved (no max day values)
 - 2016: incomplete
 - 2017: approved
 - 2018: approved
 - 2019: incomplete
 - 2020: approved
 - 2021: approved (no max day values)
35. Section 2.2.2, first paragraph, sixth sentence: Please explain why Harnett County's peaking factor was used instead of data from the Town of Fuquay-Varina.
36. Section 2.2.2, first paragraph, seventh sentence: Please present the data with the names of the communities used to make this maximum day calculation.
37. Table 2-4: Please double-check the 2050 Maximum Month Water Demand value.
38. Section 2.3, first paragraph, eighth sentence: Throughout the document, please ensure that the language is clear regarding the statistic, average day over the maximum month, instead of simply maximum month.
39. Section 2.3, first paragraph, last sentence: Consider providing clarity that this is for system-wide demand.
40. Section 2.3.1, first paragraph: Please provide a citation for this definition for consumptive use. The DWR water supply planning branch uses the term "consumptive" demand as the portion of the demand that is not collected into a centralized wastewater system, primarily lost to the ground in various ways. Based on this, please clarify what the 17.5% represents.

41. Section 2.3.1, second paragraph, third and fourth sentences: Please clarify, is the author referencing HUC boundaries and state IBT boundaries? A map embedded with the discussion would be very helpful.
42. Section 2.3.1, second paragraph, fifth sentence: Please explain where the Town directly discharges to the Neuse River.

Section 3.0

43. Section 3.1, first paragraph, first sentence: For ease of reading, please consider spelling out acronyms that haven't been used in several sections throughout the document. Also, ensure that all acronyms are appropriately defined throughout the document.
44. Section 3.1, first paragraph, third sentence: Please consider including correspondence with Harnett County to avoid expectations or assumptions when discussing alternative selections.
45. Section 3.1, first paragraph, last sentence: Please consider including correspondence with Raleigh to avoid expectations or assumptions when discussing alternative selections.
46. Table 3-1: Consider including the current year or 2020 to provide context for the starting point of the projections. Please clarify what the positive or negative values represent. As presented, it appears there is a 1.02 deficit in 2025.
47. Table 3-2: Consider including totals.
48. Section 3.2.1, fourth paragraph, fourth sentence: Consider including "targets" following "instream flow", as these are targeted flows, that can be reduced or not met, as needed.
49. Section 3.2.1, fifth paragraph, first sentence: Please explain the "source" or the "storage" that is located at the intersection of the two roads.
50. Section 3.2.1, fifth paragraph, fifth sentence: Please provide a citation and the lead agency involved in the Biological Opinion.
51. Section 3.2.1, fifth paragraph, last sentence: Please provide the year of the drought of record for this site.
52. Section 3.2.2, first paragraph, fourth sentence: Consider replacing, "will" with "is projected", as these are values projected into the future that lack certainty. Likewise, consider adding "projected" between "combined" and "2050".
53. Section 3.2.2, first paragraph, fifth sentence: Please explain further.
54. Section 3.2.2, first paragraph, last sentence: Please state if this is based on current demand.
55. Section 3.2.2, second paragraph, last sentence: Please explain why the 25th percentile is used.
56. Table 3-3: Please explain why the total average day demand is less than the average day service area demand in 2021 and then again in 2060.
57. Section 3.2.3, first paragraph, last sentence: Consider replacing "suggested that" with "compelled", as it was the environmental review process that necessitated an alternative analysis.
58. Section 3.2.3, second paragraph, second sentence: Please provide a citation for this statement.

59. Section 3.2.3, fourth paragraph, third sentence: Please provide the value and citation for Raleigh Water's referenced current allocation in Jordan Lake.
60. Section 3.2.3.2, first paragraph, third sentence: The second paragraph in Section 3.2.3 states that the reallocation of Falls Lake would satisfy the City's demands for 30 years; however, this sentence states that demands will exceed supply in 25 to 30 years. Please clarify.
61. Section 3.2.3.2, second paragraph, first sentence: Consider adding "The Town of" at the start of the sentence.
62. Section 3.2.3.2, sixth paragraph, last sentence: Consider stating the county where the dam will be located as well as the county(s) where the impounded waters would be in.
63. Section 3.2.3.2, seventh paragraph, first sentence: Without maps embedded in the document where the discussion occurs it is difficult for the reader to visualize these types of topics.
64. Section 3.2.3.2, eighth paragraph, fourth sentence: Please consider stating that the minimum release was assumed for the purposes of estimating yield, and please provide a source or methodology for these proposed minimum flow rates.
65. Section 3.2.3.2, eighth paragraph, fifth sentence: Please replace "developed" with "revised".
66. Section 3.2.3.2, ninth paragraph, fifth sentence: Please consider replacing "defacto reuse" with "guidance", as this common situation is not generally viewed as "reuse" water since the treated waters have been discharged into a flowing body of water.
67. Section 3.2.3.2, ninth paragraph, sixth sentence: Likewise, from the previous comment, please consider changing the statement "recycle loop" as it suggests that the treated waters are not being discharged into a body of water, but directly "recycled" by another water system. "Inputs" seems like an acceptable replacement.
68. Section 3.2.3.2, ninth paragraph, last sentence: Consider avoiding the term "returned" as most of this treated wastewater originated in the Cape Fear River Basin, not the Neuse River Basin.
69. Section 3.2.4, second paragraph: Consider acknowledging that the alternative does satisfies the long-term demands for the Town. The Town's lack of long-term planning years ago should not be the burden of the lead agency to select a preferred alternative solely because it will take too long to fully meet the defined long-term purpose and need. If this is the situation, then a short-term solution may need to be initiated while the long-term solution is evaluated, permitted and instituted.
70. Section 3.3, second paragraph, first sentence: Please state if this is based on average day demand or other statistic or time scale.
71. Table 3-5: Considering that 4 water systems are regular purchasers of water without a contract amount, please explain the accuracy of 8.5 mgd.
72. Section 3.3, third paragraph, last sentence: Consider including a tabular breakdown of the 7.0 mgd in 2050 in Table 3-6.
73. Section 3.3.1, first paragraph, fourth sentence: Please consider avoiding the term "allocated" in this context. DWR has not allocated a specific amount of guaranteed water supply to Johnston County.

74. Section 3.3.1, first paragraph, last sentence: This sentence could be confusing to a reader as it lacks context that the projected plant discharges have been effectively subtracted from the 20% of the 7Q10 withdrawal limitation.
75. Section 3.3.2, second paragraph, fourth sentence: Please explain why the use of groundwater presents correlation issues.
76. Section 3.3.2, third paragraph, last sentence: Please consider including the projected demands of the ECIA developed by the Town and County.
77. Section 3.3.2, fourth paragraph, fourth sentence: Please consider including the projected growth rate between 2040 and 2050.
78. Section 3.3.2, fourth paragraph, last sentence: Recommend ending with “demands”.
79. Section 3.3.3, first paragraph, third & last sentence: These sentences appear to say the same thing, please explain any differences.
80. Section 3.3.3., second paragraph, last sentence: Please include the entire citation for the second general statute referenced.
81. Section 3.3.3.2.2, second paragraph, first sentence: Please consider adding, “option” or a similar word following “Richardson Bridge Road”.
82. Section 3.3.4, second paragraph, last sentence: Please double-check this statement to ensure accuracy.
83. Section 3.4.1, second paragraph: Please refer to comments #66, 67, & 68 and make appropriate corrections.
84. Section 3.4.2: Consider acknowledging that the alternative does satisfies the long-term demands for the Town.
85. Section 3.5, first paragraph: Please ensure clarity throughout the document that the subbasins mentioned referred to IBT defined basins to avoid confusion with HUC unit basins.
86. Section 3.5.1, first paragraph, fifth sentence: Please consider explaining the relevance of this statement.
87. Section 3.5.1, first paragraph, sixth & seventh sentences: Please ensure that the values presented are consistent with the values presented in Table 3-10. Please provide explanations for any differences in calculation.
88. Table 3-10: Please explain the fluctuating projected sales values (i.e., increasing, decreasing, and increasing again). The total demand in 2060 appears to be different based on the other values presented. Please ensure that the methodology for calculating peaking factors (i.e., previous 5-year average) are consistent throughout the document.
89. Section 3.5.3, first paragraph, first sentence: Please explain which portion of the Administrative Rule requirements are being referenced.
90. Section 3.5.3, fourth sentence: It is advisable that alternative analysis decisions should not be made based on environmental field data over 20 years old, particularly when more recent data is readily available or could be calculated.
91. Section 3.5.3, first paragraph, fifth sentence: Please use caution with use of the term “allowable”, as there is no specific water withdrawal permitting in this portion of North Carolina, and the referenced Administrative Rule allows for withdrawals greater

than the referenced statistic (not mentioned in this discussion) through site-specific investigations.

92. Section 3.5.3, first paragraph, last sentence: When mentioning “water withdrawal” is this a reference to available capacity?
93. Section 3.5.4, first paragraph, third sentence: Please define “re-rate” in this context.
94. Section 3.5.4, third paragraph, first sentence: Please explain what is meant by “re-rate for capacity recovery”.
95. Section 3.5.4, sixth paragraph: Please state if construction of a terminal raw water reservoir part of the proposed package for this alternative.
96. Section 3.6, second paragraph, second sentence: Please state if this breakdown represents the “service” population. If so, please consider also providing the demand percentages.
97. Global: Ensure that footnotes from tables presented have the referenced footnotes on every page they are used.
98. Section 3.6.1, first paragraph, fourth sentence: Please consider stating that the discharges are allowed through the issuance of an NPDES permit, instead of “via”.
99. Section 3.6.1, first paragraph, fifth sentence: Please explain the relevancy of this information.
100. Section 3.6.1, first paragraph, sixth sentence: Please state by type, name and number which permit is referenced. There are no specific water withdrawal permits in this part of the state. Please consider including a copy of the “permit” in the Appendix.
101. Section 3.6.2, first paragraph: Comments #89, 90, & 91 are also applicable to this paragraph. Please correct accordingly.
102. Section 3.6.2, second paragraph: Please consider providing documentation from the USGS if this revised 7Q10 calculation has been verified. Please provide relevant information from the EA and associated FONSI prepared for the Harnett County 42 mgd WTP expansion.
103. Section 3.6.3, first paragraph, last sentence: Provide an explanation for the 1.5% annual growth factor.
104. Global: Ensure the document is consistent when referring to Towns and Cities, that these entities should be referred to as the Town of... or the City of...
105. Section 3.6.3, second paragraph, fifth sentence: Please explain why this analysis is being conducted with TAZ data instead of using the full contract amounts as presented in the LWSP, as was done for all other similar analyses.
106. Section 3.6.3, fourth paragraph, third sentence: Table 3-12 appears to suggest that the annual growth rate between current and 2030 is 1.48%, not 1.34%. Please explain or correct.
107. Global: Ensure the document is consistent with use of significant digits.
108. Section 3.6.3, fourth paragraph, sixth sentence: It is important to note if the EA and associated FONSI from the Harnett County WTP expansion provide any details to future expansion.
109. Section 3.6.3, fourth paragraph, sixth sentence: Please explain if the “planning numbers” referenced related to the values presented in Table 3-12 or are they from the “Master Plan”. If they are from the “Master Plan”, please provide these values and

provide explanations if they are significantly different to the values presented in Table 3-12.

110. Table 3-12: Please provide an explanation for the large jump in demand between 2021 and 2030 as compared to the other years.
111. Section 3.6.4, second paragraph, first sentence: Please explain the contracted amount of 23.9 mgd, in context with the reported contract amounts of 10 mgd for the Town of Holly Springs and 2 mgd to the Town of Fuquay-Varina in 2040. Please provide details and what is meant by the “Northwest and East Central Pressure Zones”, as this is the reference in the document.
112. Section 3.6.4, second paragraph, second sentence: Is this a “firm pumping” capacity as stated in the proceeding sentence, or is this the capacity to meet the contractual amounts?
113. Section 3.6.4, third paragraph, first sentence: Please provide a date or state if this demand is through the planning period.
114. Section 3.6.4, fourth paragraph, second sentence: Table 3-12 references 2021 LWSP projection data; however, this sentence references 2020 LWSP projections. Please explain the differences and why both years are used in the analysis. The 2021 LWSP shows that Harnett County can meet projected demands and contractual operations well beyond 2040, without an expansion of the existing WTP. This is achievable through development of a proposed 10 mgd WTP near the Town of Erwin. This document should discuss the proposed WTP and how that might provide additional capacity in the existing Harnett County WTP.
115. Section 3.6.4, fourth paragraph, last sentence: Please provide details regarding the required improvements to the distribution system and raw water intake and how these would differ from other alternatives presented.
116. Section 3.6: Please include any correspondence from Harnett County detailing their position to provide additional water supply capacity to the Town of Fuquay-Varina. Similarly, the document needs to include any correspondence with Harnett County regarding their position regarding an expansion of the North Harnett WWTP beyond the 6 mgd expansion in an existing ILA. The best location for this information is left to the authors discretion (i.e., Sections: 3.6, 3.8.2.1, 3.10).
117. Section 3.6.5, first paragraph, first sentence: It has not been demonstrated that merely continuing the purchase of water from Harnett County would necessitate an IBT. Please consider rewording or strike from the document.
118. Section 3.6.5, second paragraph, first sentence: Table 3-11 only depicts a contractual amount for the Town of 2 mgd ending in 2040; however, this sentence suggests there is a new ILA that provides an additional 2 mgd (total of 4 mgd) that ends in 2035. This needs to be clarified throughout Section 3.6.
119. Section 3.6.5, second paragraph, second sentence: Please provide any information/documentation regarding Harnett County’s position on continuing the ILA signed in 2022 for the additional 2 mgd.
120. Section 3.6.5, third paragraph, second sentence: Please consider providing context to this sentence, that this extremely high jump in demand is because the full contract

amounts are used to estimate projected demand and that in actuality this demand is highly unlikely, but obligations exist.

121. Section 3.6.5, third paragraph, third sentence: This appears to be in conflict with the preceding sentence, that the demands will decrease to 42 mgd in 2040 from 43 mgd in 2030. Please consider including a table that details the projected demands in ten-year increments for each purchaser and total system for Harnett County.
122. Section 3.7.1.1, second paragraph, second sentence: Please consider providing context to “water supply storage” to avoid a misinterpretation that the State of North Carolina owns all of the water backed up by Jordan Lake. A diagram or figure might be helpful.
123. Section 3.7.1.1, second paragraph, fourth sentence: Please consider adding “allocation” following “water supply”.
124. Section 3.7.1.1, second paragraph, sixth sentence: Please consider rewording the statement that the minimum release from Jordan Lake is “no less than 40 cfs”, particularly before stating the minimum flow target under normal conditions.
125. Section 3.7.1.1, second paragraph, seventh sentence: Please include that the minimum flow is plus or minus 50 cfs from the published minimum flow target. Please consider providing the minimum release target schedule for drought or low-inflow conditions.
126. Section 3.7.1.1, second paragraph, eighth sentence: Please provide a citation and date range for this statistical calculation.
127. Section 3.7.1.1, third paragraph, first sentence: Please define what is meant by the “conservation storage” and how that relates to the aforementioned water quality pool and water supply storage. A graphic may prove helpful.
128. Section 3.7.1.1, third paragraph, second sentence: Please clarify whether “conservation storage” is intended or “water supply storage”. Please be consistent with this language. Please consider stating that the water supply pool is a percentage-based calculation. For simplicity purposes, it is often discussed as 100 mgd; however, the actual yield is estimated to be higher than that. The Round 4 Allocation document may provide a reasonable explanation to be included and referenced. Please ensure any corrections are made throughout the document for consistency.
129. Section 3.7.1.3, first paragraph, first and second sentences: Please provide a citation for these statements.
130. Section 3.7.1.3, second paragraph, last sentence: Please provide a citation for this statement.
131. Section 3.7.1.3, third paragraph, sixth sentence: To meet the purpose of this document, impacts to recreation, including boating, in Jordan Lake needs to be evaluated quantitatively.
132. Section 3.7.1.3, third paragraph, seventh sentence: Please provide a citation for this statement or state that this evaluation was conducted for the purposes of this project.
133. Section 3.7.1.3, fourth paragraph, first sentence: Please consider replacing “an increase” with “a revised”, as the reallocation process is not necessarily initiated to simply increase the allocations. Please note, the EMC did not entirely support the recommendations from the DWR; therefore, the last statement is misleading.



134. Table 3-13, footnote 1: Please explain what is meant by “OWASA is a supporting partner”.
135. Section 3.7.2, second paragraph, third sentence: Please consider being explicit regarding which town is being discussed. Throughout most the document “The Town” refers to the Town of Fuquay-Varina.
136. Section 3.7.2, third paragraph, second sentence: Please explain why this alternative requires a new raw water intake in Jordan Lake. Please explain why this or another alternative is not considering purchasing the water from the Town of Cary.
137. Table 3-14: For this table to have value to the document, the contract amounts and expiration dates need to be completed, please consider contacting the water systems to determine these values.
138. Table 3-15: Considering that there is only one value presented, the value of this table is questionable.
139. Section 3.7.2.1, first paragraph, fifth sentence: Please consider adding “River Basin” following “Neuse”.
140. Global: For consistency, please consider including the IBT basin codes for all references to IBT river basins or HUC basin codes for hydrologic river basins throughout the document.
141. Section 3.7.2.1, first paragraph, last sentence: Please consider providing an explanation of the formula for required returns to the Cape Fear Basin through the Western Wake WRF, based on the Cary/Apex IBT settlement agreement.
142. Section 3.7.2.2, first paragraph, last sentence: Please explain what is meant by “build-out” in this context.
143. Section 3.7.2.2, second paragraph, second sentence: Since Wake County does not have a LWSP and the table does not contain any information for the eastern half of the Wake County, please explain which County is being discussed.
144. Section 3.7.2.2, second paragraph: Please consider providing data related to 2055, the end of the planning period for this proposed project. The numerous values and dates in the text without context is confusing.
145. Table 3-16, third footnote: This table appears to blend data from LWSP and LRWRP; therefore, please be explicit regarding the source of the data for every value. Please ensure this data is from similar years and projection efforts. Please provide an explanation if the LWSP values are different than what is presented in the LRWRP. Demand projections are provided in the LWSP for 2050 and 2060 demands.
146. Section 3.7.2.3, first paragraph, last sentence: Please provide the projected size of the expanded plant.
147. Section 3.7.2.3, second paragraph: Please provide a citation for the source used.
148. Section 3.7.3, second paragraph, second sentence: It is unlikely a third intake will be granted in Jordan Lake; therefore, please explain why this alternative requires a new raw water intake in Jordan Lake and new WTP, and why this or another alternative is not considering the purchase of water from the Western Intake Partnership. This applied to the Cary/Apex intake alternative as well.

149. Section 3.7.3.1, first paragraph, second sentence: Please clarify or confirm that Chatham County has a separate intake from the Town of Cary's intake for the independent 3 mgd WTP as stated.
150. Section 3.7.3.2, first paragraph, fourth sentence: Please explain how Chatham Park and associated development fits into these growth rates, or not at all.
151. Table 3-18: Please explain how the total raw water supply for OWASA increases by 5 mgd, between 2021 and 2030, while the Jordan Lake portion only increases by 0.5 mgd during the same time period.
152. Section 3.7.4: Please provide projected demand values for the end year of the planning period, 2055, for this proposed project.
153. Section 3.7.4, second paragraph, last sentence: Please provide correspondence or documentation to support this statement.
154. Section 3.7.4, third paragraph, fifth sentence: This seems to be a misleading statement that water systems will be unable to meet their maximum day demands based on the Jordan Lake allocation, without considering that the Partners have other sources of water supply. Please clarify.
155. Section 3.7.4, fourth paragraph, first sentence: Please clarify that "Chatham County North" was included in the 2002 Jordan Lake allocation.
156. Section 3.7.4, sixth paragraph, first sentence: DWR respectfully challenges this statement, considering that Interstate 540 along with other significant develop activities in the southern portion of Wake County have been planned for decades. Additionally, 2030 population projections in the 2002 LWSP are comparable to the 2030 projections in the 2019 LWSP.
157. Section 3.7.4, seventh paragraph, third sentence: Please clarify that the Jordan Lake water supply allocations are based demonstratable projected needs by the neighboring communities. Other than the fact that these communities have been financially paying for allocations based on their long-range planning, the assertion of "higher priority" is questionable.
158. Section 3.7.4, eighth paragraph, fourth sentence: Please provide a citation and explain the details.
159. Section 3.8.2, first paragraph, sixth sentence: Please provide the current use of the property and the capacity/spec limits of the former WWTP throughout the document where appropriate.
160. Section 3.8.2, third paragraph, third sentence: Please consider providing an explanation for "non-tributary flow".
161. Section 3.8.2, third paragraph, last sentence: Please provide a year for "build-out". Please provide a value for 2055, as that is the final year of the planning period for this proposed project.
162. Section 3.8.2.1, second paragraph, first sentence: Please consider including this document from DWR in the appendix.
163. Section 3.8.2.1, second paragraph, sixth sentence: Please include water balance tables based on current, 2035, 2045, and 2055 projections to detail the proposed IBT request.

164. Section 3.8.2.2, first paragraph, third sentence: Please consider including this document from DWR in the appendix and explaining the details of the tiered effluent limits.
165. Section 3.8.2.2, second paragraph, third sentence: Please confirm and provide documentation in the appendix that the Town has secured the sufficient nitrogen credits to support the expanded discharge to 6 mgd.
166. Section 3.8.2.2, second paragraph, third sentence: Please provide an explanation for how the Town will meet 3 mg/L N concentration limit for the proposed 6 mgd expansion, given that under the current WWTP 3.75 mg/L is the best achievable.
167. Section 3.8.2.2, second paragraph, last sentence: Please clarify, the requested IBT value based on 2055 projections. This needs to be stated throughout the document in a consistent fashion. The demonstration mentioned in the preceding sentence may need to occur in concert with or prior to issuance of an IBT Certificate.
168. Section 3.8.2.3, third paragraph, fourth sentence: Please provide a projected year for build-out.
169. Section 3.8.2: There needs to be an evaluation for sending wastewater flows to the Western Wake WRF. The evaluation should include documentation from the owners of the WWTP as to their willingness to cooperate. This appears to be an appropriate section to include this; however, the location of this evaluation in the document is the discretion of the author.
170. Section 3.8.2.4, third paragraph, third sentence: Please identify the approximate location of the proposed outfall in the Cape Fear River.
171. Section 3.8.2.4, second paragraph, first sentence: Please confirm that this section of the Cape Fear River is classified as Nutrient Sensitive Waters (NSW) or consider rephrasing.
172. Section 3.8.2.4, second paragraph, second sentence: Please confirm that this section of the Cape Fear River is classified “impaired” or consider rephrasing. The last sentence in this paragraph states that the Cape Fear River is not listed for any impairments. Please clarify these statements.
173. Section 3.8.2.4, second paragraph, third sentence: Please provide an explanation in this context for what is meant by “frozen”.
174. Section 3.8.2.4, second paragraph, fourth sentence: In order to fully evaluate this alternative and other similar solutions, as compelled by the EIS process, a water quality modeling evaluation needs to be conducted for potential treated wastewater discharges into the Cape Fear River. This should be done before these alternatives can be regarded as infeasible or impractical.
175. Section 3.8.2.4, fourth paragraph, second sentence: Please explain the existing water quality issue at the proposed outfall location, if the standard can not be exceeded more than 10% of the time, as stated in the third paragraph, and is only exceeded 2.5 to 3.3% of the time, as stated in the fourth paragraph. This was described as an “impairment” in the second paragraph of this section.
176. Section 3.8.2.4, fourth paragraph, fourth sentence: Please provide a date/year of the data sample and the concentrations reported.

177. Section 3.8.2.4, fourth paragraph, fifth, sixth, and seventh sentences: Please provide dates/years of the data samples and the concentrations reported.
178. Section 3.8.2.4, sixth paragraph: Please provide the reader with context for this information considering the previous water quality information in this section. Please detail any communication or consultation with the USFWS that has occurred regarding the proposed outfall location.
179. Section 3.8.3, first paragraph, last sentence: Having not fully investigated the potential for this option, this statement seems to be more of an assumption by the author.
180. Section 3.8.3, second paragraph, last sentence: Please ensure the accuracy of this statement is consistent with other statements made throughout this document. Also, confirm this value is based on 2055 (30-year planning period) projections.
181. Section 3.8.3, third paragraph, last sentence: Please explain how this meets the requirements for this proposed IBT EIS that is based on a 30-year planning horizon (2025-2055), not 20-25 years.
182. Section 3.8.3, fourth paragraph, second sentence: That is often the case when conducting alternative analyses for an EIS. Please explain why this EIS is excused from fully evaluating all alternatives presented.
183. Section 3.9, first paragraph, last sentence: Please identify specifically which entity(s) are responsible for each of the various infrastructure projects mentioned.
184. Section 3.9, third paragraph, first sentence: This is not an accurate statement. Though the City does fall under the “cork rule” provision, this does not absolve the City from accounting for the consumptive losses in the portion of their service area that is within the receiving basin (i.e., Deep River). Updated “Surface Water Transfer Worksheets” specifically for the City of Sanford need to be included with this EIS document, detailing the current (2025), 2035, 2045, and 2055 projected transfers.
185. Section 3.9, third paragraph, last sentence: Please provide a brief explanation for why the City’s peaking factor is so high (nearly 2).
186. Table 3-20: Please explain why 3 of the 4 regular sales contracts have expired and if these water sales are still occurring.
187. Section 3.9, fifth paragraph, second sentence: Please provide a citation.
188. Section 3.9, fifth paragraph, third sentence: Please explain the relevance of Chatham County and specifically the Moncure Industrial Park to the City of Sanford.
189. Table 3-21: Please consider providing an explanation regarding the need of additional water resources from the City of Sanford for the Town of Pittsboro and Chatham County beyond the supplies provided by Jordan Lake, as discussed in Section 3.7.
190. Section 3.9.3, second paragraph, fifth sentence: Please clarify, is the reference to “the City’s terminal reservoir” referring to Buckhorn Dam? If not, please describe the role the Buckhorn Dam has on the City of Sanford’s intake.
191. Section 3.9.3, third paragraph, fourth sentence: Please provide a citation.
192. Section 3.9.3, fourth paragraph, fourth sentence: Please consider including a demonstration of effectiveness of the proposed GAC system (appendix) and committing to the installation of the specialized treatment system to avoid the transfer of waters with known concentrations of emerging compounds to waters

- within a receiving basin with potentially lower existing concentrations of emerging compounds. A commitment in the mitigation section of the EIS is encouraged.
193. Section 3.9.4, third paragraph, last sentence: Please consider identifying the “separate process” involved with permitting these facilities. Additionally, These infrastructure facilities should be included in the estimated project costs, similar to the other alternatives evaluated.
 194. Section 3.10, third paragraph, second sentence: This sentence states that the Cape Fear River is formally impaired, nutrient sensitive waters; however, earlier no formal impairments are listed and the river appears to not be classified as NSW (nutrient sensitive waters). Please clarify.
 195. Section 3.11: Please consider adding more information specific to the Fuquay- Varina area than is provided.
 196. Section 3.11, first paragraph: Please consider adding clarification between sentences two and four, considering that sentence three states they are “parallel” (i.e., “more than” and “approximately”). Please explain the context between the last two sentences. The document reads as if PWS wells are primarily used for irrigation.
 197. Section 3.11, second paragraph, last sentence: Please consider explaining the type of well the “GC” classification is used for and why the EMC is involved.
 198. Section 3.11.1, first paragraph, third sentence: Please explain what is meant by “perception” in this context. Perhaps a citation if needed.
 199. Section 3.11.1, third paragraph, last sentence: Please explain if every well includes private and/or non-drinking water wells.
 200. Section 3.11.1, sixth paragraph: Please consider identifying the systems reviewed to provide context to the relevancy of these selected. Please provide any communication you may have had with these systems, particularly regarding the accuracy of the listed well yields over time and other long-term issues. Please provide any communication with Wake County, who has been conducting a significant, long- range groundwater study, including how their results compare to the results in this document.
 201. Section 3.11.1, eighth paragraph, second sentence: Please consider if Alternative 10 was considered as a “minimization” alternative to the IBT, as described in the first sentence of the paragraph, then explain why the full 8.4 mgd average day of the entire service area was evaluated. Please provide any other considerations given, including if the Neuse River basin portion of the service area was supplemented by groundwater to avoid an IBT. The use of “minimization” to describe this alternative is also found in the first sentence of the first paragraph of Section 3.11.
 202. Section 3.11.3, third paragraph, sixth sentence: Please identify the location of the study and results presented.
 203. Section 3.11.3, third paragraph, sixth sentence: Please identify the location of the study and results presented in context with the Fuquay-Varina area. Please confirm these results and findings from the cited document.
 204. Section 3.12, second paragraph, last sentence: Please spell out the acronym, SDWA.
 205. Section 3.12.1, third paragraph: A water system withdrawing water from a water body that contains some fraction of treated wastewater produced from an entity upstream is not generally considered “reuse” or “de facto reuse”. To present the information in

this context, provide citations, specific to NC. In NC, reuse generally refers to the use of treated wastewater prior to the discharge in a body of water. Many water systems across the state participate in reuse programs for a wide-variety of reasons, to include a reduction in the total discharge to a body of water to meet wastewater discharge (NPDES) permitting requirements. Unless the author is able to present a citation in rule or statute, the “‘five-mile’ de facto policy” is guidance provided by the PWSS that provides water systems a reasonable opportunity to adjust or cease withdrawals in the event of spills of untreated wastewater from an upstream WWTP.

206. Section 3.12.1, fourth paragraph: Please provide citations.
207. Section 3.12.1, fifth paragraph: Please provide citations.
208. Section 3.12.1, sixth paragraph: Please provide citations.
209. Section 3.12.3, first paragraph: Please explain the context of reuse programs to residential irrigation. Please consider presenting other potential applications of reuse water.
210. Table 3-25: Please explain what the total row represents for each column.
211. Section 3.12.3, second paragraph, last sentence: Are the exceedances and reductions mentioned based on the annual average?
212. Section 3.12.3, third paragraph, seventh sentence: Please explain how irrigation use for any water system offsets the potable water use, as described.
213. Section 3.12.3, fifth paragraph, last sentence: Please explain why agricultural land not being identified in the Town’s land use plan excludes developing a reclaimed water program.
214. Section 3.12.3: Please consider evaluating land application of treated wastewater in the source basin, including spray fields and golf courses.
215. Section 3.13.1, third paragraph, last sentence: Please explain how this trend has directly affected the Town of Fuquay-Varina.
216. Section 3.13.1, fourth paragraph: Please provide appropriate citations.
217. Section 3.13.1, fifth paragraph, last sentence: Given that the Town is witnessing significant growth in new construction, please provide the demand range for newer homes.
218. Section 3.13.1, seventh paragraph, first sentence: Please provide the location of the region that was the basis of the study.
219. Section 3.13.1, ninth paragraph, last two sentences: Please consider providing the regional per capita data to support this claim. The selected per capita value (85 gpcd in this example) represents an “average” per capita and should not be intended to ensure full coverage related to “year-to-year fluctuations” for the planning period.
220. Section 3.13.3, first paragraph, first sentence: Please explain how a flat rate pricing structure, instead of the more common increasing block pricing structure, encourages water conservation.
221. Section 3.13.4, first paragraph, third sentence: Please explain how this AMI system will “enhance and promote water conservation.”
222. Section 3.13.5: Please provide any data on usage of the website by customers. Also, include any promotion conducted by the Town to make customers aware of the service.



- 223. Section 3.13.6: Please provide details on the reasons for the decline in non-revenue water over the past 5 years. Please provide a listing of the major water projects the Town has undertaken over the past 5-10 years to improve water efficiency and reduce non-revenue water, include specific financial commitments the Town has made for future projects. Please provide an explanation for why the Town has not conducted a formal water audit, such as the AWWA water audit, and if there are any plans for conducting such a study.
- 224. Section 3.13.7, third paragraph: Please provide details on any water conservation programs or initiatives by the Town since passing the current water conservation measures in 2008, particularly in advance of the proposed IBT request, to ensure the Town meets or exceeds the strictest water conservation measures and initiatives regionally.
- 225. Table 3-27: For ease of reading, please state the water conservation stage on every page.
- 226. Section 3.13.7: Please consider including an ending paragraph for this important section that summarizes the information from Table 3-27 and provides an argument that the Town has a sufficiently strong water conservation plan, measures, and initiatives to meet the statutory requirements for an IBT Certificate.
- 227. Section 3.14, second paragraph, last sentence: Please detail what is included in the “15 percent of engineering”.
- 228. Section 3.14, third paragraph, fourth sentence: Please ensure that Alternatives 9 A/B/C are treated equally to the other alternatives with regards to assigning costs. Since several of the other alternatives also have partners that will share in the cost of the project or if much of the infrastructure is already in place.
- 229. Table 3-28: Ensure that all cost estimates provide full breakdowns and itemizations for all projected costs for all alternatives.

Section 4.0

- 230. Section 4.0, second paragraph, last sentence: Please consider providing an explanation.
- 231. Section 4.1, first paragraph, first sentence: Section 3.11 (Alternative 10) does not discuss any of the project area as located in the Coastal Plain. Please clarify.
- 232. Section 4.1: Please consider including maps to illustrate what is described in the first and second paragraphs.
- 233. Section 4.9, second paragraph, first and last sentences: Throughout Section 3.0, including the cost estimate section, appears to suggest that alternatives 9A/B/C will require a new intake. Please clarify as needed.
- 234. Section 4.9, third paragraph: Please define and explain the differences between a 100-year floodplain and a floodway.
- 235. Section 4.9, fourth paragraph, last sentence: Please explain why floodways have not been designated in Lee County.
- 236. Section 4.14.2, fourth paragraph: Please consider adding a map or depiction.
- 237. Section 4.14.3, second paragraph, last sentence: Please consider including the findings from the fish community sampling sites in the project area.



- 238. Table 4-15: Please discuss how Alternative 9 (preferred alternative) will improve or further degrade existing conditions (i.e., Chlorophyll A violation at the Sanford water supply intake and the fair benthic bioclassification at Terrible Creek). Please consider including the proximity of the Terrible Creek WWTP to the Terrible Creek sampling site, perhaps in the discussion adjacent to Table 4-15.
- 239. Section 4.14.3, eighth paragraph, sixth sentence: The use of the Terrible Creek WWTP is the basis for nearly all of the alternatives, particularly the preferred alternative. Please clarify.
- 240. Section 4.14.4: Please consider discussing the Coastal Plain if any of the project area is within the Coastal Plain physiographic province.
- 241. Section 4.15.1.1, second paragraph, second sentence: Please clarify the “minority population percentage that exceeds that of North Carolina.”

Section 5.0

- 242. Section 5.0, fourth paragraph: Measurable values need to be defined for every evaluation, otherwise the technical document (i.e., EIS) will only serve to support the opinions or discretion of the author, which may or may not be the opinions held by the lead agency or reader.
- 243. Section 5.0, fifth paragraph, second sentence: Please clarify what is meant by “raw water storage facilities” in this context.
- 244. Section 5.1.1, second paragraph, fourth sentence: Please clarify if this statement is intended to represent the potential indirect and cumulative impacts from all of the alternatives. Please consider providing any available demonstration or evidence.
- 245. Section 5.3.2: Please consider including information regarding any coordination between the development of the various land use plans. Please consider including the land use plans that most directly affect this project area or provide citations to support the statement in the last sentence.
- 246. Section 5.4.1, sixth paragraph, second sentence: Please consider providing a similar level of quantitative impact assessment as is done here (i.e., 1.0 acre) for the other sections.
- 247. Section 5.6.1.1: Please provide the basis for this determination given that the document states no research has been conducted for this subject.
- 248. Section 5.9, last sentence: Please clarify if this statement is intended to represent the potential indirect and cumulative impacts from all of the alternatives. Please consider providing any available demonstration or evidence.
- 249. Section 5.9.1, second paragraph, last sentence: It is questionable that impacts that will likely require permitting are minor. Providing a quantifiable basis for the impact determination is needed.
- 250. Section 5.9.1, sixth paragraph, last sentence: Please provide the basis for the “moderate” determination. Perhaps consider using the quantified values such as those presented in Table 5-4 to make the impact severity determination.
- 251. Section 5.10, second paragraph: Please consider providing an explanation for the permitting determination (i.e., discussions/coordination with agency staff, permit criteria or other).

252. Section 5.10.1, second paragraph, last sentence: Given that the permanent impacts associated with most alternatives (Table 5-5) are greater than 1 acre, please provide the rationale for why these impacts were all determined to be “minor”.
253. Section 5.11.1, first paragraph, third sentence: Please explain why Alternatives 9A & 9B are not included.
254. Section 5.13.2.2, second paragraph, last sentence: Please consider providing information related to the “current” occurrence.
255. Section 5.13.2.7, first paragraph, second sentence: Need to state that this is the proposed locations for all of the listed infrastructure.
256. Section 5.14.1, fourth paragraph, last sentence: Impacts associated with stream crossings, particularly those that involve open trench installation as described, will require permitting and should therefore be considered significant. Please provide an explanation for the “minor” determination.
257. Section 5.14.1, fifth paragraph, third sentence: Please consider providing a map or depiction to clarify this statement, particularly in regards to Alternatives 4, 5, 8A, and 8B.
258. Section 5.14.1.1, first paragraph: Please provide an explanation for the “minor” determination.
259. Section 5.14.1.1, second paragraph, last sentence: Please explain how all other projects other than the preferred alternative will have permanent, direct, minor, adverse impacts. Please provide the impact analysis for Alternatives 9A/B with an explanation as to how they are different.
260. Section 5.14.1.1, fourth paragraph, first sentence: Please clarify that a raw water intake was considered in the cost estimate for 9A/B.
261. Section 5.14.1.3, first paragraph, third sentence: Please explain “anti-frac out measures”.
262. Section 5.14.1.3, second paragraph: Please consider stating whether permitting will be required.
263. Section 5.14.2.1, first paragraph, last sentence: Please consider including the CWA permit as an attachment.
264. Section 5.14.2.2, first paragraph, first sentence: Please clarify that no wastewater will be sent to the North Harnett WWTP for Alternatives 9A or 9B.
265. Section 5.14.2.3, second paragraph: This paragraph states that the Cape Fear River is impaired, nutrient sensitive waters; however, earlier no formal impairments are listed and the river appears to not be classified as NSW (nutrient sensitive waters). Please clarify.
266. Section 5.14.2.3, fifth paragraph: In order to provide a full evaluation of the alternatives presented, as required by an EIS, and specifically those alternatives that propose to increase the wastewater flows in the Cape Fear, a water quality model evaluation/analysis of these additional inputs in the Cape Fear River at or near the discharge location(s) should be conducted.
267. Section 5.14.3.3, fifth paragraph, last two sentences: Please explain how the impacts can be both “major” and “negligible” for the same alternative on the same resource.

268. Section 5.15, first paragraph: To avoid confusion, please use the language in the statute referenced, and please be explicit as to what DWR is the “steward” of. DWR is not the steward of models owned and managed outside of the agency.
269. Section 5.15, second paragraph, third sentence: DWR does not have hydrologic models for all of the river basins in North Carolina.
270. Section 5.15, third paragraph: Please provide a citation.
271. Section 5.15.1, first paragraph, second sentence: Please provide the year of “current” information.
272. Section 5.15.1, third paragraph, last sentence: Please consider explaining “flow splits”.
273. Section 5.15.2: Please provide citations throughout this section.
274. Section 5.15.2, tenth paragraph, third sentence: Please clarify the average that is being discussed (i.e., daily, monthly, annual)
275. Section 5.15.2, tenth paragraph, last sentence: Please provide context that this scenario depends on the current condition/level of the water quality pool and is outside of the management and operations plan of the lake. Therefore, it would be a request to the USACE and not an obligation of the USACE.
276. Section 5.15.2, eleventh paragraph, first sentence: Please consider providing context that downstream users do not have a water supply allocation from Jordan Lake; therefore, the drought plans directly associated with Jordan Lake would not be expected to account for water shortages downstream of Lillington.
277. Section 5.15.2, eleventh paragraph, last sentence: According this sentence, this proposed project is dependent on a policy change or discretionary operations change from the USACE to avoid potential downstream impacts. Please clarify as needed.
278. Section 5.15.4, second paragraph, first sentence: Please explain the relevance of this project to an analysis conducted over 10 years ago.
279. Section 5.15.4, ninth paragraph, second sentence: Not all releases from Jordan Lake are conducted to merely maintain the flow targets. Please explain why high flow releases are made in the context of this sentence. Citation needed.
280. Section 5.15.4, ninth paragraph, third sentence: Please consider including the “drought plans” used in development of the OASIS model as an appendix. Please explain what is meant by “removal of the limitation”.
281. Section 5.15.4, ninth paragraph, last sentence: Please explain how the flows from the Deep River maintain flows for the Cape Fear River, not just releases from Jordan Lake.
282. Section 5.15.4, tenth paragraph, fourth sentence: Please provide a citation.
283. Table 5-11, page 5-47: Under Alternatives 9A/B, the water supply for the Town of Dunn appears to be impacted 0.25% of the time. Under the No Action, the water supply for Town of Dunn is impacted 0.12% of the time. Please provide a detailed analysis or drought triggers as provided in the Water Shortage Response Plans (WSRPs) to demonstrate how the Town of Dunn will continue to meet its demands. This level of evaluation also needs to be conducted for water systems such as Fayetteville PWC and the communities supported by Lower Cape Fear Water and Sewer Authority who do not have their water conservation triggers within the OASIS model. Perhaps this evaluation is achievable by use of the OASIS data outside of the model, through a post-process activity.

- 284. Table 5-12: Please provide the minimum flow values and durations of those flows at the nodes provided.
- 285. Section 5.15.4, thirteenth paragraph, last sentence: Please consider clarifying that the cost will be the responsibility of the Town of Fuquay-Varina.
- 286. Section 5.15.5, third paragraph, last sentence: Please explain how impact determinations are made in this situation.
- 287. Section 5.15.5, fourth paragraph: This paragraph appears to state that the avoidance of potential impacts associated with this proposed project are dependent upon discretionary actions by regulatory agencies during a time of a water supply emergency, likely for all in the basin. The applicant should assume that the regulatory agencies will strictly follow the existing plan. Please explain or revise as needed.
- 288. Section 5.0: Please provide discussion and analysis for Harnett County's proposed new intake on the Cape Fear River near the Town of Erwin as described in the Harnett Regional Water System 2021 LWSP.

Section 6.0

- 289. Section 6.0, fifth paragraph, first sentence: Please provide specific quantifiable (i.e., values) metrics for the terms, "negligible, minor, moderate, and major" for each subject presented that uses these terms to define impacts and associated mitigation measures.
- 290. Table 6-2: Please provide the measures (i.e., actions) the Town has in place or is proposing to implement to mitigate for any potential impacts either defined by the hydrologic model results or potential indirect and cumulative impacts as a result of the preferred alternative. These mitigation actions should be measurable with regard to the projected and potential impacts.
- 291. Table 6-2, water use: Please provide the specific water conservation and INI projects that have been implemented from recommendations in this plan and specific projects or line items that have received committed funding by the Town Council.
- 292. Table 6-2, Surface Water Resources: To fully evaluate the alternatives presented, as required by the EIS process, the applicant needs to conduct water quality modeling of the source basin before determining that the impacts are "unknown".

Section 7.0

- 293. Section 7.0, first paragraph, fourth sentence: Considering that the Town, based on the information provided, has one of the weakest water conservation programs in the region, this document has not demonstrated that there is not significantly more potential for water savings by implementing more stringent water conservation measures and initiatives. Some examples include and not to be taken as all inclusive, Stage 3 is the first stage for the Town that indoor water use reductions are called out. Nearly all other water systems had already implemented this requirement in previous/earlier stages. Stage 3 is also the first noted stage for reductions in commercial and industrial water use, and even that is discretionary. There are no mandatory restrictions on commercial or industrial demand, and customers are still allowed to fill pools even in the worst stages of drought. Not only is water conservation a significant concern related to the viability of Alternative 12 and the demand projections as a basis for the purpose and need of the project, but water



conservation and efficiency are significant concerns consistently held by the Environmental Management Commission and the public for all IBT projects. The Town needs to demonstrate that they are good stewards of the current resource in order to provide confidence to all concerned parties that they will be good stewards of the proposed future resource.

Please contact Harold Brady, Water Supply Planning, 919-707-9005, harold.m.brady@ncdenr.gov, or Linwood Peele, Water Supply Planning, 919-707-9024, linwood.peele@ncdenr.gov, if you have questions regarding these comments.



North Carolina Department of Environmental Quality | Division of Water Resources
512 North Salisbury Street | 1611 Mail Service Center | Raleigh, North Carolina 27699-1611
919.707.9000

Response to Agency Comments on Draft EIS, February 2024



Hazen and Sawyer
4011 West Chase Blvd., Suite 500
Raleigh, NC 27607

February 27, 2024

Mr. Harold Brady
Water Planning Section
Division of Water Resources
1611 Mail Service Center
Raleigh, NC 27699-1611

**Re: Response to Agency Comments
Interbasin Transfer for Water Supply from Cape Fear to Neuse River Basin
Town of Fuquay-Varina**

Dear Mr. Brady,

On behalf of the Town of Fuquay-Varina, Hazen and Sawyer is submitting the revised Draft Environmental Impact Statement (DEIS) to the Division of Water Resources (DWR) for review. Also attached are the responses to agency comments dated March 1, 2023. The response to comments are also included in Appendix G of the revised DEIS. The revised DEIS and associated appendices are located in a OneDrive folder link in the transmittal email.

Please let us know if a meeting is beneficial to discuss the responses to the comments. Hazen and the Town of Fuquay-Varina appreciate the time and consideration of DWR staff to assist with this important project.

Sincerely,

A handwritten signature in blue ink, reading "Mary E. Sadler". The signature is fluid and cursive, with the first name "Mary" being the most prominent part.

Mary E. Sadler, PE
Associate Vice President

cc: Jim Seymour, Town of Fuquay-Varina
Mike Wagner, Town of Fuquay-Varina
Linwood Peele, Division of Water Resources
Reed Palmer, Hazen and Sawyer

Neela Sarwar (Modeling and Assessment Branch):

- Model Set up:
 - Raleigh Little River Reservoir (LRR):
 - Is Raleigh LRR still an option as a future source? In the model even though it said the connection is turned off, the max flow is set to 20 mgd from LRR to Raleigh. In the set up, the initial storage is set at 1851 AF. Therefore, it's delivering up to 20 mgd as needed and reducing stress on the other Raleigh sources. This might not impact the F-VIBT that much, but it's diverting flow from IR to Neuse River and ultimately flowing through Gayton Gage.

RESPONSE: Hazen has re-run all of the model scenarios and turned the Raleigh Little River Reservoir option off. Raleigh Water's next supply expansion is not needed to meet the projected 92.4 mgd demand in 2055 (interpolated between the 2050 and 2060 demand); therefore, the model runs were corrected to be consistent with the original DEIS text which indicated the Little River Reservoir is assumed not to be needed in 2055. The Little River Reservoir is one of Raleigh Water's leading alternatives for its next expansion. The timing of the next expansion and selection of the alternative to meet the water demand is currently being evaluated.

- [from F-VIBT-2055 scenario OASIS NOTE: "And finally...turned off operations and set storage to 0 for little River Reservoir since there is no guarantee this will be built. It was in there to meet the projected 2055 demand of 109 mgd for Raleigh"]

RESPONSE: Per the prior response, the OASIS model runs have been revised to be consistent with the model documentation and DEIS text. However, in response to the full model note cited above, Raleigh Water has reviewed their demand forecast and determined that the higher projection that resulted in a 109 mgd demand in 2055 was too high to be the primary planning scenario. A lower projection scenario that results in a 2055 demand of 92.4 mgd has been selected. The OASIS model runs are consistent with a 92.4 mgd demand in 2055. The Triangle Water Partnership (TWP) has adopted this lower demand projection scenario at Raleigh's suggestion. It is anticipated that Raleigh Water's 2023 LWSP submittal will reflect a growth rate consistent with a 92.4 mgd demand in the year 2055.

- Summary Table for Shortage Calculations:
 - The alternatives are simulated with drought plan on. However, the shortages shown in the table are calculated without drought plan. With drought plan, the systems without WSRP would show their regular shortages or no shortages anyway. Valid shortages in few systems [like Cary] shown in Table 3, Appendix C might create more questions.

RESPONSE:

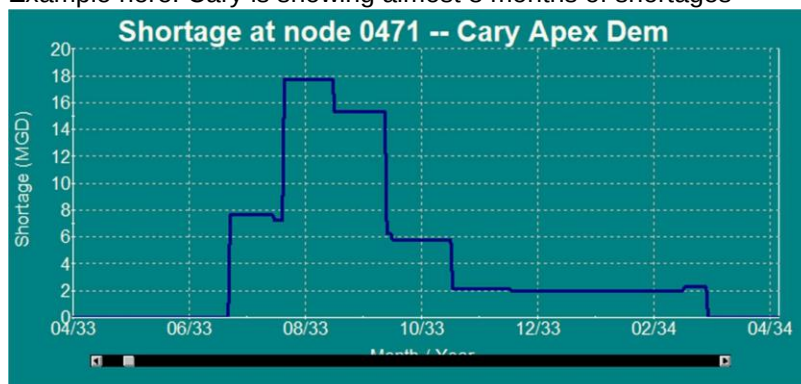
Hazen has tried to clarify this rather complicated situation by adding Tables 4a and 4b to the Appendix C: Technical Memorandum for OASIS Hydrologic Model of Cape Fear and Neuse River Basins for Interbasin Transfer

- Adding two more columns might give a different perspective of the shortage periods as is done for the climate change in Appendix C - Table 8
 - Longest duration (in days) of the shortage period.
 - No. of years impacted.

RESPONSE: Tables 4a and 4b in Appendix C were developed to compliment the shortage information provided in Table 3.

- Frequencies/stages of drought triggered.

Example here: Cary is showing almost 8 months of shortages



RESPONSE: The OASIS model output is consistent with Cary being in a WSRP over these 8 months. The native Shortage0471 calculation in OASIS will give a positive value any time the delivery is less than the demand (e.g., Delivery0471 < Demand0471). The value of demand0471 (Cary's demand) is not modified by OASIS during a WSRP trigger event. Rather, the delivery is constrained to less than Demand0471 via code in drought_plans_cf.ocl. Refer to lines 1473-1521 of this file to see how the conservation demand values are set depending on the WSRP stage (which is set earlier in the file). Then the delivery (e.g., the flow through the arc that feeds Cary-Apex demand, or flow0479.0471) is constrained to the conservation program demand value in lines 1527-1529. But since the demand itself isn't modified in the OCL, the standard OneVar output of shortage for node 0471 (or any node with a WSRP demand reduction) will return a positive value for the shortage equal to the WSRP demand reduction. However, Hazen has developed another code to ascertain whether Cary or any other utility has actually run out of water. That code is contained in Shortages.ocl.

- Minor flow differences noticed.
 - Climate yr 7Q10 flows are little different (even though ~1 % difference) as I calculated in the post processor.

RESPONSE: Yes, the climate 7Q10 flows are slightly different. Segregating the hydrology into climate years (April 1- March 31) is consistent with how the USGS calculates 7Q10 in their semi-official determinations and Hazen has adopted the same policy. The climate 7Q10 flows makes sense given the hydrologic patterns in North Carolina. Hazen is happy to provide the OneVar files for calculating 7Q10s based on climate year. Updated 7Q10 calculations have been provided in the TM using the flow upstream of the intakes for the Fayetteville, Cape Fear PUA, and NR WASA intakes rather than immediately downstream (i.e. after the withdrawals) as they were in the previous draft.

- Appendix C Table 2.5. Example Alt 1 and 9A-B. [just checked randomly at few key points]. At Fayetteville, my 7Q10 values are 4.56 and 3.62 mgd more than the values in the table.

RESPONSE: Comment noted. Please refer to aforementioned response. If calendar year annual minimums were used to calculate the 7Q10, then an annual minimum for 2007 and an annual minimum for 2008 would be calculated. In reality, the annual minimum for calendar years 2007 and 2008 derive from the same drought event. This is why climate years are preferred. Additionally, the location of the 7Q10 calculation was changed to be calculated upstream of Fayetteville's withdrawal instead of downstream.

- Fayetteville 7Q10 flow for 2055 is abruptly low from 2025: 351.7cfs down to 294.9 cfs for 2025/2055 where water withdrawals are 34.74 and 62.34 mgd, respectively. Please explain the declines.

RESPONSE: The decline is primarily due to the cumulative impact of the dramatic growth in demand from Fayetteville. The 7Q10 was being measured downstream of Fayetteville's withdrawals (which average 57 mgd from the CF River at node 0730) and upstream of the wastewater discharges from Cross Creek and Rockfish Creek WRFs, so the magnitude of the impact was maximized. The 7Q10 calculation was updated to be calculated before PWC's intake, reducing the difference between the 2025 and 2055 No Action 7Q10 values significantly. There is now less than 9 cfs difference which is due to increased development and water use upstream rather PWC's water withdrawal.

- Between Lillington gage and Fayetteville intake there are not many major withdrawals like Fort Bragg and Fayetteville; rather, there are few returns from upstream withdrawals plus three local inflow locations with one having a few days of zero flows. Could it be for cut back of flows thru Jordan Lake for higher drought stages?

RESPONSE: Yes, Jordan Lake operations and the WQ Pool release protocol (Jordan Lake Drought Control Plan) do have an impact on the Fayetteville 7Q10. However, for the reason stated in response to the aforementioned comment, the magnitude of withdrawal at the Hoffer WTP intake would cause the majority of the difference under the prior method of reporting 7Q10s. However, the 9 cfs reduction now reported as the difference in 7Q10 between 2025 and 2055 is due to upstream influences including Greensboro, High Point, Burlington, Jordan Lake users (e.g. Cary and Durham), and at Sanford and Harnett County's intakes along the Cape Fear River upstream of Fayetteville.

Shawn Guyer (Public Water Supply Section – Raleigh Regional Office):

On Page 3-55. Section 3.11.1 Well Yield, The EIS states: “Per the Administrative Code, a minimum of a 100 by 100-foot area is required around every well for well point protection.”

15A NCAC 18C .0203(a)(1) - The well shall be located on a lot so that the area within 100 feet of the well is owned or controlled by the person supplying the water. The supplier of water shall be able to protect the well lot from potential sources of pollution and to construct landscape features for drainage and diversion of pollution.

The rule specifies a 100' radius, not a 100' square.

RESPONSE: The EIS text in Section 3.11.1 has been revised.

Fred Tarver (Basin Planning Branch):

1. Does the OASIS model capture the proposed raw-water intake just downstream of the Haw/Deep confluence for the Moncure Megasite? This appears to be a reasonable expectation given the construction of the EV manufacturing facility in the next few years. There may be a cumulative impact on storage in Jordan to offset the combined deficits at the Lillington gage. Also, is a withdrawal from behind Buckhorn Dam of make-up water into Harris Lake included in the OASIS model? This would be a likely occurrence when the nuclear facility is expanded sometime in the future.

RESPONSE: The OASIS model does not include a separate raw water intake downstream of Moncure. The City of Sanford has committed to providing finished water to the Moncure Megasite (Vinfast) via the expansion of the City's Water Filtration Facility. The demand in the OASIS model for Sanford and partners in 2055 is conservatively high and will cover the need to meet the Moncure Megasite's water supply needs.

Expansion of the Shearon Harris Nuclear Power Plant would require raising the water level of Harris Lake by 20 feet. Water from the Cape Fear River would be needed to fill and maintain the operating pool for normal operation. Per a 2013 letter from Duke Energy to the U.S. Nuclear Regulatory Commission, Duke Energy requested a suspension of the two proposed reactors, which removes the need to expand Harris Lake. Duke Energy stated that the forecasted operating dates of the two proposed reactors fall outside the fifteen-year planning window of the Integrated Resources Plan. To date, Duke Energy has not proposed a reactivation of an application to expand Shearon Harris. The OASIS model may be modified in the future when Duke Energy announces plans to reconsider further nuclear power capability at Shearon Harris.

2. Pages 3-10, 3-19, 3-20. Table 3-8. Although a reservoir on Middle Creek is a rejected alternative, it is not prudent to be conjecturing on the flow release regime or the safe yield prior to any studies. A comparison to Lakes Benson and Wheeler on Swift Creek is not appropriate because, as mentioned in the document, a new flow regime on an existing reservoir cannot reduce the safe yield by more than 10 percent, according to the Dam Safety Rules. A hypothetical reservoir on Middle Creek would not be under such a restriction.

RESPONSE: It is understood that a new reservoir would not be subject to a reduction in safe yield of more than 10 percent per NCAC 02K .05. The engineer has to make an assumption with regard to minimum release in order to evaluate supply sufficiency. The Swift Creek minimum flow release was used as a surrogate for sizing a reservoir in Middle Creek to assess the impact of a reservoir footprint, which is appropriate given the proximity of the drainage areas and similar geography.

As stated in the DEIS, a new reservoir on Middle Creek will have a substantial impact to existing property owners and transportation infrastructure. Per Section 3.2.3.2 of the DEIS:

"Approximately 1,100 acres of private property would need to be acquired to accommodate the reservoir inundation footprint and the 100-foot water supply watershed buffer area. Approximately 140 acres of property are designated for residential development. Fifty households, five farms, and four forestry tracts would be impacted. Approximately 733 feet of state highways, 3,703 feet of secondary roads, and two bridges would be impacted. The construction of one new bridge would be required."

In addition to the environmental and community impact, a proposed Middle Creek reservoir was also rejected due to the timeframe required for constructing new reservoirs in North Carolina. The following table provides a summary of the larger reservoirs in North Carolina with the associated construction timeframes and impoundment use. There are 6,662 impoundments and reservoirs in North Carolina per the Dam Inventory List from the Division of Energy, Mineral, and Land Resources. Approximately 480 reservoirs or impoundments in North Carolina are used for flood control, water supply, and recreation. Approximately one-half of the larger reservoirs in North Carolina were constructed in the early 1900s for hydroelectric power. The remaining half of North Carolina's reservoirs were constructed in the mid-1950s and 1960s. The most recent reservoir constructed in

North Carolina is Randleman Lake, which finished construction in 2010. Randleman Lake was originally proposed in 1937 with engineering work continuing through 1987, at which point the U.S. Army Corps of Engineers withdrew support. The current Randleman Lake is a smaller version of the original proposal and is designated for water supply.

Summary of Constructed Reservoirs and Impoundments In North Carolina

Impoundment	Construction Timeframe	Impoundment Use
W. Kerr Scott Dam	1947 to 1952	Hydropower, flood control, water supply
Lake Gaston	1963	Hydropower, water supply
Jordan Lake	1967 to 1982	Flood control, water supply
Santeelah Lake	1928	Hydropower
Lake Norman	1959 to 1964	Hydropower
Randleman Lake	Proposed in 1937 for flood control. Funds authorized in 1968. USACE withdrew support in 1987. Smaller reservoir constructed between 2004-2010 by the Piedmont Triad Regional Water Authority	Water supply
Falls Lake	1978 to 1983	Flood control, water supply
Lake Crabtree	1989	Flood control
Harris Lake	Early 1980s	Nuclear reactor cooling water
High Rock Lake	1926 to 1927	Hydropower
Tuckertown Reservoir	1962	Hydropower, water supply
Falls Reservoir	1919	Hydropower, water supply
Lake Tillery	1928	Hydropower, water supply
Blewett Falls Lake	Early 1900s	Hydropower, water supply
Badin Lake	1917	Hydropower, water supply
Lake Lure	1925 to 1927	Hydropower, water supply
Lake James	1916 to 1923	Hydropower, water supply
Lake Rhodhiss	1925	Hydropower, water supply
Lake Hickory	1927	Hydropower, water supply
Lookout Shoals Lake	1915	Hydropower, water supply
Lake Norman	1959 to 1964	Hydropower, water supply
Mountain Island Lake	1924	Hydropower, water supply
Lake Wylie	1904	Hydropower, water supply
Buckhorn Reservoir	The original dam was constructed in 1974. A new dam 700 feet downstream of the existing dam finished construction in 1999 and expanded the operating level of the reservoir.	Water supply
Lake Michie	1924 to 1926	Water supply reservoir, hydropower until 1960
Little River Reservoir	Completed in 1988	Water supply
Rocky River Lower Reservoir Expansion	Expansion of existing reservoir, 1989-1999	Water supply
West Fork Eno	1993 – 2000	Water supply
Macintosh Reservoir	1971 – 1993	Water supply

Summary of Constructed Reservoirs and Impoundments In North Carolina

Impoundment	Construction Timeframe	Impoundment Use
Back Creek Reservoir	1985 – 1991	Water supply
Lake Howell	1985 – 1993	Water supply
Lakes Benson and Wheeler	Early 1950s; reactivation of reservoirs as water supply 1999-2006	Water supply

- Page 5-28, Section 5.14.1. "For all stream crossings except the Cape Fear River, stream crossings will be performed by excavating an open trench, installing the transmission line, and backfilling the trench. Instream work will be performed in dry stream conditions, using a pump-around system or diversion as necessary. Transmission line crossings of the Cape Fear River and streams in which federally protected species or designated critical habitats are known to be present, if applicable, will be installed using trenchless technologies." All perennial streams should be crossed perpendicularly and using trenchless boring.

RESPONSE: Trenchless boring will be used in all areas where feasible. Installation methods will be determined during the design process and permitted accordingly.

- No mention is made in the document of the designation of the Cape Fear River as being in the Sustainable Rivers Programs (SRP), a cooperative partnership between the US Army Corps of Engineers and The Nature Conservancy. No mention is made of how the various cumulative withdrawals from the Cape Fear River will impact water quality storage and thus flow manipulations from Jordan to benefit downstream water quality and anadromous fish passage by the locks, which are associated with the SRP.

RESPONSE: The Cape Fear River was included in the U.S. Army Corps of Engineers and the Nature Conservancy Sustainable Rivers Program (SRP) in 2016. The Wilmington District COE and stakeholders participated in a workshop in the Fall of 2019 to develop improved flow regimes for dams on the Cape Fear River. Per the SRP website (<https://www.hec.usace.army.mil/sustainable/sites/capefear/>), the workshop outlined six environmental flow experimental scenarios for several stretches of the mainstem Cape Fear River below Jordan Dam. The first experimental demonstrations were conducted in the summer of 2020 to assess juvenile fish recruitment and dispersal of algal blooms. Per the SRP website, the demonstration work is currently being assessed in conjunction with river monitoring. Per the SRP website, the USACE has not published any results of the demonstration studies.

The OASIS model incorporates the current operating protocol from Jordan Lake Dam as established by the USACE. Water releases from Jordan Lake are to maintain a flow target at the Lillington gage, which was established to help meet water quality needs downstream while maintaining water supply storage in the reservoir. Jordan Lake Water Quality Pool statistics are provided in Table 5-12 of the DEIS. The differences in the various storage thresholds (e.g., <80%, <60%, <40%, and <20%) provide a quantitative analysis of the cumulative impacts. For example, the difference in the 2025 and 2055 No Action scenarios effectively describe the cumulative impacts from all other activities in the basin over the 30-year period. Details on the specific impacts are provided in Section 5.15.4.

- It is unclear whether water demand shortfalls downstream of the Lillington gage would be addressed by the water quality pool, as stated in the document, or by the water supply pool. Is this issue addressed specifically in operations protocols for Jordan?

RESPONSE: Section 5.15.4 of the DEIS addresses the operational protocol for Jordan Lake Dam. The USACE operates Jordan Lake dam specific to the gage flow target at Lillington and not relative to water supply or water quality pools.

From the DEIS text: *"It should be noted that for Jordan Lake drought stages 0, 1, and 2, the USACE*

may employ a range of flow targets at Lillington. The range of flows result from collaboration and coordination on a variety of parameters such as stakeholder input, short- and long-term weather outlook, gate status, influences on stream flows downstream, and local inflows to both Jordan Lake and reaches below the dam. The CFNCRB model was set to release water to meet the flow target at Lillington, which includes meeting demand up to this gage when Jordan Lake is in drought levels 3 and 4. The USACE does not specify how far downstream water supply needs should be fulfilled; however, it should be noted that regulation flexibility is limited under existing authority. When Jordan Lake contains water in the conservation pool (as has always been the case), the Lake will be operated to meet water supply requirements and water quality low flow releases.”

6. Page 5-40. Typo at ninth bullet?

RESPONSE: The ninth bullet does not contain an error. The ninth bullet describes the metrics used in the analysis, one of which is the frequency in which the Jordan Lake Water Quality Pool is less than 80 percent, 60 percent, 40 percent, and 20 percent storage.

7. Tables 5-11 and 5-12. An accompanying table should be included in the document to present the number of days of the flow record that the benchmarks could not be attained, as well as the longest duration. Two percent may not seem like a lot but using a flow record of 33,000 days equates to 660 days.

RESPONSE: Per DEIS Section 5.14, the period of record for the analysis (2040 to 2070) is represented by 11,000 days, so a 0.01 percent result equals approximately 1 day of water supply shortage. The percent of days summarized in Table 5-12 are the total number of days intermittently spread over the period of record. A 1 percent result equals a period of 110 days intermittently spread over a 30-year period of record.

8. Table 5-13 states "flow statistics" but does not indicate what flow statistic is being presented.

RESPONSE: The table heading for Table 5-13 has been revised to indicate the 7Q10 flow statistic.

9. Although these low flows were pre-2008 they would represent Stage 3 or 4 drought conditions. I think it would be informative to model all the way downstream to L&D1 gage. It's unclear if Jordan has the capacity or will to make up flows in the Lower Cape Fear during these types of conditions. Where does the 600 cfs target come from for Fayetteville mentioned in the document? It would be interesting to see in the model whether the water systems could meet their demand during these flow events, whether or not they had WSRP in place. Perhaps the Annual 7-day minimum would be a good statistic to examine, in addition to the longest duration low flow value.

02102500 CAPE FEAR RIVER AT LILLINGTON, NC -
Water Years 1982 - 2021

Lowest daily mean	155.0	Aug 06, 2002
Annual 7-day minimum	206.3	Oct 09, 2007

02105769 CAPE FEAR RIVER AT LOCK 1 NEAR KELLY, NC
Water Years 1982 – 2021

Lowest daily mean	179.0	Aug 10, 2002
Annual 7-day minimum	322.7	Oct 13, 2007

RESPONSE: The OASIS model extends downstream to Lock and Dam #1. The drought level 0 flow target at Lillington is 600 +/- 50 cfs. Section 5.14 of the DEIS provides a summary of the modeling results for the Cape Fear and Neuse River basin nodes, including CFPUA.

Nora Deamer (Basin Planning Branch):

Section 3.8: Section 3.8 of this report captures many of the issues in both the Neuse and Cape Fear River Basins accurately. The Neuse River basin is NSW and Fuquay-Varina has a nitrogen allocation which they must meet in order to discharge their waste into any stream in the Neuse River Basin.

RESPONSE: Comment noted.

The Cape Fear River basin is not officially classified as NSW, but it has been recognized as being nutrient over enriched. A model is required before additional nutrients can be allowed into the segment of the river basin. The information provided about the latest water quality data is likely accurate but what was missing is that during periods of extended low flow, water quality conditions decline which results in high chlorophyll a concentrations. The latest water quality data doesn't include extended low flow conditions. It is also important to note that due to the water quality concerns in the central portion of the Cape Fear River basin, the Division is participating in a nutrient criteria development plan with the goal of understanding and potentially developing nutrient criteria for flowing streams. This could result in instream nitrogen and/or phosphorus concentration criteria as well as development of a different chlorophyll a criterion for flowing streams. It is recognized that the current chlorophyll a standard is not likely appropriate for flowing streams (would likely be less than 40 µg/L).

RESPONSE: Comment noted.

Communities in NC need to evaluate their resources prior to developing their long-term growth plans. At some point these resources can no longer support continued development. The location of certain communities make growth more challenging. It needs to be recognized that in order to grow they will need to have in place the best available technologies to support their water supply and wastewater management needs.

RESPONSE: Comment noted.

Section 5.14.2 [and] 5.14.2.3. I believe this was also referenced in section 3.8.

RESPONSE: Comment noted.

On page 5-33 "Utilities seeking a new discharge are required to conduct independent water quality modeling to support the discharge request."

It should be noted that the Division completed data collection in 2020 and is currently working directly with the USEPA on a modeling effort of the central portion of the Cape Fear River Basin.

RESPONSE: Comment noted. The DEIS text in Section 5.14 has been revised to reflect the EPA modeling.

This work is scheduled to be completed at the end of 2023. At that point the Nutrient Criteria Development Plan (NCDP) process can use this model to establish if there is a need for instream criterion for N and P or other response variables (like Chl A). This information is needed prior to understanding what nutrient loading can be supported in the central Cape Fear River basin and allow for nutrient allocations, reductions, or other possible steps to address over enrichment in the Cape Fear River. This could lead to refinement of the permitting strategy, a specific watershed strategy to address all sources of nutrients to the basin, a TMDL or other voluntary and/or required measures.

Note: I did not verify the actual water quality findings. I don't think this is necessary. My comments indicate that during low flow periods there are serious water quality concerns and this is why we need to address nutrients in this section of the Cape Fear.

RESPONSE: The DEIS has been updated to reflect this latest information.

Forest Shepherd (Basin Planning Branch):

Comment #1:

The following statements are from the Environmental Impact Statement for Interbasin Transfer for Water Supply from Cape Fear River to Neuse River: “The ILA with Harnett County is for the purchase of up to 2 mgd. The contract expires in 2040; however, the Town anticipates a contract renewal with Harnett County in 2040. Additionally, the Town has negotiated with Harnett County for an additional 2 mgd increase until 2035.” (pdf page 35; document page 1-3). Table 1-1 stating: “The Town has negotiated an additional 2 mgd until 2035 (2022).” (Table 1-1 image below).

This “additional 2 mgd increase until 2035” was not included in Tables 2-5, Table 2-6, and Table 3-1 (table images below). Specifically, this “additional 2 mgd increase until 2035” does not appear to be included in the “Water Supply Source By Seller, mgd” column of data under the “Harnett County (Cape Fear)” data column, any other columns of data, calculated values. Please consider including the “additional 2 mgd increase until 2035” comment throughout the document when discussing the water supply available to the Town of Fuquay-Varina and including it in any calculations and tables.

Additionally, if an additional 2 mgd contract for water supply is available until 2035 from Harnett County, please consider obtaining that additional water supply and/or explaining why the Town of Fuquay-Varina is not pursuing it. It appears that additional 2 mgd would improve the Town of Fuquay-Varina’s projected water supply deficit (Table 2-4). An additional 2 mgd from Harnett County would provide the Town of Fuquay-Varina with a total water supply of 4 mgd from Harnett County until 2035, instead of the 2 mgd as stated in the tables. If this additional 2 mgd can be obtain it will afford the Town of Fuquay-Varina a total water supply of 7.25 mgd instead of the current 5.25 mgd. This would provide the Town of Fuquay-Varina with a water supply that could potentially meet the Maximum Day Water Demand (Table 3-1) until at least 2030 and possibly into 2035; depending on future growth.

RESPONSE: Table 1-1 was updated to reflect the temporary lease agreement for an additional 2 mgd with Harnett County until 2032. This additional 2 mgd was not explicitly included in the IBT calculations. The Town of Fuquay-Varina agreement with Harnett County is a temporary measure to provide water to the Town to mitigate the anticipated extended timing of construction of the City of Sanford’s Water Filtration Facility and the associated finished water transmission main. The Town of Fuquay-Varina will not utilize the temporary lease agreement for the additional 2 mgd from Harnett County once the City of Sanford’s Water Filtration Facility expansion project is completed.

Section 3.6.5 of the DEIS outlines the reasons for the Harnett County alternative to not be viable for the Town of Fuquay-Varina: *“Alternative 5 does not meet the Town of Fuquay-Varina’s project purpose and need. The Town of Fuquay-Varina has been unable to secure permanent water supply capacity from Harnett County in lieu of the continuation of the temporary interlocal lease agreement. The Town of Fuquay-Varina’s current interlocal agreement for 2 mgd expires in 2040. Harnett County has not committed to providing the Town of Fuquay-Varina additional water supply greater than the interlocal agreement amount as stated in County’s approved 2021 LWSP. Therefore, Alternative 5 does not provide water supply capacity in a timeframe needed for the Town to address their water supply shortfall by 2030.”*

Comment #2:

Could you please provide a citation for the sentence: “The Round 4 allocation increased the total Jordan Lake allocation to 95.9 percent. Raleigh Water rescinded their 4.7 mgd allocation from Jordan Lake in March 2019 as a result of the Falls Lake Reallocation Process for additional storage in the Falls Lake reservoir. The revised Jordan Lake allocation is 91.2 mgd.”

RESPONSE: The Raleigh Water reference was provided.

Comment #3:

Related to these two statements:

“The Jordan Lake water quality storage never drops less than 20 percent in any alternative using either historic or climate change inflows. The water quality storage declines to less than 40 percent infrequently (e.g., less than 2 percent of the time).” “The two most concerning climate scenarios, there is a significant increase in the number of days with little or no additional runoff from the watershed area below the Lillington gage (e.g., no downstream flow gain). So, the combination of increased downstream demand, more severe drought scenarios, and cutbacks in the Jordan Lake release protocol under Stage 3 and 4 drought conditions combine to allow these brief shortages to materialize. It seems likely that with a significant volume of water left in the Jordan Lake Water Quality Pool, a change in policy and/or discretionary action by the USACE, in consultation with other stakeholders, would allow for additional releases to be made to meet these needs.”

Could you please elaborate on what change in policy is expected and the timeline needed to fulfill that change in policy based on the statements above. Also, how would the discretionary action by the USACE, in consultation with other stakeholders, allow for additional releases and how long would that process take.

RESPONSE: The OASIS model simulations do suggest the potential benefit of establishing flow targets further downstream of Lillington, such as at Fayetteville or Lock and Dam #1 to mitigate extreme drought impacts on top of severe climate change. However, historically this has not been necessary. Per Table 5-9, the median unit runoff is the highest in the lower Cape Fear. No change in USACE policy is expected at present and none is warranted. The climate scenarios used, especially the two relying on RCP 8.5, as indicated in the second paragraph on page 5-37. The best available science at present indicates these scenarios represent greenhouse gas concentrations that are unlikely to occur based on the recent (e.g., past 5 years) shift toward renewable energy sources. Nevertheless, when water shortages arise, the USACE can quickly take discretionary action to mitigate those conditions. Once the Water Quality Pool drops less than 80 percent, the USACE will set up weekly calls with stakeholder groups. These stakeholder group discussions factor into the Jordan Lake dam release schedule for the upcoming week. Longer term changes to institute permanent flow targets further downstream would require more regulatory oversight and possibly an environmental assessment led by the USACE.

Comment #4:

In Table 3-21, Please explain why other municipalities (i.e., Chatham, Pittsboro, Siler City, and Holly Springs) will not be seeking water supplies from the City of Sanford.

RESPONSE: Pittsboro and Holly Springs are partners in the City of Sanford's Water Filtration Facility. Chatham County was partnering with Sanford only to provide water for the Moncure Industrial Park. The City of Sanford is now supplying water directly to Moncure, so Chatham County no longer needs to partner with Sanford. The City of Sanford has recently merged utilities with Siler City; however, Siler City is not a partner in the Sanford WTP expansion.

Adrienne Weaver (Classifications and Standards Branch):

The information in Subsection 1.5.6 (Surface water reclassification) is correct.

RESPONSE: Comment noted.

The critical area and protected area definitions in that same subsection are correct.

RESPONSE: Comment noted.

Paul Clark (Water Supply Watershed Protection Coordinator, Stormwater Branch, Division of Energy, Mineral, and Land Resources):

Recommended edits to the fifth paragraph in Subsection 3.4.1 (Proposed Middle Creek Reservoir) to make it clearer and more accurate:

“A surface water reclassification process per 15A NCAC 2B .0100 and .0200 would be required to reclassify the Middle Creek watershed as a WS-IV water supply watershed. Similar to Alternative 1 (Purchase of Finished Water from Raleigh Water), a proposed reservoir would have a significant impact on the development potential of the Middle Creek basin. The critical area is a one-half mile buffer area as measured from the normal pool elevation. The protected area is 5 miles as measured from normal pool elevation. In the protected area, the low-density option limits impervious surface to 24 percent (or 20,000 square foot lot excluding roadway ROW or one dwelling unit per half acre for single family residential development. Only the 24 percent impervious cover measurement is allowed for non-residential and all other residential development. The low-density option allows for higher density (e.g., 70 percent) in 10 percent of a jurisdiction’s service area. The WS-IV high-density option limits built upon area to 24 to 70 percent in the protected area; however, the jurisdiction must assume responsibility for operation and maintenance for engineered stormwater controls to handle the additional stormwater flow generated from greater impervious cover.”

RESPONSE: Edits to the DEIS have been made per the above recommendation.

Recommend using “area” instead of “buffer” because buffer implies little to no development in this region. One can develop in the critical area associated with a water supply, but there are restrictions associated with the development.

RESPONSE: Comment note. Edits were made to the DEIS per the above recommendation.

Mark Durway (Groundwater Management Branch):

In summary, Hazen & Sawyer concludes that Fuquay-Varina would need a 9100 acre well field and 388 wells to meet its 2055 water demand of 8.4 mgd. The study is based on 1000-ft well spacing and average well yield of 30 gpm. Hazen & Sawyer notes that groundwater within the area is vulnerable to contamination and that a full-scale water treatment plant would be required for blending, softening, iron and manganese removal, chlorination, potential contaminant treatment and removal, etc.

If further evaluation of groundwater as an IBT alternative is warranted, the following is recommended:

1. Identify one or more potential wellfield locations. The well system and wellfield should meet DWR Public Water Supply siting requirements including Wellhead Protection Area standards. Discuss site suitability and projected well yield with the Wake County hydrogeologist and DWR Groundwater Management Branch staff.
2. Conduct a Phase I Environmental Site Assessment to identify areas of known or potential groundwater contamination which could affect water quality and availability and result in additional treatment requirements and operating costs. Identify how potential water system issues will be overcome, such as reduced well yields during drought.
3. Modify the proposed wellfield plan to include a DWR-approved Wellhead Protection Area and a wellfield expansion area should additional wells be required because of unforeseen water quantity and water quality issues.

RESPONSE: The groundwater alternative was eliminated in the DEIS due to the feasibility of large groundwater systems for public water supply in the Piedmont Region. The 2022 USGS groundwater study in Wake County supports the conclusion in the DEIS that limited well yield is available for large water supply systems.

Renee Kramer (NCDEQ Title VI and Environmental Justice Coordinator):

I think overall the EJ portion is well done, and I commend them for including such a section in the report. I have reviewed the EJ portion and have the following comments:

1. In the section 4.15.2, 50% threshold for low-income is the highest I have ever seen, and I think is too high to use. For example, we use 10% greater than the state or county levels to flag as the potential for impact. I believe they also use that comparison for other metrics, so it is unclear why they don't use that for low-income.

RESPONSE: The 50 percent threshold was based on *Promising Practices for EJ Methodologies in NEPA Reviews* (March 2016), a document issued by the federal Interagency Working Group on Environmental Justice and NEPA Committee. The analysis threshold has been revised to reflect the +10 percent metric for all population analyses. The +10 percent metric is based on the definition of potentially underserved block groups in the NC Department of Environmental Quality's *Community Mapping System Glossary of Terms and Definitions* (updated January 2022).

2. I want to make sure they are aware of the DEQ Community Mapping System and our potentially underserved community layer-that can be a great way to conduct maps and visually demonstrate potential EJ impacts of projects.

RESPONSE: Comment noted.

3. I also didn't see any portion about community outreach and if they plan to conduct any engagement in their identified underserved communities-they should outline some outreach plan to connect with those communities if there is opportunity for public input to shape or change the project outcome.

RESPONSE: The Town of Fuquay-Varina has engaged in public outreach for the proposed IBT project via the public meetings that were held in the fall of 2020. The Town will continue to engage in public outreach as part of the State Environmental Policy Act (SEPA) process and IBT Petition phase.

Vann Stancil (Research Coordinator, NCWRC Habitat Conservation Division):

In general, does this project present any cause for concern regarding the cumulative transfer of water from the Cape Fear to the Neuse or to any other river basin?

RESPONSE: No, the proposed project will not result in a concern over cumulative impacts of the proposed transfer. Section 5.15 describes the minimal direct impact that the proposed transfer will have on the Cape Fear and Neuse River basins.

There is increased discussion about possibly removing Buckhorn Dam on the Cape Fear River. Some of the biggest concerns are the intake(s) within the impoundment above Buckhorn Dam. This might be a great opportunity to reconfigure Sanford's intake to ensure it is sustainable even if the dam is removed. The DEIS alludes to that somewhat, saying that they want to move it lower in the river, but the DEIS should be clearer that the intake is in the impoundment formed by Buckhorn Dam and future plans should not assume that the dam will always be there.

RESPONSE: The City of Sanford's raw water intake was conservatively modeled as a run-of-river intake and does not include storage from the Buckhorn Dam impoundment. Buckhorn Dam is a low head dam, so the buffering capacity of storage behind the dam is minimal. Dam removal would be a concern for the operational considerations at the City of Sanford's raw water intake. The raw water intake design approach includes locating the screens at a favorable location in the river under present conditions. The design includes a removable spool piece that will allow the screens to be dropped down to a minimum operable level.

SPECIFICALLY ABOUT RARE SPECIES:

The list of species on page 4-26 is somewhat misleading. First of all, while NCWRC does do some stream surveys for fish, we are usually targeting certain rare species, not doing a fish community assessment. The community assessment of stream fish is more similar to the work of the Biological Assessment Branch of DEQ. Biological Assessment Branch | NC DEQ. In addition, some of those species are only found much farther southeast, in the lower Coastal Plain of the Neuse or Cape Fear River basins. So, the list is somewhat misleading, not necessarily comprehensive, and not representative of the species found near the project.

RESPONSE: Language relative to fish community sampling was acquired from a WRC report, as cited in Section 4.11, paragraph 2, of the DEIS. The 95 fish species and priority aquatic species referenced in Section 4.11 of the DEIS were reported by WRC in 2017. The DEIS states that the species listed are reported by WRC to be within the Cape Fear and Neuse River basins and does not state that they are not in proximity to the project areas. Information provided for final permitting efforts will be narrowed down following selection of a final alternative utilizing most recent publicly available location specific information provided by WRC.

It would be useful to include the type of taxa for species listed in Table 4-13 starting on page 4- 33/173. It's confusing when the lists jumps around from fishes to birds, to mammals since they are alphabetical and separated only by vertebrates and invertebrates and vascular and non-vascular plants. I'd prefer headings for fish, mussels, crayfish, bats, mammals, etc., otherwise it is difficult to determine what some species are. In addition, it would be helpful to identify if aquatic species are found only in the Cape Fear or Neuse basin or both.

RESPONSE: Since NEPA guidance does not specify the categorization of listed species in NEPA documents, reorganization of Table 4-13 is not necessary.

The list of state listed species includes some species that can be removed. While I do not know the background behind the record(s), the American alligator is not typically found in Harnett Co. so that record deserves further investigation. Robust redhorse should be removed, in NC they are only found in the Pee Dee River below Blewett Falls Dam. Therefore, I am not sure why Chatham Co. is included. The

list should be checked again for any other anomalies or errors.

RESPONSE: Table 4-13 has been updated per the rereview of the USFWS Information for Planning and Consulting tool as of August 11, 2023.

The descriptions of listed species starting on pages 4-45/185 are very generic. The descriptions would be much more useful if they focused on habitat and occurrence within NC and within the counties of concern here. For instance, Atlantic sturgeon is limited to our large coastal rivers below dams. They can move upstream to Falls Lake Dam, at least theoretically, but won't pass all 3 locks and dams or Buckhorn Dam on the Cape Fear River and won't be in tributaries to the Neuse or Cape Fear River. American alligators are coastal, a Harnett Co. record is anomalous. Neuse River waterdog and Carolina madtom are also endemic to the Tar River basin (not just the Neuse). There's little discussion about the distribution and habitat of the Atlantic Pigtoe, which is what is most useful to include. The Tar spiny description is more comprehensive and would be a good template to follow for other species.

RESPONSE: Species, such as the American alligator, provided in the DEIS are listed by USFWS based on their status by County. A statement related to the distribution of the Neuse River waterdog and Carolina madtom has been updated in Section 4.13.2.1 of the DEIS. Specific descriptions of habitat and occurrence has not been provided due to the extensive geographic area covered by the project corridors and the numerous types of communities present within the project areas.

On page 4-60/200 the authors talk about Significant Aquatic Endangered Species Habitats (SAESH) designated by the WRC. That is an old designation that we no longer use, therefore all references to SAESH should be removed. This would be a good place to include Critical Habitat (designated by the FWS) as applicable, instead. For instance, Middle Creek is Critical Habitat for Neuse River waterdog for approximately 7 miles as it flows from Wake to Johnston County.

RESPONSE: Discussion related to areas of SAESH has been removed from the DEIS as appropriate. Section 4.13.2 has been updated to include information related to USFWS designated critical habitat for federally listed species.

The NHP's lists of rare plants and rare animals have been updated in their 2022 publication. The state status of some species has changed since the DEIS was written. [2022 Rare Animal List | NHP \(ncnhp.org\)](https://www.ncnhp.org/2022-Rare-Animal-List)

RESPONSE: Updates will continuously occur throughout the review process and publication of the DEIS.

If there are records for Federally listed species near the project, the US Fish & Wildlife Service will need to be consulted. If they believe a Federally listed species may be impacted by the project, they will issue a Biological Opinion and address take. That is not discussed or listed in the permitting section.

RESPONSE: Potential need for consultation with USFWS is addressed in Section 5.13.2.

Shelton Sullivan (401 & Buffer Permitting Branch):

For any of the proposed options, an environmental assessment of the jurisdictional and non-jurisdictional streams, wetlands, waters, and riparian buffers is required to accurately depict the environmental features along with the proposed temporary and permanent impacts for DWR review and evaluation. These impacts from any of the proposed alternatives will require the coverage of a 401 Water Quality Certification, as per 15A NCAC 02H Section .0500, an Isolated Wetlands and Waters (non-404) Permit, as per 15A NCAC 02H Section .1300, and/or a Federally Non-jurisdictional Wetlands or Waters permit, as per 15A NCAC 02H Section 01400. In addition, if there are proposed temporary or permanent impacts within the regulated Neuse River Riparian Buffers, as per 15A NCAC 02B .0714, then these should be evaluated to determine if a Buffer Authorization should be sought and submitted to DWR for review and approval, as per 15A NCAC 02B .0611. Please note that the applicant must also obtain and comply with all applicable federal, other state, and local regulations regarding the construction and development of this project.

RESPONSE: Delineation of jurisdictional waters and riparian buffers will be conducted upon selection of an alternative. Permits will be acquired, as applicable, prior to construction commencement of the final alternative.

David Wainwright (Water Supply Planning Branch):

- In Table ES-4, and in other places in the document, the term “politically unacceptable” is used to describe a negative aspect of some alternatives considered, primarily those associated with Johnston County. After reviewing the document, the term is understood, but is probably not a good term to use, as without context it could be taken out of context and appear that the project is politically motivated. Perhaps something like “May not be acceptable to local government” or something similar would be a better way to phrase the argument.

RESPONSE: The DEIS has been revised with the suggested text. Additionally, the DEIS Alternative 2 text has been revised to reflect that Johnston County is moving forward with a preliminary design for a raw water intake at Richardson Bridge Road as the next water supply solution. When the DEIS was originally drafted, Johnston County had not made the decision to move forward with the Richardson Bridge raw water intake.

- At the top of page 1-2, 01 North Carolina Administrative Code (NCAC) 25 .0100 is referenced as a SEPA rule. I can see why the reference to these rules was chosen. However, it may be more appropriate to reference G.S. 143-215 .22L(d), which specifically references the requirement of an EA or EIS for a proposed IBT project and the requirements of the document.

RESPONSE: The DEIS page 1-2 has been revised to reflect General Statute §143-215 .22L(d).

- The very last bullet item at the bottom of page 1-4 states “Interbasin transfers are explicitly exempt from Session Law 215-90. All interbasin transfers are required to submit environmental documentation for SEPA review.” This statement is a little confusing, stating in the first sentence that IBT projects are exempt from SEPA then saying that they are required. Session Law 215-90 does not exempt IBT projects from SEPA; quite to the contrary. Section 7 of 215-90 (G.S. 143-215 .22L(d)) explicitly states that an EA or EIS for IBT projects is required.

RESPONSE: This bullet point has been deleted from the DEIS text. Session Law 2015-90 does require environmental documentation per GS 143-215 .22L. The bullet was meant to state that interbasin transfers are not subject to the list of project exclusions in Session Law 2015-90 Section 5 modifying G.S. 113A-12.

- The purpose and need statement does not clearly define those aspects of the project. The purpose and need for any project needs to be explicitly and clearly stated as they define the project and are used to determine whether the alternatives should be carried forward for additional analysis as well as to what extent the alternative does (or does not) satisfy the purpose and need. For example, and simply stated, the purpose could be to provide additional drinking water to the Town of Fuquay-Varina; the need could be to address the anticipated growth, and hence water demands, within the Town’s water service limits. By defining the purpose in such a manner, it allows each alternative to be compared to these – does the alternative provide additional drinking water to the Town? Will the alternative provide enough water to supply future needs? These are yes/no questions that can easily compare each alternative and whether it meets the purpose and need of the project. The degree to which each alternative meets the purpose and need can further be used to discount alternatives – if an alternative does supply water but doesn’t supply enough to meet the need then it can perhaps be discounted based on this. Part of the need could be to supply the Town with an additional 4.2 MGD by 2025 (and explain why this is necessary – the P&N section does not explain why 2025 is critical to having the water supply in place) and then discount certain alternatives because they cannot meet the stated need.

RESPONSE: Section 2.4 (Purpose and Need Summary) of the DEIS has been revised to clarify the purpose and need. A new Table 2-6 has been added to support the purpose and need. Table 2-6 summarizes the Town of Fuquay-Varina’s average day in a maximum month water demand projections, the interbasin transfer projections from the Cape Fear River basin to the Neuse River basin, the Town’s total current water supply contract amount, and the projected water supply shortfall.

The water supply shortfall assumes that the Town's current contract amounts expire as planned and additional water supply is not available. Without provisions for additional water supply capacity, the Town is projected to have a water supply shortfall beginning in 2031, which supports the need for additional (and permanent) water supply to satisfy the Town's projected water demand in the service area.

Additionally, the text in Section 3 (Alternatives Analysis) of the DEIS has been modified to compare each alternative against the purpose and need, as suggested by this comment.

- In Section 5.14.2, with respect to wastewater discharges, it is stated that, "Direct and indirect permanent and temporary impacts as a result of the discharge of treated effluent will be negligible, as these impacts are addressed in an existing CWA permit." The additional wastewater discharge created because of the transfer of water is a direct impact resulting from this project and will likely not be a negligible impact; the increased discharge is being generated due to additional water supply being made available. The effects of the additional wastewater discharge to surface waters, water quality, wild and aquatic life, etc. needs to be taken into consideration and addressed and not just stating that it will be addressed through the NPDES permit, which will likely need to be amended to account for the additional discharge as a result of this project.

RESPONSE: Sections 5.14.4 and 5.15.2 have been revised to clarify the modeling results with respect to water quality.

- On page 1-2 in Section 1.4.1, second paragraph, line five, "Ten Road" I think should be "Ten-Ten Road." Also, page 3-38, Section 3.7.3, paragraph 4, line 2, "Har" should probably be "Haw".

RESPONSE: The DEIS text in Section 1.4.1 and Section 3.7.3 was updated with these edits.

Louis Murray (Water Supply Planning Branch):

I have reviewed Sections 2 and 3 based on evaluating consistency with Fuquay's LWSPs.

Section 2. Purpose and Need

1. Section 2. Purpose and Need/Population – historic population numbers in Table 2-1 are consistent with those referenced in the LWSPs. However, the reported 5-yr moving average growth rates should be checked, as most look a little off; for example, annualized 5-yr ma growth rates for:

2004 to 2009 = $(8.53+7.86+0.95+0.94+0.93)/5 = 3.84\%$ (not 3.78%);
2012 to 2017 = $(0.66+9.34+5.85+13.90+5.73)/5 = 7.10\%$ (not 7.00%);
2015 to 2020 = $(13.90+5.73+6.70+4.00+7.74)/5 = 7.61\%$ (not 7.56%)

RESPONSE: The 5-year moving average for population was calculated using an exponential moving average based on the population data. The calculation was changed to a simple moving average based on the annual growth rate increase per this comment.

2. 2.1.2 Population Projections – the fourth paragraph states, “The percent of population served in the Neuse and Cape Fear River basins at build-out is approximately 62 percent and 38 percent, respectively. The ratio of anticipated growth in the Cape Fear and Neuse River basins is fairly consistent throughout the planning period.” Just a comment here - the 2021 LWSP indicates a 50/50 service-area split between the Neuse and Cape Fear Basins, different than the 62/28 shown above. It is something to keep in mind when we assume a system's demand is proportional to the areal distribution in our Basin Water Quantity plans. Table 2-2. Population Projections – projected populations in Table 2-2 are consistent with those reported in the 2021 LWSP.

RESPONSE: The Town of Fuquay-Varina has updated the 2022 LWSP with a 60%/40% distribution in the Neuse and Cape Fear River basins, respectively.

3. 2.2 Water Demand Analysis – the first paragraph reads, “Residential accounts contributed approximately 72 percent of the water use in the service area between 2015 and 2021.” However, I get 66% if referring to the percentage of residential use to the total service-area demand.

“The number of residential accounts has increased an average of 5.5 percent per year since 2015.” However, I get 6.6% per year if accounts are equated to metered connections. “Residential use contributes 73 percent of the total water demand.” Assuming reference to the most recent (2021) LWSP, I get 61% (1.714 mgd/2.791 mgd). If averaged over the six years from 2015-2021, I get 66%.

RESPONSE: The water demand analysis section has been updated with the 2022 data. Additionally, the calculation did not consider the unaccounted for water in the total percentage, which was adjusted in Section 2 per this comment.

“Commercial use contributes 17 percent of the total water demand.” Assuming reference to the most recent (2021) LWSP, I get 15% (0.407 mgd/2.791 mgd). If averaged over the six years from 2015-2021, I get 16%.

RESPONSE: The water demand analysis section has been updated with the 2022 data. Additionally, the calculation did not consider the unaccounted for water in the total percentage, which was adjusted in Section 2 per this comment.

4. 2.2.1 Per Capita Demand – the first paragraph reads, “Since 2016, the residential per capita use is less than 54 gpcd.” However, per capita demand averaged 56 gpcd in 2019.

RESPONSE: In 2019, the residential per capita demand was 53.2 gpcd (e.g., 1.629 mgd residential use * 1,000,000 gal/MG / 30,628 people = 53.2 gpcd).

“The sum of industrial and institutional per capita use has averaged approximately 4 gpcd over the last few years.” However, I get 6.5 gpcd over the past four years.

RESPONSE: This statement was made as a general characterization of the industrial and institutional water use. Including the new 2022 data, the average industrial and institutional per capita use averages 3.8 and 3.3, respectively. The data is summarized in the following table and the DEIS text was updated.

Year	Industrial Water Demand, mgd	Industrial Per Capita Demand, gpcd	Institutional Water Demand, mgd	Institutional Per Capita Demand, gpcd
2018	0.0250	0.8	0.1020	3.5
2019	0.0970	3.2	0.1070	3.5
2020	0.0250	0.8	0.0390	1.2
2021	0.2430	7.1	0.2160	6.3
2022	0.2800	7.1	0.0840	2.1
Average (2018 – 2021)		3.0		3.6
Average (2018 – 2022)		3.8		3.3

3rd para – “The Town’s percentage of non-revenue water has declined since 2016 at 13.8 percent to 7.6 percent in 2021.” However, assuming non-revenue water includes system process use as indicated in this paragraph, I get 12.7% in 2016 and 7.6% in 2021 (Non-revenue water equals unaccounted-for-water plus process water).

RESPONSE: The percentage of revenue water has been updated to include process water. The percentage of unaccounted for water in 2021 was 7.6 percent.

5. Table 2-3. Summary of total Water Billed and Purchased Water Per Capita Demand – the footnote 2 at the bottom of this table defines ‘non-revenue’ water as “unaccounted- for water in Local Water Supply Plans (Section 5. Planning).” However, non-revenue water was earlier defined in this document to also include process water use.

I reviewed the data for years 2015 to 2021. If Total Billed water = Total Water Purchased - (process water + unaccounted for water), then the following corrections are needed:

2020: total water billed and purchased should be 2.173 mgd and 2.517 mgd, respectively.
2019: total water billed and purchased should be 2.253 mgd and 2.478 mgd, respectively.
2018: total water billed and purchased should be 2.067 mgd and 2.306 mgd, respectively.
2017: total water billed and purchased should be 1.949 mgd and 2.186 mgd, respectively.
2016: total water billed and purchased should be 1.864 mgd and 2.136 mgd, respectively.
2015: total water billed and purchased should be 1.822 mgd and 2.008 mgd, respectively.

I would suggest also reviewing years 2002-2014. Changes likely needed here also.

RESPONSE: Edits have been made to Table 2-3 to reflect these changes.

6. Table 2-4 Summary of Annual Average, Max Month, and Max Day Water Demand Projections – Correction needed – 2050 max monthly demand should be 8.9 mgd. All other values are correct and consistent with 2021 LWSP.

RESPONSE: The text in Table 2-4 has been corrected to reflect this edit.

Suggest revising footnote 1 to indicate that the projected populations are consistent with those in the 2021 LWSP. For example, "1 Population projections from linear best fit regression method used for the 2021 Local Water Supply Plan."

RESPONSE: Edits were made to Table 2-4 to reflect this change.

7. 2.3 Interbasin Transfer Projections – first paragraph indicates that "Post 2049, all of the Town's water supply will originate from the Cape Fear River basin (2-3). The maximum month transfer in 2055 is anticipated to be 6.13 mgd. The maximum day transfer amount is anticipated to be 7.8 mgd. By 2055, approximately 12.6 mgd of water supply will be required to support peak day needs." However, the 2021 LWSP indicates future purchases from Sanford at 11.0 mgd (avg. day) by 2055 which, using the previously referenced max month and max day peaking factors of 1.18 and 1.5, would equate to a max month supply of 13.0 mgd and a max day supply of 16.5 mgd, amounts greater than those referenced here. Please explain.

RESPONSE: The maximum day is calculated using a 1.5 peaking factor from the average day. The 2055 maximum day is calculated as an average day of 8.37 mgd multiplied by the peaking factor of 1.5 to equal 12.5 mgd. The Town of Fuquay-Varina will maintain the 2 mgd from Harnett County for a total water supply from the Cape Fear River basin of 13 mgd.

8. 2.4 Summary of Purpose and Need – revise first paragraph to indicate the current population is now over 34,000 people.

RESPONSE: Section 2.5 (formerly Section 2.4) has been updated. This sentence is no longer included in the first paragraph.

Section 3. Alternative Analysis

9. 3.1 No Action – Fuquay's 2021 LWSP does not show an additional supply of 2.0 mgd coming from Harnett County until 2035 as mentioned in the first paragraph (maybe I am misreading this?).

RESPONSE: The temporary agreement for an additional 2 mgd from Harnett County was in progress as the Draft EIS was being finalized and submitted for review. This leased capacity is included in the 2022 Local Water Supply Plan. This ILA was added to Section 1.4.3 Table 1-1 and in Appendix A.

10. Table 3-2. Sale agreement with Franklin County is not shown in Raleigh's 2021 LWSP (maybe it was not finalized in time to include it).

RESPONSE: Raleigh Water's wholesale water agreement with Franklin County was in progress as the Draft EIS was being finalized. The agreement is included in Raleigh Water's 2022 Local Water Supply Plan. Table 3-2 was updated to reflect this revision.

11. 3.2.1 Existing Water Supply and Treatment Infrastructure – the third paragraph indicates a safe yield of 84 mgd for Falls Lake but Raleigh's 2021 LWSP shows a 50-yr safe yield of 88.2 mgd. The 5th paragraph indicates a capacity of 20 mgd for the Dempsey Benton WTP but the LWSP shows 16 mgd.

RESPONSE: Attributing yields to individual supply source is complicated when multiple sources used conjunctively are considered. The total yield for Raleigh Water's system (99.4 mgd) exceeds the sum

of the yield from either Falls Lake or Wheeler/Benson independently. Raleigh Water's 2022 Local Water Supply Plan indicates a 50-year safe yield of 11.2 mgd in Lake Benson, which is consistent with the DEIS text. In the Local Water Supply Plan yield of 88.2 mgd, Raleigh Water is reporting the conjunctive benefit of two water supply sources with different droughts of record (e.g., 1980s for Lakes Wheeler and Benson and 2000s for Falls Lake). The Falls Lake yield stated as 84 mgd is the "stand-alone" yield of this source. The difference of approximately 4 mgd is the benefit of operating two sources which have different droughts of record. A statement has been added to Section 3.2.1 of the DEIS to clarify this point.

12. 3.3.4 Summary -- first paragraph reads "Johnston County is unlikely to accept a new wholesale customer or water supply partner. The County's continued long range water supply planning effort has identified a potentially feasible alternative that will satisfy the 2050 water supply deficit in the County's service area. The identified alternative will not yield sufficient water supply capacity for additional wholesale customers or water supply partners, including the Town of Fuquay-Varina. However, this alternative was carried forward in the EIS for an environmental impact analysis". Agree. Johnston County's 2021 Plan, still unapproved, shows a demand-to-supply ratio of 82% by 2030 and 86% by 2040.

RESPONSE: Comment noted.

13. 3.5.1. Population and Water Demand Projections for City of Dunn – the first paragraph states that the average day water demand in 2050 is 5.9 mgd. However, Table 3-10 below (as well as the LWSP) indicate 4.85 mgd.

RESPONSE: The DEIS text has been modified to reflect an average day water demand of 4.85 mgd in 2050.

14. 3.5.3 Cape Fear River Instream Flow Characterization at Dunn – first paragraph reads "A 7Q10 value near Dunn is not documented in the 1998 USGS report. However, DWR published a Cape Fear River Basin Water Supply Plan (2002) that estimated the available water withdrawal at Dunn to be 69.8 mgd." What does 'available' water withdrawal mean? Wondering how this was defined in DWR's report. It is much greater than the 12.0 mgd shown in the LWSP as the 20-yr safe yield.

RESPONSE: Per the Cape Fear River Basin Water Supply Plan (2002), DWR assumed that the maximum capacity of a run of river intake is 20% of the 7Q10 flow at that location unless other limits on withdrawals were reported.

15. Table 3-20 Summary of City of Sanford Wholesale Water Sales Contracts – the City sold approximately 0.87 mgd (not 0.83 mgd) of bulk finished water out of a total contract amount of 2.3 mgd in 2021, excluding emergency use contracts. Also, the avg. day sale to Chatham County (Asbury) in 2021 was 0.445 mgd, not 0.401 mgd.

RESPONSE: Due to the timing of the DEIS with respect to the City of Sanford's Local Water Supply Plan, the provisional 2021 LWSP data was used. The DEIS has been updated with provisional 2022 Local Water Supply data.

16. I briefly reviewed the twelve alternatives and, based on my very limited knowledge of the specifics, feel comfortable with the rationale used to accept some while rejecting others. Other than no action, the GW alternative is one of the more obvious rejections.

RESPONSE: Comment noted.

Vardry Austin (Water Supply Planning Branch):

EIS Page 2-4 and Appendix A – Page 13: In the first bullet, commercial accounts should be 7.4 percent.

RESPONSE: The DEIS text has been updated to reflect this change. Data from the approved 2022 Local Water Supply Plan has been added. The average commercial demand between 2015 and 2022 is 7.1 percent.

EIS Page 2-5: In the third paragraph, correct the percent of commercial accounts to 7.4 percent of total accounts.

RESPONSE: The DEIS text has been updated to reflect this change. Data from the approved 2022 Local Water Supply Plan has been added. The average commercial demand between 2015 and 2022 is 7.1 percent.

EIS Page 3-69: Fifth paragraph, commercial accounts should be 7.4 percent.

RESPONSE: The DEIS text has been updated to reflect this change.

Appendix A – Table 4: Correct the LWSP population for 2019.

RESPONSE: Table 4 in Appendix A has been updated.

Appendix A – Table 8: Correct UAFW per capita demand as noted in the LWSP.

RESPONSE: Table 8 in Appendix A has been updated.

Appendix A – Table 9 and EIS Table 2-3 (as appropriate): Revise total water billed and total water purchased to calculate non-revenue water (unaccounted-for water) as shown in the LWSP.

RESPONSE: Table 9 in Appendix A and Table 2-3 of the DEIS have been updated.

Appendix A – Table 9 and EIS Table 2-3 (as appropriate): Complete table for non-revenue water for 2021.

RESPONSE: Non-revenue water for 2021 is included in Table 9 of Appendix A and DEIS Table 2-3.

Appendix A – Table 9 and EIS Table 2-3 (as appropriate): Change heading for non-revenue water to read MGD.

RESPONSE: Appendix A Table 9 and DEIS Table 2-3 have been revised to delete this column. This column was replaced with “Unaccounted for Water, %.”

Appendix A – Table 11: Correct the maximum month water demand for 2050.

RESPONSE: The correction to Appendix A Table 11 has been made.

EIS Page 3-27: Section 3.6.1 states the county’s average day withdrawal in 2020 was 19.93 mgd with a maximum day of 27.85 mgd. Confirm the source of these numbers since they are not in the 2020 LWSP.

RESPONSE: The values stated in the DEIS may have been provisional LWSP data. The DEIS text has been updated to reflect the annual average and maximum day per the approved 2021 Local Water Supply Plan.

EIS Page 3-49: The third paragraph states the average day water demand in 2021 for Sanford was 6.4 mgd with a maximum day demand approaching 12 mgd. Confirm the source of these numbers since they are not in the 2021 LWSP.

RESPONSE: The DEIS has been updated with 2022 Local Water Supply Plan data for annual average and maximum day.

Harold Brady (Water Supply Planning Branch):

Executive Summary

1. Cover Page: Need to state that this Draft EIS document has been written for NCDEQ – Division of Water Resources. “Completeness review” language should be removed before issuance of the draft for public review.

RESPONSE: The text on the inside cover page has been replaced with the following:

Past Submittals: DEIS State Agency Review (July 2022)
Current Submittal: DEIS for State Environmental Policy Act Review (March 2023)

2. Back Cover Page: Replace “River Basin Management” with “Water Supply Planning”

RESPONSE: This text edit has been made to the inside cover page.

3. Executive Summary, ES.1, second paragraph, second sentence: Consider opening with, “Per GS 215-143.22G.”

RESPONSE: The second sentence of the second paragraph in ES.1 has been revised.

4. Executive Summary, ES.1, second paragraph, last sentence: Consider referencing this location on a map, as well as identifying the HUC number.

RESPONSE: The second paragraph of ES.1 has been revised to match the second paragraph in Section 1.1. A reference to Figure 1-1 was added.

5. Executive Summary, ES.2, second paragraph, first sentence: Consider adding that Harnett County is the Town’s current primary water supplier. The use of “temporary” is questionable, considering nearly all water supply purchase agreements are time-limited, including the ILA with Harnett County. Perhaps provide an explanation that these will not be renewed. Please include any documentation from the sellers regarding this issue. Please revise accordingly throughout the document.

RESPONSE: The first and second paragraphs in Section ES.3 (formerly Section ES.2) were revised as follows:

“The Town of Fuquay-Varina needs to secure a permanent water supply source in lieu of a continuation of temporary interlocal lease agreements with wholesale suppliers to meet the projected growth and water demand. The Town of Fuquay-Varina is pursuing this water supply project to secure a permanent water supply source to meet the water supply needs in the Town’s service area. The preferred water supply source results in a requirement for an interbasin transfer (IBT) certificate to transfer water from the Cape Fear River basin to the Neuse River basin. Per General Statute §143-215.22L, an interbasin transfer certificate is required if a daily average water demand of 2 mgd in a calendar month (e.g., maximum month) or 3 mgd in one day (e.g., maximum day) is exceeded.

Per the contractual language in interlocal agreements, the Town of Fuquay-Varina does not have the right of ownership of treatment capacity in neighboring purveyor’s treatment facilities. Therefore, the Town of Fuquay-Varina cannot control the production of water or guarantee a reliable water supply. All three of the Town of Fuquay-Varina’s interlocal agreements (e.g., Raleigh Water, Johnston County, and Harnett County) have the right to interrupt finished water service on an as-needed basis or in an emergency. The Town of Fuquay-Varina receives approximately 50 percent of finished water from Harnett County.”

6. Executive Summary, ES.2, second paragraph, third sentence: Need to describe the proposed project or preferred alternative before stating that an IBT is necessary.

RESPONSE: A new Section ES.2 was edit to better describe the proposed project.

7. Executive Summary, ES.2, third paragraph, third sentence: Include, “met or” between “is” and “exceeded”.

RESPONSE: The third paragraph of Section ES.3 (formerly ES.2) was edited.

8. Executive Summary, ES.2, third paragraph, fifth sentence: Change “amount” to “amounts”, as there are multiple contract amounts.

RESPONSE: The fifth sentence of the third paragraph in Section ES.3 (formerly Section ES.2) has been edited.

9. Executive Summary, ES.3, second paragraph, first sentence: Replace “will support the” to “has been prepared for”. Add, “as part of the” between “(DEQ)” and “decision- making”.

RESPONSE: The first sentence of the second paragraph in Section ES.2 (formerly Section ES.3) has been edited.

10. Executive Summary, ES.3, second paragraph, last sentence: Please double-check the Administrative Code SEPA citation. Please also reference, GS 113-A, making specific note of its various subsections depending upon the subject throughout the draft document.

RESPONSE: The reference to the Administrative Code in the text has been corrected. The reference to General Statute §113A has been added to several sections.

11. Executive Summary, Table ES-2: Include the definitions of footnotes on every page that they are used. This should be done throughout the document. The portion of table with no information on page vi should be deleted.

RESPONSE: Each table has “header row repeat” programming to maintain the table title and table column headers with the applicable footnotes if a table has to break pages. Many of the tables in the EIS contain a significant amount of data, so table breaks across pages are occasionally necessary. The document format does not allow footnotes in the page footer. The additional page has been deleted. This page was added for front and back printing.

12. Executive Summary, ES.5, first paragraph, last sentence: These qualifiers will need to be quantitatively defined for each impact type throughout the document.

RESPONSE: The EIS has been written using standards set forth by the North Carolina Department of Administration in the Environmental Assessment Guidelines. Per the guidelines in Section E (Predicted Environmental Effects of Projects), quantifiable impacts are necessary in all categories, where quantifiable impacts are feasible based on available published mapping and data. Where impacts cannot be quantified, impact intensity (e.g., negligible, minor, moderate, and major) were developed based on National Environmental Policy Act definitions for context and intensity per 40 CFR §1508 and impact threshold guidelines from federal agencies.

13. Executive Summary, ES.6, second paragraph, fifth bullet: Need to note specifically what the noted impacts are for downstream water users. Please ensure that the 99.9% value is not misleading. Furthermore, the four downstream water users noted are following the statutory requirements for Water Shortage Response Plans (WSRP). The document should contain an analysis (i.e., post-process) of potential impacts to those water systems whose WSRP triggers are not in the model to

fully evaluate all potential impacts.

RESPONSE: The 99.9% reliability statement has been removed. Between revisions to Sections 3 and 4 of Appendix C and revisions to ES.6, the document contains the analysis DWR requested. Demand reductions would mitigate shortages to some extent, but may not completely eliminate shortages. In combination with the storage above Lock and Dam 1 (now described in Section 4 of Appendix C) and modest increases in Jordan Lake operations, the shortages can be eliminated. Simply changing the Jordan Lake Drought Stage 3 releases back to Stage 2 operations also eliminates shortages even without implementing demand reductions. This is described in Section 4 of Appendix C.

14. Executive Summary, ES.6, second paragraph, eighth bullet: Please provide the value or a quantifiable definition for “nominal”.

RESPONSE: Discussion of time spent below 80% the Water Quality Pool storage has been relegated to discussion in Section 3.2 of Appendix C. There is a 40% reduction between 2025 and 2055 of time below 80% of water quality storage (25% versus 15%). The range across all 12 alternatives in 2055 spans just 15.0% to 15.7% under the historical hydrology. We have removed use of the term “nominal.”

15. Executive Summary, ES.6, second paragraph, ninth bullet: Please explain the context and importance of this statement.

RESPONSE: The 550 cfs flow target at Lillington is met over 85% of the time in 2055 (85.3% to 85.8%), which is a slight increase from an 81% result in the 2025 scenario. The frequency of meeting the flow target matches fairly closely with the frequency of time Jordan Lake is not in Drought Stage 1 through 4. The flow target is met slightly more often (than times in Drought Stage 0) since there are periods when a Drought Stage 1 through 4 is in effect and the flow target at Lillington will be met from runoff in the unregulated contributing drainage area. The EIS has been updated to note that the variability across all alternatives is quite low.

16. Executive Summary, ES.6, second paragraph, tenth bullet: Please cite the source for the 600 cfs flow target at Fayetteville.

RESPONSE: The 600 cfs is derived from metrics reported in the 2014 Cary-Apex IBT (page 90 of the pdf file, or page 5-4). The 600 cfs threshold exceedance at Fayetteville is also described in Table 9 of the Modeling Evaluation for the Cary/Apex IBT (page 243 of the pdf). In a footnote on that page, the authors indicate the following: “600 cfs was selected for presentation to provide an indication of the frequency of low flow events in the Cape Fear River near Fayetteville.” There updated CFNCRB model does not include a minimum flow target at the Fayetteville gage. We have reworded the statement in the updated ES.6 to describe the 600 cfs metric as a flow threshold.

17. Executive Summary, ES.6, fourth paragraph: Need to note the specific withdrawal amounts from the City of Sanford intake that are used in the model runs.

RESPONSE: The total amount withdrawn at the Sanford intake averages 26.9 mgd of raw water in the 2055 Alternative 9 model runs. 2.2 mgd is returned as process water at the same location, for a net withdrawal of 24.7 mgd.

18. Table ES-3: All qualifiers need to be defined, quantitatively, if possible, otherwise the determinations are entirely the author’s discretion. All footnotes used on the page should be defined on each page throughout the document.

RESPONSE: Please refer to response to comment #12 and response to comment #97.

19. Executive Summary, ES-6, first paragraph, fourth sentence: Limiting the available alternatives to only those that can fully achieve the 2055 (study period) project goals by 2025 is an overly restrictive consideration to the other alternatives. Due to this proposal coming to the DEQ so close to this "deadline", the applicant may need to resolve the short-term maximum day demand issues outside of the proposed long-term IBT project.

RESPONSE: The DEIS text has been updated to reflect that the Town of Fuquay-Varina has negotiated a short term emergency water contract with Harnett County. None of the alternatives were eliminated in the DEIS, even alternatives that do not meet the purpose and need. Table ES-2 has been revised.

20. Executive Summary, ES-6, Table ES-4, Alternative 5: Explain why there is no alternative that proposes expansion the Harnett County WWTP beyond the 6.0 mgd under the current long-term ILA.

RESPONSE: The detailed discussion for the expansion of the Harnett County North Regional WWTP is provided in Alternative 8A/B in Section 3.8 of the EIS.

21. Executive Summary, Table ES-4, Alternative 8A/B: This would have been a regional solution had the City of Raleigh been considered a partner in developing this alternative as originally discussed in Feb. 2020 with the applicant. This alternative was initially discussed with the applicant in terms of the proposal that the City of Raleigh provided to the DEQ during the Round 4 Jordan Lake Allocation process, in which the City of Raleigh proposed withdrawing water, from their proposed Jordan Lake allocation, from the Cape Fear River and returning all but 2 mgd; thereby avoiding issuance of an IBT Certificate.

RESPONSE: The Town of Fuquay-Varina has conducted many conversations with Raleigh Water over the last several years. Raleigh Water has communicated to the Town that the Interlocal Agreements will not be renewed. However, Raleigh Water did agree to a temporary ILA until 2035 after initially denying the Town a renewal. The Interlocal Agreement between the Town and Raleigh Water is provided in an Appendix

22. Executive Summary, Table ES-4, Alternative 12: Consider clarifying that the Town's water conservation measures/plan must meet or exceed those by other water systems in the Cape Fear River (source) basin. The document states that the IBT projections account for water conservation; however, these measures need to meet or exceed the most stringent measures by other water systems in the Cape Fear (source) basin to fully account for this alternative to not be viable.

RESPONSE: The EIS Section 3.14 (formerly Section 3.13) has been updated to clarify and expand on the Town of Fuquay-Varina's water conservation program. A new Table ES.2 has been developed to clarify the Town's water conservation programs.

23. Global: Consider embedding all maps and figures where the discussion of the topic first occurs, instead of in the back of the document.

RESPONSE: All of the figures in the DEIS are 11x17. The figures were located in a separate section so that the rest of the document could be printed double-sided to save paper. Per DWR's request, the applicable figures have been relocated at the end of each section. Printed hard copies, if necessary, will be single-sided.

Section 1.0

24. Section 1.4: The document needs to address the practicality and logistics of avoiding an IBT Certificate request, by utilizing the existing collection system to route flows toward the North Harnett WWTP instead of Terrible Creek WWTP. Consider providing information related to any improvements to the collection system that routed greater flows toward Terrible Creek WWTP, particularly those

activities that occurred after issuance of the NOI. Where this information is presented in the document is left to the authors discretion.

RESPONSE: Section 1.4 of the DEIS has been revised to clarify a few nuances regarding the Town's Interlocal Agreements with neighboring communities. The Town signed an ILA with Harnett County for the purchase of wastewater allocation in the North Harnett Regional WWTP. Per the ILA, the Town does not have any right of ownership (e.g., capacity) in the North Harnett Regional WWTP. However, the wastewater ILA with Harnett County expires in 2040 but automatically renews for an additional 40 years. Section 1.4 was also edited to clarify that the Town only owns the 36-inch diameter segment of the 15-mile interceptor to the Wake-Harnett County line. Additionally, a third paragraph in a new Section 1.4.3.1 has been added to state that the capacity of the 36-inch diameter interceptor was designed to meet the project needs in 2000, which was a 6 mgd average day flow with a hydraulic peak flow of 12 mgd as stated in the Interlocal Agreement. This capacity was confirmed with a hydraulic model.

A sentence to the first paragraph in Section 1.4.2 has been revised to state that the Town has not ever had the ability to transfer flow between river basins.

Alternatives Analysis Section 3.8 addresses a discharge to the Cape Fear River. Please refer to response to comment #167.

25. Section 1.4.2, second paragraph, last sentence: Need documentation from Harnett County as to their interest in a cooperative expansion of the North Harnett WWTP. Also, the document needs to define the constrictive element to the 6 mgd "carrying capacity" of the interceptor line and what would be entailed in expanding that line. Perhaps this would best be addressed as an additional alternative.

RESPONSE: The Town of Fuquay-Varina sent a Letter of Intent to Harnett County in May 2021 requesting an additional 3.4 mgd of treatment capacity in the North Harnett Regional WWTP per the 2000 Interlocal Agreement. Per conversations between the Town of Fuquay-Varina and Harnett County staff, Harnett County's wastewater capacity obligations to other member partners (e.g., Angier, Lillington, and Harnett County) does enable Harnett County to provide wastewater capacity to the Town of Fuquay-Varina greater than the Interlocal Agreement capacity of 6 mgd. However, in the May 2021 Letter of Intent, the Town expressed interest in purchasing additional capacity when available. The Town's May 2021 Letter of Intent to Harnett County is provided in an Appendix. Additionally, the Town's 2023 amendment to the ILA with Harnett County for the additional 3.4 mgd is in an Appendix.

Section 1.4 of the EIS has been revised to clarify the Town of Fuquay-Varina's Interlocal Agreements with neighboring communities and provide more information on the Town's infrastructure. Regarding the carrying capacity of the 36-inch interceptor to Harnett County, a third paragraph in a new Section 1.4.3.1 has been added, as follows: *"The Town of Fuquay-Varina and Harnett County interceptor was designed and constructed in accordance with applicable design criteria in the 1996 version of the Minimum Design Criteria for the Permitting of Gravity Sewers (DWR) to meet the capacity needs of the proposed project in 2000. The hydraulic capacity of the Town of Fuquay-Varina's allocation in the interceptor is 6 mgd average day flow with a hydraulic peak flow of 12 mgd. The capacity of the 36-inch interceptor was confirmed with a hydraulic model."*

An additional alternative does not need to be added to the EIS. Alternative 8 provides a discussion of the use of the Town of Fuquay-Varina's existing wastewater allocation in the North Harnett County Regional WWTP. Per the May 2021 Letter of Intent, Harnett County will sell the Town of Fuquay-Varina the remaining 3.4 mgd of wastewater allocation in the North Harnett Regional WWTP. The Harnett County North Harnett Regional WWTP expansion to 16.5 mgd is anticipated to meet wastewater capacity needs for the County's regional partners over the next 20-year planning period. Harnett County received the modified NPDES permit NC0021636 in July 2023.

26. Section 1.5.1, second paragraph: Please review this entire paragraph for accuracy avoiding misconstruing the statute. 1) The Session Law is 2015-90. 2) This session law does not modify the Administrative Rules 15A NCAC 01C, rather it added specific thresholds in statute, needed to be met before a SEPA document would be required for specific projects. 3) The statute includes more context and requirements to the third bullet than provided in the document. 4) The Session Law includes considerable language regarding IBTs; therefore, the subject and associated projects should not be characterized as “exempt.”

RESPONSE: 1) The DEIS text has been revised to correct the typographical error for the session law identifier as 2015-90. 2) The sentence of the DEIS text has been reworded. 3) The third bullet has been deleted and replaced with a new paragraph. 4) This bullet point has been deleted from the DEIS text. Session Law 2015-90 does require environmental documentation per GS 143-215 .22L. This bullet was meant to state that interbasin transfers are not subject to the list of project exclusions in Session Law 2015-90 Section 5 modifying G.S. 113A-12.

27. Section 1.5.4, second paragraph: Please explain the relevance of this subject to the proposed project.

RESPONSE: The DEIS text in Section 1.5.4 has been revised.

28. Section 1.5.8, first paragraph, first sentence: The statute referenced compels the Department to develop hydrologic models with approval and modification responsibilities granted to the Commission. Please correct accordingly.

RESPONSE: The DEIS text in Section 1.5.8 has been revised.

Section 2.0

29. Section 2, second paragraph, second sentence: Based on the most recent data presented the population growth rate based on the previous 5-year average is 5.5%, not 7%. Please correct accordingly. This change appears to be consistent with the 1st paragraph in Section 2.2.

RESPONSE: The DEIS text has been revised and updated with 2022 data.

30. Section 2.1.2, second paragraph, last sentence: Please explain the population of 17,500 that are unserved in the service area. How the value was determined and generally why they are currently not served.

RESPONSE: The DEIS text and the Technical Memorandum in Appendix A have been revised to state that the unserved population is on private well systems. The location of the private well systems is provided on Exhibit 2 of the Technical Memorandum in Appendix A.

31. Section 2.1.2, fourth paragraph, third sentence: Please provide details/estimates for the service population growth over the next 5-7 years, describing both the population currently unserved in the service area and the anticipated new residential growth in the service area.

RESPONSE: The fourth paragraph, second sentence in Section 2.1.2 provides an explanation of the population growth in the next 5-7 years. The DEIS text (and Appendix A) has been revised for clarity, as follows: *The Town’s near-term development data was compared to the 2025 TAZ projection data as a cross-check for reasonableness. The Town maintains proposed, approved, or under construction development data in GIS for single and multi-family lots. The Town’s GIS development layer results in an additional 25,750 people that are estimated to be served by the Town in the next 5 to 7 years, which closely correlates to the anticipated 2025 TAZ population estimate.*

32. Section 2.1.2, fifth paragraph, eighth sentence: Please consider providing a demonstration for how the linear best fit method is consistent with the TAZ build-out projections, particularly considering that the population is projected to nearly double in this relatively short time period.

RESPONSE: The TAZ build-out projections were used as an estimate of the build-out in the service area. TAZ projections are very conservative and tend to overestimate population growth and were not used for timing of growth. The Town does not anticipate reaching the TAZ population projection of 134,800 people by 2045 based on the current growth rates. The linear growth fit was the best fit to the Town's historical population growth.

33. Section 2.1.2, fifth paragraph, sentences 10 and 11: It appears that these sentences saying the same thing. Please explain the differences between these two sentences.

RESPONSE: Sentence 11 of the fifth paragraph in Section 2.1.2 was deleted.

34. Section 2.2.1, last paragraph, last sentence: Please explain why the Town expects no reductions in the per capita demand over the planning period. Considering that the past 5-year per capita average (2017-2021) is 79.5 gpcd, please explain why 80 gpcd isn't a more reasonable, yet still conservative, per capita value when estimating long-term demand growth. NCGS 143-355(l) compels water systems to provide plans for reductions in per capita water demand. The historic record provided by LWSPs are our most commonly used method to provide a check on demand projections; however, over the past 15 years the Town has consistently not provided the necessary information to approve their LWSPs or not provided the maximum daily values in the monthly table, critical for IBT calculation of average day maximum month statistic. Therefore, the DWR is left with limited means to adequately validate the historic demands presented in this document. Below is an account of the status of the Town's LWSPs since 2007.

- 2007: not submitted
- 2008: not submitted
- 2009: incomplete
- 2010: incomplete
- 2011: incomplete
- 2012: approved
- 2013: incomplete
- 2014: incomplete
- 2015: approved (no max day values)
- 2016: incomplete
- 2017: approved
- 2018: approved
- 2019: incomplete
- 2020: approved
- 2021: approved (no max day values)

RESPONSE: The Town of Fuquay-Varina has sixteen years of Local Water Supply Plan data submitted to DWR. The Town conducted a review of the record of incomplete plans. The incomplete plan status appears to be a result of demand exceeding supply or an issue with providing a maximum day water demand. The service area demand exceeding supply is indicative of the Town's need to secure a permanent water supply versus continuing to rely on temporary purchase agreements, a point which is documented in the DEIS. The maximum day demand values have been extremely difficult for the Town to extract from multiple utility SCADA systems. The Town has historically purchased the majority of finished water from Harnett County, so the maximum day and month demand statistics for Harnett were used as a surrogate in the DEIS. The Technical Memorandum in Appendix B provides maximum day data from other utilities for comparison. Additionally, technology updates have allowed recent data to be extracted. The Technical Memorandum in Appendix B was updated with the Town's maximum month and maximum day data from 2019 through 2022.

The Town of Fuquay-Varina's average annual purchased water use was 82.3 gpcd between 2012 and 2022. The 75th percentile of the total purchased annual water use was 86.3 gpcd over this same time period. In 2022, the Town's total per capita use declined to an historic low of 75.1 gpcd. As a comparison, the following table provides a summary of per capita use for utilities in the Cape Fear and Neuse River basins based on the most recently approved Local Water Supply Plans. For comparison, the per capita use for Raleigh Water and Cary-Apex is 90.44 and 95.3 gpcd, respectively. Other utilities in the state range from 72 to 125.6 gpcd. The Town's selection of an 85 gpcd use is based on recent data and will account for year-to-year fluctuations in water use. An 85 gpcd is a reasonable per capita assessment for a reliable water supply need over a 30-year period. As documented in the DEIS, data collected in a 2016 national survey by the Water Research Foundation (2016c) published an average total per capita use of 96 gpcd. Per a USGS study published in 2017, domestic 2015 water use by state ranged from 35 to 184 gpcd, with the national average at 82 gpcd (USGS, 2017). The Town of Fuquay-Varina's total per capita use is comparable to utilities in the region and around the country.

Utility	River Basin ¹	Data of Approved Local Water Supply Plan	Residential Per Capital Use, gpcd ^{2,3}	Total Per Capita Use, gpcd ^{2,4}
Raleigh Water	Neuse	2022 LWSP	51.3	90.4
Cary-Apex	Neuse and Cape Fear	2022 LWSP	49.1	95.3
Holly Springs	Neuse and Cape Fear	2022 LWSP	45.5	72.2
Harnett County	Cape Fear	2022 LWSP	49.1	96.1
Johnston County	Neuse	2021 LWSP	53.5	90.1
City of Durham	Cape Fear	2022 LWSP	42.5	93.9
City of Sanford	Cape Fear	2022 LWSP	41.6	135.7
Fayetteville PWC	Cape Fear	2021 LSWP	53.2	125.1
City of Greensboro	Cape Fear	2022 LWSP	52.3	108.5
City of Burlington	Cape Fear	2022 LWSP	50.2	154.1
City of High Point	Cape Fear	2022 LWSP	48.9	114.6
Town of Fuquay-Varina	Neuse and Cape Fear	2022 LWSP	48.1	75.4
Cape Fear Utility Authority	Cape Fear	2022 LWSP	58.7	101.8

¹ Hydrologic river basin boundaries as defined in 1991 by Session Law 712 (General Statute §143-215 22G).

² Data extracted from the most recently approved Local Water Supply Plans.

³ The residential per capita use is the residential service area demand divided by the year-round service area population.

⁴ The total per capita use is the total service area demand (e.g., includes un-accounted for water) divided by the year round service area population.

35. Section 2.2.2, first paragraph, sixth sentence: Please explain why Harnett County's peaking factor was used instead of data from the Town of Fuquay-Varina.

RESPONSE: Maximum day water data was obtained from the Town of Fuquay-Varina's SCADA system for the years 2019 to 2022. The DEIS and Appendix B have been revised to clarify that the Town's water meter data was used to calculate the maximum month and day peaking factors. The Town's data matches the assumptions made using the Harnett County data. However, the Harnett County data has been removed from the text.

36. Section 2.2.2, first paragraph, seventh sentence: Please present the data with the names of the communities used to make this maximum day calculation.

RESPONSE: This data was removed from the DEIS and Appendix B.

37. Table 2-4: Please double-check the 2050 Maximum Month Water Demand value.

RESPONSE: The DEIS was corrected to fix the typographical error in Table 2-4.

38. Section 2.3, first paragraph, eighth sentence: Throughout the document, please ensure that the language is clear regarding the statistic, average day over the maximum month, instead of simply maximum month.

RESPONSE: The DEIS and Appendix A have been revised to clarify this statistic.

39. Section 2.3, first paragraph, last sentence: Consider providing clarity that this is for system-wide demand.

RESPONSE: DEIS Section 2.4 (formerly Section 2.3), first paragraph, last sentence has been revised to state: *“By 2055, approximately 12.5 mgd of water supply will be required to support peak day needs in the Town of Fuquay-Varina’s service area.”*

40. Section 2.3.1, first paragraph: Please provide a citation for this definition for consumptive use. The DWR water supply planning branch uses the term “consumptive” demand as the portion of the demand that is not collected into a centralized wastewater system, primarily lost to the ground in various ways. Based on this, please clarify what the 17.5% represents.

RESPONSE: A citation from USGS was added to Section 2.4.1 (formerly Section 2.3.1). A definition has also been provided with several examples of water that is not returned to the source (e.g., septic systems, firefighting, lawn-watering, etc.). Section 2.4.1 of the DEIS has been further edited. The 17.5% represents the percent of water supplied to the Town of Fuquay-Varina’s service area that is not returned to a centralized wastewater treatment plant.

41. Section 2.3.1, second paragraph, third and fourth sentences: Please clarify, is the author referencing HUC boundaries and state IBT boundaries? A map embedded with the discussion would be very helpful.

RESPONSE: Clarification was provided in the second paragraph in Section 2.4.1 (formerly Section 2.3.1). Figure 1-1 provides an illustration of the Town of Fuquay-Varina’s service area to include the hydrologic and legislated IBT boundary.

42. Section 2.3.1, second paragraph, fifth sentence: Please explain where the Town directly discharges to the Neuse River.

RESPONSE: The second paragraph in Section 2.4 (formerly Section 2.3) was edited for clarity.

Section 3.0

43. Section 3.1, first paragraph, first sentence: For ease of reading, please consider spelling out acronyms that haven’t been used in several sections throughout the document. Also, ensure that all acronyms are appropriately defined throughout the document.

RESPONSE: According to the APA Formatting Style Guide (7th Edition), once an acronym is defined, the acronym may continue to be used for the remainder of the document. A list of acronyms for the DEIS is located in the Table of Contents section. Another round of quality control for acronym use was conducted in the revised DEIS.

44. Section 3.1, first paragraph, third sentence: Please consider including correspondence with Harnett County to avoid expectations or assumptions when discussing alternative selections.

RESPONSE: The Town of Fuquay-Varina has conducted many conversations with Harnett County over the last several years. Harnett County has communicated to the Town that additional water supply would not be provided beyond the current Interlocal Agreement. However, Harnett County did agree to a second temporary Interlocal Agreement with the Town for a temporary capacity of 2 mgd. The new temporary Interlocal Agreement is provided in an Appendix. The DEIS text in Section 1.4.3 has been updated to describe the temporary ILA with Harnett County.

45. Section 3.1, first paragraph, last sentence: Please consider including correspondence with Raleigh to avoid expectations or assumptions when discussing alternative selections.

RESPONSE: The Town of Fuquay-Varina has conducted many conversations with Raleigh Water over the last several years. Raleigh Water has communicated to the Town that the Interlocal Agreements will not be renewed. However, Raleigh Water did agree to a temporary ILA until 2035 after initially denying the Town a renewal. The Interlocal Agreement between the Town and Raleigh Water is provided in an Appendix.

46. Table 3-1: Consider including the current year or 2020 to provide context for the starting point of the projections. Please clarify what the positive or negative values represent. As presented, it appears there is a 1.02 deficit in 2025.

RESPONSE: Table 3-1 was updated to provide the year 2022 as the starting point. The column headers were updated to clarify the data in the table. For example, water supply “deficit” was replaced with water supply “shortfall,” the header of the last column in the table was updated to indicate that a “()” noted a water supply shortfall, and alphabet letters were used to describe the calculation for the shortfall amount.

47. Table 3-2: Consider including totals.

RESPONSE: The DEIS text in Table 3-2 was updated to provide total amounts for bulk finished water sales contracts.

48. Section 3.2.1, fourth paragraph, fourth sentence: Consider including “targets” following “instream flow”, as these are targeted flows, that can be reduced or not met, as needed.

RESPONSE: Section 3.2.1 of the DEIS was updated to add the word “target” following “instream flow.”

49. Section 3.2.1, fifth paragraph, first sentence: Please explain the “source” or the “storage” that is located at the intersection of the two roads.

RESPONSE: The first sentence of the fifth paragraph in Section 3.2.1 has been revised for clarity. The word “combined” has been deleted in the first sentence.

50. Section 3.2.1, fifth paragraph, fifth sentence: Please provide a citation and the lead agency involved in the Biological Opinion.

RESPONSE: The fifth sentence of the fifth paragraph in Section 3.2.1 was revised to state the lead agency. A citation was also provided.

51. Section 3.2.1, fifth paragraph, last sentence: Please provide the year of the drought of record for this site.

RESPONSE: The last sentence of the fifth paragraph in Section 3.2.1 was revised to provide the year of the drought of record.

52. Section 3.2.2, first paragraph, fourth sentence: Consider replacing, “will” with “is projected”, as these are values projected into the future that lack certainty. Likewise, consider adding “projected” between “combined” and “2050”.

RESPONSE: The fourth sentence of the first paragraph in Section 3.2.2 has been revised for this text revision.

53. Section 3.2.2, first paragraph, fifth sentence: Please explain further.

RESPONSE: The DEIS has been edited to total the independent yields of Lakes Benson/Wheeler and Falls Lake compared to the combined yield of both water systems at 99.7 mgd.

54. Section 3.2.2, first paragraph, last sentence: Please state if this is based on current demand.

RESPONSE: The last sentence of the first paragraph in Section 3.2.2 has been edited to clarify that recent water demand projections assume further reductions in total per capita use for Raleigh Water.

55. Section 3.2.2, second paragraph, last sentence: Please explain why the 25th percentile is used.

RESPONSE: Raleigh Water’s water demand projections in the 2021 and 2022 Local Water Supply Plan are based on the analysis from the Integrated Water Master Plan as stated in the EIS. The 25th percentile was selected as the basis for planning, as this projection curve better characterized Raleigh Water’s service area historic demands. The last sentence in the second paragraph has been deleted to avoid confusion.

56. Table 3-3: Please explain why the total average day demand is less than the average day service area demand in 2021 and then again in 2060.

RESPONSE: The data in Table 3-3 has been corrected.

57. Section 3.2.3, first paragraph, last sentence: Consider replacing “suggested that” with “compelled”, as it was the environmental review process that necessitated an alternative analysis.

RESPONSE: This word change edit has been made to the last sentence of the first paragraph in Section 3.2.3.

58. Section 3.2.3, second paragraph, second sentence: Please provide a citation for this statement.

RESPONSE: A citation has been provided in the second sentence of the second paragraph in Section 3.2.3.

59. Section 3.2.3, fourth paragraph, third sentence: Please provide the value and citation for Raleigh Water’s referenced current allocation in Jordan Lake.

RESPONSE: The third sentence of the fourth paragraph in Section 3.2.3 has been revised to “*Future water supply expansion alternatives include raising the Lake Benson and Lake Wheeler water supply pool by 2 feet, a new intake along the Neuse River between Falls dam and the Johnston County line, building of the Little River Reservoir in northeastern Wake County, and a reallocation of the Falls Lake Sediment Storage Pool.*” Raleigh Water rescinded their Jordan Lake Allocation in March 2019, which is discussed in Section 3.7 of the DEIS. A Jordan Lake alternative is no longer among Raleigh

Water's top water supply options.

60. Section 3.2.3.2, first paragraph, third sentence: The second paragraph in Section 3.2.3 states that the reallocation of Falls Lake would satisfy the City's demands for 30 years; however, this sentence states that demands will exceed supply in 25 to 30 years. Please clarify.

RESPONSE: The "30-year" phrase in the second paragraph and second sentence of Section 3.2.3 has been deleted. Section 3.2.3.2 was updated to clarify that Raleigh Water anticipates that service area demands will exceed water supply capacity in the next 20 years based on the projected water demand per Raleigh Water's 2022 LWSP and the current supply system safe yield. The DEIS text was updated with Raleigh Water's 2022 approved Local Water Supply Plan data.

61. Section 3.2.3.2, second paragraph, first sentence: Consider adding "The Town of" at the start of the sentence.

RESPONSE: This edit has been made to the first sentence of the second paragraph in Section 3.2.3.2.

62. Section 3.2.3.2, sixth paragraph, last sentence: Consider stating the county where the dam will be located as well as the county(s) where the impounded waters would be in.

RESPONSE: The seventh paragraph in Section 3.2.3.2 has been revised to state the location of the proposed dam and area of inundation.

63. Section 3.2.3.2, seventh paragraph, first sentence: Without maps embedded in the document where the discussion occurs it is difficult for the reader to visualize these types of topics.

RESPONSE: Refer to the response to Question #23.

64. Section 3.2.3.2, eighth paragraph, fourth sentence: Please consider stating that the minimum release was assumed for the purposes of estimating yield, and please provide a source or methodology for these proposed minimum flow rates.

RESPONSE: The tenth paragraph in Section 3.2.3.2 provided the basis for the proposed minimum release. The tenth paragraph was moved to the ninth paragraph position.

65. Section 3.2.3.2, eighth paragraph, fifth sentence: Please replace "developed" with "revised".

RESPONSE: This edit has been made to the fifth sentence in the eighth paragraph in Section 3.2.3.2.

66. Section 3.2.3.2, ninth paragraph, fifth sentence: Please consider replacing "defacto reuse" with "guidance", as this common situation is not generally viewed as "reuse" water since the treated waters have been discharged into a flowing body of water.

RESPONSE: This revision has been made to the fifth sentence of the ninth paragraph in Section 3.2.3.2.

67. Section 3.2.3.2, ninth paragraph, sixth sentence: Likewise, from the previous comment, please consider changing the statement "recycle loop" as it suggests that the treated waters are not being discharged into a body of water, but directly "recycled" by another water system. "Inputs" seems like an acceptable replacement.

RESPONSE: The sixth sentence of the ninth paragraph in Section 3.2.3.2 has been revised.

68. Section 3.2.3.2, ninth paragraph, last sentence: Consider avoiding the term “returned” as most of this treated wastewater originated in the Cape Fear River Basin, not the Neuse River Basin.

RESPONSE: The last sentence of the ninth paragraph in Section 3.2.3.2 has been revised to state, *“Under prevailing summer and fall conditions in 2055, the majority of the stored water in the reservoir contents would consist of wastewater discharged from the three aforementioned wastewater treatment facilities upstream of the proposed reservoir.”*

69. Section 3.2.4, second paragraph: Consider acknowledging that the alternative does satisfies the long-term demands for the Town. The Town’s lack of long-term planning years ago should not be the burden of the lead agency to select a preferred alternative solely because it will take too long to fully meet the defined long-term purpose and need. If this is the situation, then a short-term solution may need to be initiated while the long-term solution is evaluated, permitted and instituted.

RESPONSE: Per Section 1-1 of the DEIS, the Town initiated the planning process for water supply in 2016 with a Request for Proposals for a Water Capacity Study. Scoping for the proposed IBT project started in January 2019 after several years of the Town attempting to negotiate Interlocal Agreements for additional water with neighboring communities. The several years of unsuccessful negotiation resulted in a redirection to secure (e.g., purchase) permanent water supply capacity in lieu of continued negotiation of Interlocal Agreements.

A proposed Middle Creek reservoir was rejected due to the timeframe required for constructing new reservoirs in North Carolina, particularly reservoirs with state and federally threatened and endangered species. There are 6,662 impoundments and reservoirs in North Carolina per the Dam Inventory List from the Division of Energy, Mineral, and Land Resources (DEMLR). Approximately 480 publicly owned (federal, state, or local government) reservoirs or impoundments are used for flood control, water supply, and recreation. Approximately one-half of the largest reservoirs in North Carolina were constructed in the early 1900s for hydroelectric power (refer to the Summary of Constructed Reservoirs table in response to Fred Tarver’s comment #2). The remaining half of North Carolina’s largest reservoirs were constructed in the mid-1950s and 1960s. The most recent reservoir constructed in North Carolina is Randleman Lake, which finished construction in 2010. Randleman Lake was originally proposed in 1937 with engineering work continuing through 1987, at which point the U.S. Army Corps of Engineers withdrew support. The current Randleman Lake is a smaller version of the original proposal and is designated for water supply.

In 2011, the Division of Water Resources (Tom Reeder) presented to the Senate Environmental Review Commission a list of North Carolina reservoirs that had been constructed within 20 years of 2011. The reservoir examples provided by DWR included the Rocky River Lower Reservoir expansion (Charles L. Turner Reservoir) in 2009, Horse Creek Reservoir (off-line storage) in 2008, the Nicks Creek Reservoir modifications in 2002, the West Fork Eno Reservoir in 2000, the Macintosh Reservoir in 1993, Lake Howell in 1993, Stewarts Creek Reservoir expansion in 1992, and Back Creek Reservoir in 1991. The most recent 2009 Rocky River Lower Reservoir expansion project for Siler City started in 1989 with construction finished in 2009. The presentation by DWR highlighted the complexities and long timeframes typically associated with constructing new reservoirs in North Carolina.

70. Section 3.3, second paragraph, first sentence: Please state if this is based on average day demand or other statistic or time scale.

RESPONSE: The first sentence of the second paragraph in Section 3.3 has been revised to clarify the text.

71. Table 3-5: Considering that 4 water systems are regular purchasers of water without a contract amount, please explain the accuracy of 8.5 mgd.

RESPONSE: Johnston County's contract with the Town of Selma is for emergency only. A contract amount is not specified. The other four communities without a contract amount are community water systems (CWS). A footnote was added to Table 3-6 (formerly Table 3-5) to clarify that Johnston County does not have a contract with Community Water Systems in the County's water service area. However, the water sold is tracked in the Local Water Supply Plan.

72. Section 3.3, third paragraph, last sentence: Consider including a tabular breakdown of the 7.0 mgd in 2050 in Table 3-6.

RESPONSE: Table 3-7 (formerly Table 3-6) has been revised to sum the total contract amounts, excluding emergency use contracts. Section 3.3 has also been updated to reflect Johnston County's 2022 approved LWSP.

73. Section 3.3.1, first paragraph, fourth sentence: Please consider avoiding the term "allocated" in this context. DWR has not allocated a specific amount of guaranteed water supply to Johnston County.

RESPONSE: The fourth sentence of first paragraph in Section 3.3.1 was revised.

74. Section 3.3.1, first paragraph, last sentence: This sentence could be confusing to a reader as it lacks context that the projected plant discharges have been effectively subtracted from the 20% of the 7Q10 withdrawal limitation.

RESPONSE: The last sentence of the first paragraph in Section 3.3.1 was revised to indicate a maximum raw water withdrawal of 17 mgd. Additionally, Section 3.3.1 was revised to state that Johnston County is expanding the Timothy G. Broome WTP to 18 mgd by managing the on-site raw water storage system.

75. Section 3.3.2, second paragraph, fourth sentence: Please explain why the use of groundwater presents correlation issues.

RESPONSE: A sentence was added to the second paragraph of Section 3.3.2 as follows: "*Private groundwater use is not included in the County's total water use projections.*"

76. Section 3.3.2, third paragraph, last sentence: Please consider including the projected demands of the ECIA developed by the Town and County.

RESPONSE: The third paragraph in Section 3.3.2 has been revised to clarify that the Town of Clayton's LWSP includes the anticipated water purchase from Johnston County.

77. Section 3.3.2, fourth paragraph, fourth sentence: Please consider including the projected growth rate between 2040 and 2050.

RESPONSE: The fourth paragraph in Section 3.3.2 was revised.

78. Section 3.3.2, fourth paragraph, last sentence: Recommend ending with "demands."

RESPONSE: The fourth paragraph in Section 3.3.2 was revised.

79. Section 3.3.3, first paragraph, third & last sentence: These sentences appear to say the same thing, please explain any differences.

RESPONSE: The last sentence of the first paragraph in Section 3.3.3 was deleted.

80. Section 3.3.3.1, second paragraph, last sentence: Please include the entire citation for the second general statute referenced.

RESPONSE: Section 3.3.2 has been updated to reflect recent updates to Johnston County's Long Range Water Supply Plan. Section 3.3.3.1 has been deleted.

81. Section 3.3.3.2.2, second paragraph, first sentence: Please consider adding, "option" or a similar word following "Richardson Bridge Road".

RESPONSE: Section 3.3.3 has been updated to reflect recent updates to Johnston County's Long Range Water Supply Plan. Section 3.3.3.2 has been deleted.

82. Section 3.3.4, second paragraph, last sentence: Please double-check this statement to ensure accuracy.

RESPONSE: The last sentence in the second paragraph in Section 3.3.4 was deleted as the WS-IV classification is already in place for this location.

83. Section 3.4.1, second paragraph: Please refer to comments #66, 67, & 68 and make appropriate corrections.

RESPONSE: These corrections were made to Section 3.4.1 of the DEIS.

84. Section 3.4.2: Consider acknowledging that the alternative does satisfies the long-term demands for the Town.

RESPONSE: The text in Section 3.4.2 has been revised.

85. Section 3.5, first paragraph: Please ensure clarity throughout the document that the subbasins mentioned referred to IBT defined basins to avoid confusion with HUC unit basins.

RESPONSE: To avoid repetition in the document, a new paragraph in Section 1.5.2 has been added as follows: "*The hydrologic river basin boundaries were defined in 1991 by Session Law 712 (General Statute §143-215 22G). The Cape Fear River is designated as basin 2-3. The Neuse River basin is designated as 10-1. The river basin designations used in Section 3 (Alternatives Analysis) and elsewhere in this EIS refer to the hydrologic river basin as defined by General Statute §143-215 22G.*"

86. Section 3.5.1, first paragraph, fifth sentence: Please consider explaining the relevance of this statement.

RESPONSE: The fifth sentence in the first paragraph of Section 3.5.1 was deleted.

87. Section 3.5.1, first paragraph, sixth & seventh sentences: Please ensure that the values presented are consistent with the values presented in Table 3-10. Please provide explanations for any differences in calculation.

RESPONSE: The first paragraph in Section 3.5.1 has been revised.

88. Table 3-10: Please explain the fluctuating projected sales values (i.e., increasing, decreasing, and increasing again). The total demand in 2060 appears to be different based on the other values presented. Please ensure that the methodology for calculating peaking factors (i.e., previous 5-year average) are consistent throughout the document.

RESPONSE: The data in Table 3-10 was as per reported on the City of Dunn's 2021 Local Water Supply Plan. Table 3-10 has been updated with data from the approved 2022 LWSP. The

methodology for calculating peaking factors is consistent throughout the DEIS.

89. Section 3.5.3, first paragraph, first sentence: Please explain which portion of the Administrative Rule requirements are being referenced.

RESPONSE: The first sentence of the first paragraph in Section 3.5.3 was revised to clarify that 15A NCAC 01C .0408(2)(b)(1) is being referenced.

90. Section 3.5.3, fourth sentence: It is advisable that alternative analysis decisions should not be made based on environmental field data over 20 years old, particularly when more recent data is readily available or could be calculated.

RESPONSE: The 7Q10 data for this analysis is from the Division of Cape Fear Water Resources Report dated 2002. There have been no stream flow metric updates from the USGS or DWR since that time. The statement was made in the DEIS that sufficient allowable water withdrawal is available to the City of Dunn.

91. Section 3.5.3, first paragraph, fifth sentence: Please use caution with use of the term “allowable”, as there is no specific water withdrawal permitting in this portion of North Carolina, and the referenced Administrative Rule allows for withdrawals greater than the referenced statistic (not mentioned in this discussion) through site-specific investigations.

RESPONSE: The term “allowable” was replaced with “available.”

92. Section 3.5.3, first paragraph, last sentence: When mentioning “water withdrawal” is this a reference to available capacity?

RESPONSE: The last sentence of the first paragraph in Section 3.5.3 was revised as follows:
“Regardless of the anticipated decline in the 7Q10, sufficient water supply is available to the City of Dunn for future water supply expansions over the next planning period.”

93. Section 3.5.4, first paragraph, third sentence: Please define “re-rate” in this context.

RESPONSE: A new sentence was added to the first paragraph of Section 3.5.4 to define the re-rating of a facility.

94. Section 3.5.4, third paragraph, first sentence: Please explain what is meant by “re-rate for capacity recovery”.

RESPONSE: The first sentence of the third paragraph in Section 3.5.4 has been revised.

95. Section 3.5.4, sixth paragraph: Please state if construction of a terminal raw water reservoir part of the proposed package for this alternative.

RESPONSE: The sixth paragraph in Section 3.5.4 has been revised to clarify that a terminal reservoir is included. Additionally, the table in Section 3.15 includes a terminal reservoir in the summary infrastructure for this alternative.

96. Section 3.6, second paragraph, second sentence: Please state if this breakdown represents the “service” population. If so, please consider also providing the demand percentages.

RESPONSE: The second paragraph in Section 3.6 has been revised to clarify that the percentage breakdown is for the service area population. A statement has also been added that this data is from Harnett County’s LWSP. The LWSP does not provide a breakdown of water demand by County.

97. Global: Ensure that footnotes from tables presented have the referenced footnotes on every page they are used.

RESPONSE: Each table has “header row repeat” programming to maintain the table title and table column headers with the applicable footnotes if a table has to break pages. Many of the tables in the EIS contain a significant amount of data, so table breaks across pages are occasionally necessary. The document format does not allow footnotes in the page footer.

98. Section 3.6.1, first paragraph, fourth sentence: Please consider stating that the discharges are allowed through the issuance of an NPDES permit, instead of “via”.

RESPONSE: The fourth sentence of the first paragraph in Section 3.6.1 has been revised.

99. Section 3.6.1, first paragraph, fifth sentence: Please explain the relevancy of this information.

RESPONSE: The first paragraph in Section 3.6.1 has been revised as follows: “*Per the Harnett County 2022 LWSP, the County has purchased land for a new water treatment plant and intake on the Cape Fear River near the Town of Erwin. Harnett County has not initiated any studies to permit water infrastructure at this site.*” This sentence is a description of the data provided in the approved 2022 LWSP.

100. Section 3.6.1, first paragraph, sixth sentence: Please state by type, name and number which permit is referenced. There are no specific water withdrawal permits in this part of the state. Please consider including a copy of the “permit” in the Appendix.

RESPONSE: The first paragraph in Section 3.6.1 has been revised as follows: “*Per the Harnett County 2022 LWSP, the County has purchased land for a new water treatment plant and intake on the Cape Fear River near the Town of Erwin. Harnett County has not initiated any studies to permit water infrastructure at this site.*”

101. Section 3.6.2, first paragraph: Comments #89, 90, & 91 are also applicable to this paragraph. Please correct accordingly.

RESPONSE: The text in Section 3.6.3 has been revised per DWR comments #89 and #91. To address comment #90, Hazen calculated a revised 7Q10 at the Lillington gage (sixth sentence in the second paragraph).

102. Section 3.6.2, second paragraph: Please consider providing documentation from the USGS if this revised 7Q10 calculation has been verified. Please provide relevant information from the EA and associated FONSI prepared for the Harnett County 42 mgd WTP expansion.

RESPONSE: Per the response to comment #100, the first paragraph in Section 3.6.1 has been revised as follows: “*Per the Harnett County 2021 LWSP, the County has purchased land for a new water treatment plant and intake on the Cape Fear River near the Town of Erwin. Harnett County has not initiated any studies to permit water infrastructure at this site.*”

Section 3.6.2 has been revised to reflect the 7Q10 determination from USGS in September 2023.

103. Section 3.6.3, first paragraph, last sentence: Provide an explanation for the 1.5% annual growth factor.

RESPONSE: The annual growth rate was calculated from the data provided in Harnett County's Local Water Supply Plan using a slope and intercept specific to the ten year time period.

104. Global: Ensure the document is consistent when referring to Towns and Cities, that these entities should be referred to as the Town of... or the City of...

RESPONSE: The DEIS was revised to refer to communities as “City of” or “Town of.”

105. Section 3.6.3, second paragraph, fifth sentence: Please explain why this analysis is being conducted with TAZ data instead of using the full contract amounts as presented in the LWSP, as was done for all other similar analyses.

RESPONSE: The LWSP was used in the analysis. Section 3.6.3 has been edited to remove the extraneous information.

106. Section 3.6.3, fourth paragraph, third sentence: Table 3-12 appears to suggest that the annual growth rate between current and 2030 is 1.48%, not 1.34%. Please explain or correct.

RESPONSE: The third sentence in the fourth paragraph in Section 3.6.3 has been revised.

107. Global: Ensure the document is consistent with use of significant digits.

RESPONSE: The data in the tables from Local Water Supply Plans are reported in the DEIS with the number of significant digits as published on the DWR website. Otherwise, standard practices for reported data with significant digits were used.

108. Section 3.6.3, fourth paragraph, sixth sentence: It is important to note if the EA and associated FONSI from the Harnett County WTP expansion provide any details to future expansion.

RESPONSE: The DEIS text in Section 3.6.1 has been revised to state that per the Harnett County 2022 LWSP, Harnett County has purchased land for a new water treatment plant and intake on the Cape Fear River near the Town of Erwin. Harnett County has not initiated any studies to permit water infrastructure at this site.

109. Section 3.6.3, fourth paragraph, sixth sentence: Please explain if the “planning numbers” referenced related to the values presented in Table 3-12 or are they from the “Master Plan”. If they are from the “Master Plan”, please provide these values and provide explanations if they are significantly different to the values presented in Table 3-12.

RESPONSE: Section 3.6.3 has been revised to clarify that the data provided in Table 3-12 is from the County’s Local Water Supply Plan. The water sales projections are supported by the 2017 Master Plan (Hazen, 2017).

110. Table 3-12: Please provide an explanation for the large jump in demand between 2021 and 2030 as compared to the other years.

RESPONSE: The data in Table 3-14 (formerly Table 3-12) was updated to reflect Harnett County’s approved 2022 Local Water Supply Plan. Section 3.6.3 has been revised to include a new second paragraph stating that the Town of Holly Springs, the Town of Fuquay-Varina, and Johnston County are anticipated to purchase finished water from Harnett County up to these community’s entire contract amounts by 2030.

111. Section 3.6.4, second paragraph, first sentence: Please explain the contracted amount of 23.9 mgd, in context with the reported contract amounts of 10 mgd for the Town of Holly Springs and 2 mgd to the Town of Fuquay-Varina in 2040. Please provide details and what is meant by the “Northwest and East Central Pressure Zones”, as this is the reference in the document.

RESPONSE: The first sentence of second paragraph of Section 3.6.4 has been revised as follows:
“The firm pumping capacity needed to supply projected 2040 demands via the 36 inch transmission

main (Harnett County's Northwest and East Central pressure zones) is 23.9 mgd, which is the sum of the contract amount for the Town of Holly Springs at 10 mgd, the Town of Fuquay-Varina at 2 mgd, and the anticipated Harnett County demand of 11.9 mgd."

112. Section 3.6.4, second paragraph, second sentence: Is this a "firm pumping" capacity as stated in the proceeding sentence, or is this the capacity to meet the contractual amounts?

RESPONSE: Firm pumping capacity is defined as the largest pump unit out of service. The word "firm" has been deleted to avoid confusion, as this term is more applicable for use in a preliminary engineering report.

113. Section 3.6.4, third paragraph, first sentence: Please provide a date or state if this demand is through the planning period.

RESPONSE: The first sentence of the third paragraph in Section 3.6.4 has been revised as follows: *"Harnett County would need to provide an additional 11 mgd by 2050 to meet the projected maximum day water demand from the Town of Fuquay-Varina."*

114. Section 3.6.4, fourth paragraph, second sentence: Table 3-12 references 2021 LWSP projection data; however, this sentence references 2020 LWSP projections. Please explain the differences and why both years are used in the analysis. The 2021 LWSP shows that Harnett County can meet projected demands and contractual operations well beyond 2040, without an expansion of the existing WTP. This is achievable through development of a proposed 10 mgd WTP near the Town of Erwin. This document should discuss the proposed WTP and how that might provide additional capacity in the existing Harnett County WTP.

RESPONSE: The DEIS was updated with Harnett County's 2021 LWSP prior to submittal to DWR in July 2022. A few references to the Harnett County 2020 LWSP were inadvertently missed in the July 2022 DEIS. The DEIS has been updated to reflect the approved 2022 LWSP data.

Regarding Harnett County's new raw water intake and 10 mgd water treatment plant site near the Town of Erwin, the first sentence in the fourth paragraph of Section 3.6.4 states the following: *"Harnett County will require an expansion of the Regional WTP or the construction of a new 10 mgd WTP in the next 20-year planning period to meet Harnett County's current service area demands and wholesale contract obligations."* A new sentence has been added as follows: *"Harnett County's wholesale obligations do not extend additional water supply to the Town of Fuquay-Varina."*

The first paragraph of Section 3.6.1 has also been revised to add the following: *"Per the Harnett County 2022 LWSP, the County has purchased land for a new 10 mgd water treatment plant and raw water intake on the Cape Fear River near the Town of Erwin. The new raw water intake site became available when Harnett County purchased the Town of Erwin's water system. Per Harnett County's 2022 LWSP, a new intake and water treatment facility near the Town of Erwin is anticipated to supply the eastern portion of Harnett County and Johnston County at the intersection of Highway 210 and 50 and Highway 27 at the Johnston County Line. Harnett County has not initiated any studies to permit water infrastructure at this site."*

115. Section 3.6.4, fourth paragraph, last sentence: Please provide details regarding the required improvements to the distribution system and raw water intake and how these would differ from other alternatives presented.

RESPONSE: The last sentence in the fourth paragraph in Section 3.6.4 has been deleted. Section 3.6.4 has been extensively edited to clarify the proposed improvements for Alternative 5.

116. Section 3.6: Please include any correspondence from Harnett County detailing their position to provide additional water supply capacity to the Town of Fuquay-Varina. Similarly, the document needs to include any correspondence with Harnett County regarding their position regarding an

expansion of the North Harnett WWTP beyond the 6 mgd expansion in an existing ILA. The best location for this information is left to the authors discretion (i.e., Sections: 3.6, 3.8.2.1, 3.10).

RESPONSE: The Town has conducted many conversations with Harnett County over the last several years. Harnett County has communicated to the Town that additional water supply would not be provided beyond the current Interlocal Agreement. However, the Town of Fuquay-Varina negotiated with Harnett County in 2022 for an additional 2 mgd increase in water allocation until 2032. The 2022 ILA with Harnett County is a temporary measure to provide water to the Town to mitigate the anticipated extended timing of construction of the City of Sanford's Water Treatment Plant and the associated finished water transmission main. Section 1.4.3.2 of the DEIS has been revised to include the 2022 ILA.

117. Section 3.6.5, first paragraph, first sentence: It has not been demonstrated that merely continuing the purchase of water from Harnett County would necessitate an IBT. Please consider rewording or strike from the document.

RESPONSE: Section 3.6.5 of the DEIS has been revised. The third paragraph provides a statement that a purchase of water from the Town of Fuquay-Varina from Harnett County will result in an interbasin transfer from the Cape Fear to the Neuse River basin. A sentence has been added to the third paragraph as follows: *"The Town of Fuquay-Varina's water demand in 2055 will exceed the average day in a maximum month threshold threshold per General Statute §143-215.22L as stated in Section 2 of this EIS."*

118. Section 3.6.5, second paragraph, first sentence: Table 3-11 only depicts a contractual amount for the Town of 2 mgd ending in 2040; however, this sentence suggests there is a new ILA that provides an additional 2 mgd (total of 4 mgd) that ends in 2035. This needs to be clarified throughout Section 3.6.

RESPONSE: Section 1.4.3 and Table 1-1 of the DEIS has been revised to describe the additional 2 mgd from Harnett County until 2032. This additional 2 mgd was not explicitly included in the IBT calculations. The Town of Fuquay-Varina agreement with Harnett County is a temporary measure to provide water to the Town to mitigate the anticipated extended timing of construction of the City of Sanford's Water Treatment Plant and the associated finished water transmission main. The Town of Fuquay-Varina will not utilize the temporary lease agreement for the additional 2 mgd from Harnett County once the City of Sanford's Water Treatment Plant expansion project is completed. The reference to the temporary ILA was deleted from Section 3.6.5 as this information does not provide value to the analysis.

119. Section 3.6.5, second paragraph, second sentence: Please provide any information/documentation regarding Harnett County's position on continuing the ILA signed in 2022 for the additional 2 mgd.

RESPONSE: Please see response to comment #118.

120. Section 3.6.5, third paragraph, second sentence: Please consider providing context to this sentence, that this extremely high jump in demand is because the full contract amounts are used to estimate projected demand and that in actuality this demand is highly unlikely, but obligations exist.

RESPONSE: Section 3.6.5 has been extensively edited to respond to the preceding comments. The original referenced third paragraph has been edited as follows: *"Harnett County's water supply capacity is fully allocated to the growth and development needs of Harnett County's service area over the next 20-year planning period. Harnett County's water supply capacity also fulfills the existing obligations to the County's wholesale communities to provide bulk finished water. By 2040, Harnett County is anticipated to maximize the 42 mgd Regional WTP capacity (refer Harnett County's water demand projections in Table 3-14). Based on the updated 7Q10 estimate at the Lillington gage, Harnett County may be required to conduct an instream flow study to further increase withdrawals per 15A NCAC 01C .0408(2)(b)(1)."*

121. Section 3.6.5, third paragraph, third sentence: This appears to be in conflict with the preceding sentence, that the demands will decrease to 42 mgd in 2040 from 43 mgd in 2030. Please consider including a table that details the projected demands in ten-year increments for each purchaser and total system for Harnett County.

RESPONSE: The original DEIS text stated that the Harnett County was anticipated to have an average day water demand of 43 mgd by 2030 and the Harnett County Regional WTP will be maximized on capacity by 2040. Per response to comment #112, Section 3.6.5 of the DEIS has been revised extensively to address the preceding comments.

122. Section 3.7.1.1, second paragraph, second sentence: Please consider providing context to “water supply storage” to avoid a misinterpretation that the State of North Carolina owns all of the water backed up by Jordan Lake. A diagram or figure might be helpful.

RESPONSE: The second and third sentences of the second paragraph in Section 3.7.1.1 were revised as follows: *“The State of North Carolina requested that the USACE include water supply in the total lake storage volume. The State of North Carolina subsequently purchased the water supply fraction of the total storage in Jordan Lake.”*

123. Section 3.7.1.1, second paragraph, fourth sentence: Please consider adding “allocation” following “water supply”.

RESPONSE: This edit has been made to Section 3.7.1.1 of the DEIS.

124. Section 3.7.1.1, second paragraph, sixth sentence: Please consider rewording the statement that the minimum release from Jordan Lake is “no less than 40 cfs”, particularly before stating the minimum flow target under normal conditions.

RESPONSE: The second paragraph in Section 3.7.1.1 has been edited to state that the minimum release from Jordan Lake is no less than 40 cfs and not in the same context as the flow target at the Lillington gage.

125. Section 3.7.1.1, second paragraph, seventh sentence: Please include that the minimum flow is plus or minus 50 cfs from the published minimum flow target. Please consider providing the minimum release target schedule for drought or low-inflow conditions.

RESPONSE: The second paragraph of Section 3.7.1.1 has been revised to add the +/- 50 cfs tolerance to the Lillington flow target. The DEIS text was also edited to reference Appendix C for the drought stage flow targets in lieu of listing the entire drought stage flow targets in the DEIS to avoid lengthy detail in the main DEIS text.

126. Section 3.7.1.1, second paragraph, eighth sentence: Please provide a citation and date range for this statistical calculation.

RESPONSE: The 1998 USGS citation has been added to the second paragraph in Section 3.7.1.1.

127. Section 3.7.1.1, third paragraph, first sentence: Please define what is meant by the “conservation storage” and how that relates to the aforementioned water quality pool and water supply storage. A graphic may prove helpful.

RESPONSE: A sentence has been added to the third paragraph in Section 3.7.1.1 as follows: *“Conservation storage is defined as the sum of water supply volume and low flow augmentation volume.”*

128. Section 3.7.1.1, third paragraph, second sentence: Please clarify whether “conservation storage” is intended or “water supply storage”. Please be consistent with this language. Please consider stating that the water supply pool is a percentage-based calculation. For simplicity purposes, it is often discussed as 100 mgd; however, the actual yield is estimated to be higher than that. The Round 4 Allocation document may provide a reasonable explanation to be included and referenced. Please ensure any corrections are made throughout the document for consistency.

RESPONSE: The second sentence of the third paragraph in Section 3.7.1.1 has been revised to clarify that “water supply storage” is being referenced. A citation has been provided. A DWR presentation from August 2014 to Round 4 Jordan Lake Applicants describes modeling that indicated a yield greater than 100 mgd; however, on slide 10 of this presentation, DWR stated the safe yield estimate of 100 mgd will be maintained. In paragraph 1 of Section 3.7.1.3 it is clearly stated that allocations are on a percentage basis.

129. Section 3.7.1.3, first paragraph, first and second sentences: Please provide a citation for these statements.

RESPONSE: A citation has been provided for the first and second sentences of the first paragraph in Section 3.7.1.3.

130. Section 3.7.1.3, second paragraph, last sentence: Please provide a citation for this statement.

RESPONSE: A citation has been added for the last sentence of the second paragraph in Section 3.7.1.3.

131. Section 3.7.1.3, third paragraph, sixth sentence: To meet the purpose of this document, impacts to recreation, including boating, in Jordan Lake needs to be evaluated quantitatively.

RESPONSE: The sixth sentence of the third paragraph in Section 3.7.1.3 is referencing the DWR Round 4 modeling results with respect to recreation. A sentence was added (with a citation) as follows: *“For the 2060 demand scenario, the Round 4 modeling results anticipated the minimum water surface elevations approximately 2.4 feet lower than the minimum water levels projected with the 2010 baseline scenario and amount of time the water surface elevation drops below 214 MSL increases from 10 to 15 percent of the time (DWR, 2016a).”*

132. Section 3.7.1.3, third paragraph, seventh sentence: Please provide a citation for this statement or state that this evaluation was conducted for the purposes of this project.

RESPONSE: The seventh sentence of the third paragraph in Section 3.7.1.3 was edited to clarify that the statement is referencing the Round 4 modeling by DWR. A citation has been provided.

133. Section 3.7.1.3, fourth paragraph, first sentence: Please consider replacing “an increase” with “a revised”, as the reallocation process is not necessarily initiated to simply increase the allocations. Please note, the EMC did not entirely support the recommendations from the DWR; therefore, the last statement is misleading.

RESPONSE: The first sentence of the fourth paragraph in Section 3.7.1.3 was revised to replace “an increase” with “a revised.” The last sentence in the fourth paragraph has been deleted. The new last sentence in the fourth paragraph has been revised to state: *“The revised Jordan Lake allocation is 91.2 mgd out of the total 100 mgd safe yield.”*

134. Table 3-13, footnote 1: Please explain what is meant by “OWASA is a supporting partner”.

RESPONSE: As of late 2023, OWASA is financially participating in the Western Intake Partnership. This statement was deleted from the DEIS.

135. Section 3.7.2, second paragraph, third sentence: Please consider being explicit regarding which town is being discussed. Throughout most the document “The Town” refers to the Town of Fuquay-Varina.

RESPONSE: The third sentence of the second paragraph in Section 3.7.2 has been revised to clarify the reference to the Town of Apex. The entire DEIS has been reviewed to clarify the specific Town/City/County being referenced in a specific section.

136. Section 3.7.2, third paragraph, second sentence: Please explain why this alternative requires a new raw water intake in Jordan Lake. Please explain why this or another alternative is not considering purchasing the water from the Town of Cary.

RESPONSE: The text in Section 3.7 of the DEIS has been reorganized. In lieu of a combined summary in Section 3.7.4, a summary for Alternative 6 has been added to Section 3.7.2 and a summary for Alternative 7 has been added to Section 3.7.3. The summary text in the new Section 3.7.2.4 (Alternative 6) provides an explanation for the Towns of Cary and Apex requiring additional water supply until 2045. A new raw water intake was assumed for the purposes of comparison in the environmental impact analysis.

137. Table 3-14: For this table to have value to the document, the contract amounts and expiration dates need to be completed, please consider contacting the water systems to determine these values.

RESPONSE: Contract amounts are not listed in the approved Local Water Supply Plans for emergency non-recurring contracts. The data in table 3-16 (formerly Table 3-14) references the information from the approved Local Water Supply Plans.

138. Table 3-15: Considering that there is only one value presented, the value of this table is questionable.

RESPONSE Table 3-17 (formerly Table 3-15) was included to match all of the other tables in the DEIS summarizing water supply purchase contracts. The value of Table 3-17 is to demonstrate that the Towns of Cary and Apex do not have regular water supply purchase contracts with other utilities. All of the water supply purchase contracts for the Towns of Cary and Apex are for emergency use only. A sentence was added to the end of the third paragraph in Section 3.7.2: “*The Town of Apex and the Town of Cary do not have contracts to purchase a regular supply of water from a neighboring utility.*”

139. Section 3.7.2.1, first paragraph, fifth sentence: Please consider adding “River Basin” following “Neuse”.

RESPONSE This edit was made to the fifth sentence of the first paragraph in Section 3.7.2.1.

140. Global: For consistency, please consider including the IBT basin codes for all references to IBT river basins or HUC basin codes for hydrologic river basins throughout the document.

RESPONSE Please refer to the response to comment #85. To avoid repetition in the document, a new paragraph in Section 1.5.2 has been added as follows: “*The hydrologic river basin boundaries were defined in 1991 by Session Law 712 (General Statute §143-215 22G). The Cape Fear River is designated as basin 2-3. The Neuse River basin is designated as 10-1. The river basin designations used in Section 3 (Alternatives Analysis) and elsewhere in this EIS refer to the hydrologic river basin as defined by General Statute §143-215 22G.*”

141. Section 3.7.2.1, first paragraph, last sentence: Please consider providing an explanation of the formula for required returns to the Cape Fear Basin through the Western Wake WRF, based on the Cary/Apex IBT settlement agreement.

RESPONSE A paragraph was added to Section 3.7.2.1 that provides an explanation of the 2018 Consent Judgement for the required returns to the Cape Fear and Haw River basins.

142. Section 3.7.2.2, first paragraph, last sentence: Please explain what is meant by “build-out” in this context.

RESPONSE The last sentence of the first paragraph in Section 3.7.2.2 has been revised as follows: *“The LRWRP identified the year 2065 for the Towns of Cary and Apex to reach the limit of potential development in the service area (e.g., build-out).”*

143. Section 3.7.2.2, second paragraph, second sentence: Since Wake County does not have a LWSP and the table does not contain any information for the eastern half of the Wake County, please explain which County is being discussed.

RESPONSE The second sentence in the second paragraph in Section 3.7.2.2 has been revised as follows: *“The summarized data is based on the Town of Cary’s approved 2022 LWSP and LRWRP.”*

144. Section 3.7.2.2, second paragraph: Please consider providing data related to 2055, the end of the planning period for this proposed project. The numerous values and dates in the text without context is confusing.

RESPONSE The year 2055 was added to Table 3-18 (formerly Table 3-16). The second paragraph in Section 3.7.2.2 was updated to report the 2055 water metrics (e.g., maximum day, maximum day withdrawal).

145. Table 3-16, third footnote: This table appears to blend data from LWSP and LRWRP; therefore, please be explicit regarding the source of the data for every value. Please ensure this data is from similar years and projection efforts. Please provide an explanation if the LWSP values are different than what is presented in the LRWRP. Demand projections are provided in the LWSP for 2050 and 2060 demands.

RESPONSE The footnotes in Table 3-18 (formerly Table 3-16) have been revised to indicate that the Town of Cary’s water use projection data are from the Town’s 2022 approved LWSP. The Town of Cary’s approved 2022 LWSP references the Town of Cary’s Long Range Water Resources Plan Update (Jacobs, 2018). Per the note in Section 5 of the approved 2022 LWSP (and footnoted in Table 3-18), the Town of Cary’s projections represent the 75th percentile forecast per Appendix B Section 3.12 and 3.13 of the Long Range Water Resources Plan Update.

146. Section 3.7.2.3, first paragraph, last sentence: Please provide the projected size of the expanded plant.

RESPONSE The Town of Cary’s Long Range Water Resources Plan does not provide a planned incremental expansion of the Towns of Cary/Apex Water Treatment Plant. Therefore, the DEIS text was not revised.

147. Section 3.7.2.3, second paragraph: Please provide a citation for the source used.

RESPONSE The second paragraph in Section 3.7.2.3 was revised to reference, with citation, the Town of Cary’s Long Range Water Resources Plan.

148. Section 3.7.3, second paragraph, second sentence: It is unlikely a third intake will be granted in Jordan Lake; therefore, please explain why this alternative requires a new raw water intake in Jordan Lake and new WTP, and why this or another alternative is not considering the purchase of water from the Western Intake Partnership. This applied to the Cary/Apex intake alternative as well.

RESPONSE A new Section 3.7.2.4 (Summary for Alternative 6, Raw Water Supply from Towns of Cary, Apex, and Morrisville) was added to the DEIS. The following sentences have been added to the second paragraph of Section 3.7.2.4: *"This alternative was carried forward in the EIS for an environmental impact analysis as a comparison to other alternatives. To assess the environmental impact of this alternative, it was assumed that a new raw water intake could be located adjacent to the raw water intake for the Towns of Cary and Apex."* Similar reorganization and text was added to Section 3.7.3.

149. Section 3.7.3.1, first paragraph, second sentence: Please clarify or confirm that Chatham County has a separate intake from the Town of Cary's intake for the independent 3 mgd WTP as stated.

RESPONSE The second sentence of the first paragraph in Section 3.7.3.1 was revised to clarify that Chatham County uses the Cary/Apex raw water intake as the raw water supply for the County's 3 mgd water Jordan Lake Water Treatment Plant.

150. Section 3.7.3.2, first paragraph, fourth sentence: Please explain how Chatham Park and associated development fits into these growth rates, or not at all.

RESPONSE Chatham Park and associated growth is included in the Town of Pittsboro projections. A footnote has been added to Table 3-19 (formerly Table 3-17) and the first paragraph of Section 3.7.3.2 has been edited to include this statement.

151. Table 3-18: Please explain how the total raw water supply for OWASA increases by 5 mgd, between 2021 and 2030, while the Jordan Lake portion only increases by 0.5 mgd during the same time period.

RESPONSE Table 3-20 (formerly Table 3-18) reflects current water supply planning for OWASA.

152. Section 3.7.4: Please provide projected demand values for the end year of the planning period, 2055, for this proposed project.

RESPONSE The text in Section 3.7.4 has been edited and re-organized. A new Section 3.7.3.4 (Summary for Alternative 7, Raw Water Supply from Western Intake Partners) was added. The projected 2055 water demand was added for the Western Intake Partners, as follows: *"In 2055, the total average day water demand is anticipated to be 61.6 mgd for all four Partners."*

153. Section 3.7.4, second paragraph, last sentence: Please provide correspondence or documentation to support this statement.

RESPONSE This statement was deleted from the DEIS text as a result of the reorganization and edits to Section 3.7.2 and 3.7.3.

154. Section 3.7.4, third paragraph, fifth sentence: This seems to be a misleading statement that water systems will be unable to meet their maximum day demands based on the Jordan Lake allocation, without considering that the Partners have other sources of water supply. Please clarify.

RESPONSE This statement was deleted from the DEIS text as a result of the reorganization and edits to Section 3.7.2 and 3.7.3.

155. Section 3.7.4, fourth paragraph, first sentence: Please clarify that “Chatham County North” was included in the 2002 Jordan Lake allocation.

RESPONSE The fourth paragraph in Section 3.7.4 has been deleted from the DEIS text as a result of the reorganization and edits to Sections 3.7.2, 3.7.3, and 3.7.4. The current third paragraph in Section 3.7.4 has been revised as follows: *“Approximately 8.8 mgd of additional allocation is available out of the 100 mgd safe yield in Jordan Lake. It is unknown at this time when a Round 5 application process might be initiated. However, the communities with a long-term investment in the Jordan Lake allocation process for water resources planning and infrastructure may receive higher priority in a future allocation process. The Towns of Cary/Apex and the Western Intake Partnership (e.g., City of Durham, Chatham County North, OWASA, and the Town of Pittsboro) have demonstrated a clear purpose and need to be granted a water supply allocation in Jordan Lake. The remaining communities with water allocation have also demonstrated a purpose and need for the water supply.”*

156. Section 3.7.4, sixth paragraph, first sentence: DWR respectfully challenges this statement, considering that Interstate 540 along with other significant develop activities in the southern portion of Wake County have been planned for decades. Additionally, 2030 population projections in the 2002 LWSP are comparable to the 2030 projections in the 2019 LWSP.

RESPONSE This statement was deleted from the DEIS text as a result of the reorganization and edits to Section 3.7.2 and 3.7.3. However, the text edits have been made to Section 2.2 and Section 3.7.4.

In Section 2.2, the following paragraphs were added with a new Table 2-2: *“Growth in Wake County and the Piedmont region has been significant due to several factors. The I-540 interchange has been in the planning process since the mid-1990s. The first stretch of I-540 opened in 1999 and the Triangle Expressway Southeast Extension (e.g., between the Town of Holly Springs and the Town of Garner) is under construction after approximately 15 years of delay. More significantly to the growth pressure is the recent economic development drive by the North Carolina Department of Commerce and the Economic Development Partnership of North Carolina (EDPNC) to attract industry to North Carolina. Founded as a non-profit in 2014, EDPNC is funded both by a contract with the North Carolina Department of Commerce and by private investment to provide economic development services. EPDNC, in partnership with the North Carolina Department of Commerce, has been highly successful in attracting new industry to the Piedmont region.”*

“The population projections documented in the Town of Fuquay Varina’s LWSPs reflect the activity in the region given the uncertainties with the timing of NCDOT road projects and other economic development activities. The Town of Fuquay-Varina has adjusted population projections in the annual LWSPs as warranted by activity in the region. Table 2-2 provides a summary of the population projections as reported in the Town of Fuquay-Varina’s LWSPs compared to the historic population. The following are observations with respect to the historic population compared to the population projections in the LWSPs:

- The 2010 population projection as reported in the 1989 Diehl and Phillips study, the 2006 LWSP, and the 2009 LWSP was 19,184 people compared to the 2010 historic population of 17,937 people.*
- The 2020 population projection as reported in the 2010 LWSP was 27,662 people compared to the historic 2020 population of 33,000 people.*
- The 2020 population projection as reported in the 2016 LWSP was 31,105 people compared to the historic 2020 population of 33,000 people.*
- The 2030 population projection as reported in the 2002 LWPS was 43,724 people as compared to a population projection of 51,530 people as reported in the 2022 LWSP.*

Hazen and Sawyer updated the Town of Fuquay-Varina’s population projections to support the proposed request for an interbasin transfer. The Town commissioned Hazen in early 2019 to begin the planning process. The population projections as reported in the Town of Fuquay-Varina’s 2020,

2021, and 2022 LWSPs reflect the updated planning estimates for the proposed project.”

Table 2-2: Population Projections as Reported in Town of Fuquay-Varina’s Local Water Supply Plans Compared to Historic Population

Local Water Supply Plan Year	Historic Population	Population Projection As Reported for a Local Water Supply Plan Planning Year						
		2010	2020	2030	2040	2050	2060	2070
1989 Study ¹		19,148	21,405					
1997 LWSP	6,249	18,268	38,942					
2002 LWSP	10,335	14,510	25,188	43,724				
2006 LWSP	14,584	19,184	30,684	42,184	53,684	65,184		
2009 LWSP	15,000	19,184	30,684	42,184	53,684	65,184		
2010 LWSP	17,937	17,937	27,662	42,162	59,662	77,162	94,662	
2011 LWSP	18,600		27,662	42,162	59,662	77,162	94,662	
2012 LWSP	19,674		27,662	42,162	59,662	77,162	94,662	
2013 LWSP	19,804		27,662	42,162	59,662	77,162	94,662	
2014 LWSP	21,653		27,662	42,162	59,662	77,162	94,662	
2015 LWSP	22,920		27,662	42,162	59,662	77,162	94,662	
2016 LWSP	26,105		31,105	43,605	56,105	68,605	73,733	
2017 LWSP	27,600		31,105	43,605	56,105	68,605	73,733	
2018 LWSP	29,450		32,395	45,350	58,960	70,750	77,830	
2019 LWSP	29,200		32,395	45,350	58,960	70,750	77,830	
2020 LWSP ²	33,000		33,000	51,530	70,290	89,050	108,000	126,000
2021 LWSP ²	34,152			51,530	70,290	89,050	108,000	126,000
2022 LWSP ²	39,468			51,530	70,290	89,050	108,000	126,000

¹ Diehl and Philips (1989).

² The Town of Fuquay-Varina’s LWSP reflects IBT planning projections.

Significant revisions were also made to Section 3.7.4, as follows:

“The application process for a water supply allocation in Jordan Lake is a lengthy and complicated process. The Round 2 application process started in 2000 with an EMC decision in 2002. The process for Round 4 allocations was initiated in 2009, applications were submitted in 2014, and a final decision from the EMC was in 2017 (e.g., 8 years). The majority of communities that were granted water allocation in Jordan Lake are located proximate to the Lake, have historically been using Jordan Lake as water supply, or have identified Jordan Lake as a future water supply source in water resources planning efforts.

In 2009 when the Jordan Lake Round 4 application process started, the Town of Fuquay-Varina population was 15,000 people with an associated water demand of 1.8 mgd. A prior planning study by Diehl and Phillips (1989) estimated a 2010 population of approximately 19,000 people and a 2020 population of 21,400 people. During the Round 4 Jordan Lake Allocation process, the Town of Fuquay-Varina had sufficient water supply as a wholesale customer to Raleigh Water, Johnston County, and Harnett County.

The growth in Wake County has been significant due to several factors. The I-540 interchange has

been in the planning process since the mid-1990s with the initial stretch opening in 1999. The Triangle Expressway Southeast Extension connecting the Towns of Holly Springs and Garner is under construction after approximately 15 years of delay. More significantly is the recent economic development activity by the North Carolina Department of Commerce and the EDPNC. Founded as a non-profit in 2014, EDPNC is funded both by a contract with the North Carolina Department of Commerce and by private investment to provide economic development services to attract industry to North Carolina. EDPNC, in partnership with the North Carolina Department of Commerce, has been highly successful in attracting new industry to the Piedmont region.

The Town of Fuquay-Varina is a secondary recipient of the growth in the Piedmont region. The Town has not gained new industry but is instead planning around the effects of residential and commercial growth to support surrounding communities' industrial growth. The Town of Fuquay-Varina's growth started to accelerate in 2016, at which point the Town commissioned the Water Capacity Study (WithersRavenel|Freese and Nichols, 2017).

Approximately 8.8 mgd of additional allocation is available out of the 100 mgd safe yield in Jordan Lake. It is unknown at this time when a Round 5 application process might be initiated. However, the communities with a long-term investment in the Jordan Lake allocation process for water resources planning and infrastructure may receive higher priority in a future allocation process. The Towns of Cary/Apex and the Western Intake Partnership (e.g., City of Durham, Chatham County North, OWASA, and the Town of Pittsboro) have demonstrated a clear purpose and need to be granted a water supply allocation in Jordan Lake. The remaining communities with water allocation have also demonstrated a purpose and need for the water supply."

157. Section 3.7.4, seventh paragraph, third sentence: Please clarify that the Jordan Lake water supply allocations are based demonstratable projected needs by the neighboring communities. Other than the fact that these communities have been financially paying for allocations based on their long-range planning, the assertion of "higher priority" is questionable.

RESPONSE The text in Section 3.7.4 has been edited significantly. Please refer to the fifth paragraph in the response to comment #156.

158. Section 3.7.4, eighth paragraph, fourth sentence: Please provide a citation and explain the details.

RESPONSE A citation has been added to the now sixth paragraph in Section 3.7.4 (post revisions).

159. Section 3.8.2, first paragraph, sixth sentence: Please provide the current use of the property and the capacity/spec limits of the former WWTP throughout the document where appropriate.

RESPONSE A new paragraph has been added to Section 3.8.2, as follows: *"The proposed infrastructure for Alternative 8 includes a return of water to the Cape Fear River. The Town of Fuquay-Varina previously owned and operated a 1.2 mgd Kenneth Branch WWTP in the Town's portion of the service area in the Cape Fear River basin. However, the Town decommissioned the Kenneth Branch WWTP in 2006 and rescinded the NPDES permit NC0028118 (NCDENR, 2008). The effluent outfall for the Kenneth Branch WWTP was located in the headwaters of Kenneth Creek. Kenneth Creek is a tributary to Neals Creek, which is tributary to the Cape Fear River upstream of the Town of Lillington. The Town of Fuquay-Varina deeded the property to the Wake County Public School System in 2022. The Wake County Public School System is currently constructing middle and elementary schools on this property. Monthly average effluent NPDES permit limits for the Kenneth Creek WWTP included 16 mg/L biochemical oxygen demand (BOD), 30 mg/L total suspended solids (TSS), 5 mg/L of ammonia in summer (April 1 to October 31), and 13 mg/L of ammonia in winter (November 1 to March 31)."*

A discussion of the capacity of the Town of Fuquay-Varina's 36-inch interceptor was also included in Section 3.8.2. Please reference response to comment #24.

160. Section 3.8.2, third paragraph, third sentence: Please consider providing an explanation for “non-tributary flow.”

RESPONSE A discussion of the Town of Fuquay-Varina's wastewater flow projections has been moved to a new Section 2.3 of the DEIS. A definition for “non-tributary flow” has been provided in a new Table in Section 3.8.2.1.

161. Section 3.8.2, third paragraph, last sentence: Please provide a year for “build-out”. Please provide a value for 2055, as that is the final year of the planning period for this proposed project.

RESPONSE A wastewater flow projection for the year 2055 has been provided in Section 2.3 in a new Table 2-7.

162. Section 3.8.2.1, second paragraph, first sentence: Please consider including this document from DWR in the appendix.

RESPONSE Due to the amount of time that has passed since the submittal of the DEIS for completeness review, Harnett County has received an NPDES permit for the proposed expansion of the North Harnett Regional WWTP. The inclusion of a speculative limits request letter is no longer necessary. A new Table 3-23 has been added to Section 3.8.2.1 summarizing the North Harnett Regional WWTP effluent limits at 7.5 and 16.5 mgd.

163. Section 3.8.2.1, second paragraph, sixth sentence: Please include water balance tables based on current, 2035, 2045, and 2055 projections to detail the proposed IBT request.

RESPONSE The water balance tables were already included in Section 2 of the DEIS. All of the finished water delivered to the Neuse River basin is discharged to the Neuse River basin and all of the finished water delivered to the Cape Fear River basin is discharged to the Cape Fear River basin. Per Section 2.4 of the DEIS, the only consumptive loss is the 512 homes located geographically in the Cape Fear River basin but in the Neuse River basin per G.S. §143-215 22G. The water balance for the Town of Fuquay-Varina is included in Appendix C of the DEIS.

164. Section 3.8.2.2, first paragraph, third sentence: Please consider including this document from DWR in the appendix and explaining the details of the tiered effluent limits.

RESPONSE The NPDES permit for the Terrible Creek WWTP is included in an Appendix.

165. Section 3.8.2.2, second paragraph, third sentence: Please confirm and provide documentation in the appendix that the Town has secured the sufficient nitrogen credits to support the expanded discharge to 6 mgd.

RESPONSE The NPDES permit for the Terrible Creek WWTP is included in an Appendix. A new paragraph has been added to Section 3.8.2.2 as follows: *“The Town of Fuquay-Varina’s Terrible Creek WWTP expansion to 6 mgd will satisfy the Town’s wastewater capacity needs in the Neuse service area over the next 20-year planning period per DWR guidance (2019). The wastewater flow projection in the Neuse service area is anticipated to be between 3.3 and 6.3 mgd by 2045. The Town of Fuquay-Varina may not require an expansion of the Terrible Creek WWTP post 2045, as a range of wastewater flow projections is predicted to be between 4.0 and 7.6 mgd by 2055 depending on the rate of growth. If an expansion of the Terrible Creek WWTP is necessary post 2045, the Town of Fuquay-Varina will be able to meet the annual mass load of 68,065 pound per year (lb/yr) total nitrogen per the NPDES permit with conventional activated sludge treatment technology.”*

166. Section 3.8.2.2, second paragraph, third sentence: Please provide an explanation for how the Town will meet 3 mg/L N concentration limit for the proposed 6 mgd expansion, given that under the current WWTP 3.75 mg/L is the best achievable.

RESPONSE The second paragraph in Section 3.8.2.2 has been rewritten to state the following: *“The Town of Fuquay-Varina’s Terrible Creek WWTP expansion to 6 mgd will satisfy the Town’s wastewater capacity needs in the Neuse service area over the next 20-year planning period per DWR guidance (2019). The wastewater flow projection in the Neuse service area is anticipated to be between 3.3 and 6.3 mgd by 2045. The Town of Fuquay-Varina may not require an expansion of the Terrible Creek WWTP expansion post 2045, as a range of wastewater flow projections is predicted to be between 4.0 and 7.6 mgd by 2055 depending on the rate of growth. If an expansion of the Terrible Creek WWTP is necessary post 2045, the Town of Fuquay-Varina will be able to meet the annual mass load of 68,065 pound per year (lb/yr) total nitrogen per the NPDES permit with conventional activated sludge treatment technology.”*

Conventional activated sludge plants have successfully achieved effluent total nitrogen concentrations at approximately 2 mg/L.

167. Section 3.8.2.2, second paragraph, last sentence: Please clarify the requested IBT value based on 2055 projections. This needs to be stated throughout the document in a consistent fashion. The demonstration mentioned in the preceding sentence may need to occur in concert with or prior to issuance of an IBT Certificate.

RESPONSE Section 3.8.2 has been significantly revised to clarify technical points. A new introductory paragraph in Section 3.8.2 has been added to define the 2055 wastewater flow projections, as follows:

The proposed infrastructure for Alternative 8 includes a return of water to the Cape Fear River. Per the DWR Guidance Document for facilities requesting a new or expanding NPDES discharge permit, utilities must document the associated population growth over a 20-year planning period (DWR, 2019). In this analysis, the 20-year planning period for a potential wastewater capacity project would be before the year 2045. Per Section 2.3, wastewater flow projections in the Cape Fear service area are anticipated to be between 3.4 and 6.3 mgd by 2045 and between 4.1 and 7.6 mgd by 2055 depending on the rate of growth in the service area. The wastewater flow projection in the Neuse service area is anticipated to be between 3.3 and 6.3 mgd by 2045 and between 4.0 and 7.6 mgd by 2055.

For Alternative 8, the following effluent disposal options were evaluated:

- *Use of Town of Fuquay-Varina’s existing 36-inch interceptor and ILA with Harnett County*
- *Use of Town of Fuquay-Varina’s Existing Wastewater Treatment Facilities in the Neuse River Basin*
- *Use of Capacity in the Town of Holly Springs Utley Creek WRF*
- *A new outfall to the Cape Fear River*

Per the response to comments #165 and #166, if an expansion of the Terrible Creek WWTP is necessary, the Town will be able to meet the annual mass load of 68,065 pound per year (lb/yr) total nitrogen per the NPDES permit with conventional activated sludge treatment technology.

168. Section 3.8.2.3, third paragraph, fourth sentence: Please provide a projected year for build-out.

RESPONSE The projected year for the Town of Holly Springs build-out was not provided in the Master Plan. However, a sentence was added to the third paragraph in Section 3.8.2.3 that build-out will likely occur post 2055.

169. Section 3.8.2: There needs to be an evaluation for sending wastewater flows to the Western Wake WRF. The evaluation should include documentation from the owners of the WWTP as to their willingness to cooperate. This appears to be an appropriate section to include this; however, the location of this evaluation in the document is the discretion of the author.

RESPONSE Email correspondence from the Town of Cary has been provided in an Appendix. Alternative 9D has been added to the DEIS to discuss a return of flow to the Cape Fear River basin via the Western Wake WRF.

170. Section 3.8.2.4, third paragraph, third sentence: Please identify the approximate location of the proposed outfall in the Cape Fear River.

RESPONSE The third paragraph in Section 3.8.2.4 has been deleted. However, a sentence has been added to the second paragraph, as follows: *"Figure 3-10 provides the location of the proposed effluent outfall across the river from the North Harnett Regional WWTP downstream of Highway 210."*

171. Section 3.8.2.4, second paragraph, first sentence: Please confirm that this section of the Cape Fear River is classified as Nutrient Sensitive Waters (NSW) or consider rephrasing.

RESPONSE All water quality discussions have been relocated to Sections 4.14 and 5.15. The DEIS text has been revised to state that the Cape Fear River basin is not nutrient impaired and not classified as Nutrient Sensitive.

172. Section 3.8.2.4, second paragraph, second sentence: Please confirm that this section of the Cape Fear River is classified "impaired" or consider rephrasing. The last sentence in this paragraph states that the Cape Fear River is not listed for any impairments. Please clarify these statements.

RESPONSE All water quality discussions have been relocated to Sections 4.14 and 5.15. The DEIS text has been revised to state that the Cape Fear River basin is not nutrient impaired and not classified as Nutrient Sensitive.

173. Section 3.8.2.4, second paragraph, third sentence: Please provide an explanation in this context for what is meant by "frozen".

RESPONSE All water quality discussions have been relocated to Sections 4.14 and 5.15. The DEIS text has been revised to state that the Cape Fear River basin is not nutrient impaired and not classified as Nutrient Sensitive.

174. Section 3.8.2.4, second paragraph, fourth sentence: In order to fully evaluate this alternative and other similar solutions, as compelled by the EIS process, a water quality modeling evaluation needs to be conducted for potential treated wastewater discharges into the Cape Fear River. This should be done before these alternatives can be regarded as infeasible or impractical.

RESPONSE The DEIS has been revised to add a new Section 2.3 to discuss the Town of Fuquay-Varina's wastewater flow projections. The DEIS Section 3.8.2 has been heavily revised for clarification. Text has been added to the third paragraph of Section 3.8.3 (Summary) as follows: *"The Town of Fuquay-Varina has sufficient wastewater capacity in the Town's Neuse River service to support future wastewater capacity needs over the 20-year planning period for wastewater. It is also likely that the Town of Fuquay-Varina will have sufficient wastewater capacity in the Cape Fear service area over the 20-year planning period for wastewater depending on the rate of growth. Refer to Sections 5.14 and 5.15 for a discussion of water quantity and quality of a return of water to the Cape Fear River basin, respectively."*

175. Section 3.8.2.4, fourth paragraph, second sentence: Please explain the existing water quality issue at the proposed outfall location, if the standard cannot be exceeded more than 10% of the time, as stated in the third paragraph, and is only exceeded 2.5 to 3.3% of the time, as stated in the fourth paragraph. This was described as an “impairment” in the second paragraph of this section.

RESPONSE This sentence has been deleted from the DEIS as the data is older compared to newer data collected by DWR. In lieu of specific water quality data, Nora Deemer’s discussion (second comment) has been added to the DEIS in Section 4.14 and 5.15.

176. Section 3.8.2.4, fourth paragraph, fourth sentence: Please provide a date/year of the data sample and the concentrations reported.

RESPONSE This sentence has been deleted from the DEIS as the data is older compared to newer data collected by DWR. In lieu of specific water quality data, Nora Deemer’s discussion per her second comment has been added to the DEIS in Section 4.14 and 5.15.

177. Section 3.8.2.4, fourth paragraph, fifth, sixth, and seventh sentences: Please provide dates/years of the data samples and the concentrations reported.

RESPONSE Please see the response to comment #176.

178. Section 3.8.2.4, sixth paragraph: Please provide the reader with context for this information considering the previous water quality information in this section. Please detail any communication or consultation with the USFWS that has occurred regarding the proposed outfall location.

RESPONSE The information in the paragraph has been moved to the appropriate section (5.13.2). The introductory paragraphs for this section specify the sources of information used. Coordination with USFWS will occur if a population of a federally protected species is found to be present in a project area associated with the selected alternative.

179. Section 3.8.3, first paragraph, last sentence: Having not fully investigated the potential for this option, this statement seems to be more of an assumption by the author.

RESPONSE Instream flow studies are very time consuming and expensive. The following table has been added to the DEIS as Table 1-2 in Section 1.5.4 and referenced in Section 3.8.3:

Instream Flow Study Project	Fee	Fee Date	Timeframe	Fee in 2023\$¹
Tar River	\$1,180,000	2009	8 years	\$1,780,000
Swift Creek	\$1,400,000	2006	7 years	\$2,310,000
Savannah River	\$673,000	2007	5 years	\$1,080,000
James River	\$780,000	2007	5 years	\$1,250,000
Russian River	\$923,000	2007	> 6 years	\$1,480,000

¹ Fees updated to 2023 dollars using an annual 3% per year inflation.

180. Section 3.8.3, second paragraph, last sentence: Please ensure the accuracy of this statement is consistent with other statements made throughout this document. Also, confirm this value is based on 2055 (30-year planning period) projections.

RESPONSE Section 3.8.3 of the DEIS has been revised. The last sentence of the second paragraph has been deleted. The second paragraph of Section 3.8.3 has been revised for clarification, as follows: “A return of treated effluent to the Cape Fear River may offset the impact of the proposed withdrawal. A total maximum withdrawal of 13 mgd is required to meet the projected maximum day water demand for the Town of Fuquay-Varina, which is equivalent to an annual average withdrawal

of 8.4 mgd. A proposed 11 mgd withdrawal would be supplemented by the Town's contractual amount to purchase 2 mgd from Harnett County. A wastewater return of 6 mgd would be required per the interbasin transfer calculations in Table 2-8 in 2055."

181. Section 3.8.3, third paragraph, last sentence: Please explain how this meets the requirements for this proposed IBT EIS that is based on a 30-year planning horizon (2025-2055), not 20-25 years.

RESPONSE The last sentence in the now second paragraph of Section 3.8.3 has been revised as follows: "A wastewater return of 6 mgd would be required per the interbasin transfer calculations in Table 2-8 in 2055." The last sentence in the third paragraph was deleted.

182. Section 3.8.3, fourth paragraph, second sentence: That is often the case when conducting alternative analyses for an EIS. Please explain why this EIS is excused from fully evaluating all alternatives presented.

RESPONSE The fourth paragraph of Section 3.8.3 has been deleted for clarity. Section 3.8.3 has been revised for clarity.

For all alternatives, revisions to the purpose and need statements have been made per the suggestion of David Wainwright in these comments. Not all of the alternatives fully meet the purpose and need of the proposed project. The Town of Fuquay-Varina has signed an interlocal agreement with the City of Sanford to implement a regional solution to water supply in the Cape Fear River.

183. Section 3.9, first paragraph, last sentence: Please identify specifically which entity(s) are responsible for each of the various infrastructure projects mentioned.

RESPONSE A sentence has been added to the first paragraph of Section 3.9, as follows: "*The City of Sanford is the lead agency for the design of the entire project with the Partners participating in the process.*"

184. Section 3.9, third paragraph, first sentence: This is not an accurate statement. Though the City does fall under the "cork rule" provision, this does not absolve the City from accounting for the consumptive losses in the portion of their service area that is within the receiving basin (i.e., Deep River). Updated "Surface Water Transfer Worksheets" specifically for the City of Sanford need to be included with this EIS document, detailing the current (2025), 2035, 2045, and 2055 projected transfers.

RESPONSE A water balance table for the City of Sanford has been provided in an Appendix.

185. Section 3.9, third paragraph, last sentence: Please provide a brief explanation for why the City's peaking factor is so high (nearly 2).

RESPONSE The 2021 data as documented in the DEIS was as reported on the City of Sanford's approved 2021 LWSP. The DEIS text has been updated to include the provisional 2022 LWSP data. Annual average to maximum day demand peaking factors will vary from year to year. The third sentence in the third paragraph has been revised to reflect the 2022 annual average water demand of 7.87 mgd and a maximum day demand of 10.4 mgd.

186. Table 3-20: Please explain why 3 of the 4 regular sales contracts have expired and if these water sales are still occurring.

RESPONSE The data in Table 3-24 (Formerly Table 3-20) has been updated with 2022 values from the approved 2022 LWSP.

187. Section 3.9, fifth paragraph, second sentence: Please provide a citation.

RESPONSE A citation has been provided for the second sentence of the fifth paragraph.

188. Section 3.9, fifth paragraph, third sentence: Please explain the relevance of Chatham County and specifically the Moncure Industrial Park to the City of Sanford.

RESPONSE A sentence has been added to the fifth paragraph in Section 3.9, as follows: *“Water and wastewater services for industry in Moncure Park will be provided by the City of Sanford.”*

189. Table 3-21: Please consider providing an explanation regarding the need of additional water resources from the City of Sanford for the Town of Pittsboro and Chatham County beyond the supplies provided by Jordan Lake, as discussed in Section 3.7.

RESPONSE The sixth paragraph in Section 3.9 has been revised to clarify other water supply sources used by the City of Sanford’s regional partners.

190. Section 3.9.3, second paragraph, fifth sentence: Please clarify, is the reference to “the City’s terminal reservoir” referring to Buckhorn Dam? If not, please describe the role the Buckhorn Dam has on the City of Sanford’s intake.

RESPONSE The second paragraph has been revised to clarify that the terminal reservoir is a raw water storage reservoir. Additionally, the second paragraph of Section 3.9.3 has been revised to add the following sentences: *“The PER did not recommend an expansion of the City’s terminal (e.g., raw water storage reservoir), for which the DWR Public Water Supply Section concurred in March 2021. The City pumps raw water from the Cape Fear River into the terminal reservoir to allow a few days of raw water storage prior to treatment.”*

The second paragraph of Section 3.9.3 has also been revised to add the following sentences: *“For the 30 mgd expansion, the existing raw water intake structure will be replaced with a pair of new cylindrical wedge-wire intake screens installed farther out in the river to accommodate low river flow. The new screens will include a removable spool piece that will allow the screens to be dropped down to a minimum operable level. This design consideration is in anticipation of the future possibility that Buckhorn dam could be lowered or removed. The existing intake screens will be demolished.”*

191. Section 3.9.3, third paragraph, fourth sentence: Please provide a citation.

RESPONSE A citation has been provided for the fourth sentence of the third paragraph in Section 3.9.3.

192. Section 3.9.3, fourth paragraph, fourth sentence: Please consider including a demonstration of effectiveness of the proposed GAC system (appendix) and committing to the installation of the specialized treatment system to avoid the transfer of waters with known concentrations of emerging compounds to waters within a receiving basin with potentially lower existing concentrations of emerging compounds. A commitment in the mitigation section of the EIS is encouraged.

RESPONSE A sentence has been added to the fourth paragraph of Section 3.9.3 to clarify that granular activated carbon (GAC) treatment for PFAS compounds is included in the design of the City of Sanford’s WFF expansion. GAC is a proven technology for PFAS removal. A Technical Memorandum outlining rapid small scale carbon tests (RSSCTs) for carbon and PFAS for the City of Sanford has been provided in an Appendix of the DEIS.

193. Section 3.9.4, third paragraph, last sentence: Please consider identifying the “separate process” involved with permitting these facilities. Additionally, These infrastructure facilities should be included in the estimated project costs, similar to the other alternatives evaluated.

RESPONSE The last sentence of the third paragraph in Section 3.9.4 has been revised as follows: *“The City of Sanford has obtained construction-related permits for the WFF expansion and raw water intake improvements.”* The opinion of probable project costs for Alternative 9 include engineering

fees related to obtaining construction permits.

194. Section 3.10, third paragraph, second sentence: This sentence states that the Cape Fear River is formally impaired, nutrient sensitive waters; however, earlier no formal impairments are listed and the river appears to not be classified as NSW (nutrient sensitive waters). Please clarify.

RESPONSE All water quality discussions have been relocated to Sections 4.14 and 5.15. Per Nora Deamer's comments, the DEIS text has been revised to state that the Cape Fear River basin is not nutrient impaired and not classified as Nutrient Sensitive.

195. Section 3.11: Please consider adding more information specific to the Fuquay-Varina area than is provided.

RESPONSE Literature is not available specific to groundwater quantity or quality in the Town of Fuquay-Varina service area. Section 3.12 (formerly Section 3.11) has been revised to reflect the 2022 USGS groundwater study in Wake County (refer to response to Comment #200) and DHHS water quality data specific to Wake County (refer to response to Comment #202).

196. Section 3.11, first paragraph: Please consider adding clarification between sentences two and four, considering that sentence three states they are "parallel" (i.e., "more than" and "approximately"). Please explain the context between the last two sentences. The document reads as if PWS wells are primarily used for irrigation.

RESPONSE The second and last sentences in the first paragraph of Section 3.12 (formerly Section 3.11) have been deleted to avoid confusion.

197. Section 3.11, second paragraph, last sentence: Please consider explaining the type of well the "GC" classification is used for and why the EMC is involved.

RESPONSE The last sentence of the second paragraph in Section 3.12 (formerly Section 3.11) has been revised as follows: *"A Class GC designation is assigned for groundwaters in which water quality is degraded and cannot be improved with treatment. Class GC designations are determined by the EMC on a case by case basis per 15A NCAC 02L .021."*

198. Section 3.11.1, first paragraph, third sentence: Please explain what is meant by "perception" in this context. Perhaps a citation if needed.

RESPONSE The third sentence of the first paragraph in Section 3.12.1 (formerly Section 3.11.1) has been revised as follows: *"The Town of Fuquay-Varina service area spans the fall line boundary between the Piedmont and Coastal Plain Physiographic Provinces. Groundwater in the Blue Ridge and Piedmont has not been traditionally considered for large water supply sources due to readily available surface water supplies and low groundwater yields."* The term "perception" should not have been used in this sentence.

199. Section 3.11.1, third paragraph, last sentence: Please explain if every well includes private and/or non-drinking water wells.

RESPONSE The last sentence of the third paragraph in Section 3.12.1 (formerly Section 3.11.1) has been revised to clarify that a 100 foot radius is required around every public water supply well for well point protection.

200. Section 3.11.1, sixth paragraph: Please consider identifying the systems reviewed to provide context to the relevancy of these selected. Please provide any communication you may have had with these systems, particularly regarding the accuracy of the listed well yields over time and other long-term

issues. Please provide any communication with Wake County, who has been conducting a significant, long- range groundwater study, including how their results compare to the results in this document.

RESPONSE This Wake County groundwater report was not available at the time the DEIS was going through Hazen quality control for submittal to DWR in early summer 2022. The sixth paragraph in Section 3.12.1 (formerly Section 3.11.1) used DWR approved LWSP data from Aqua North Carolina in Wake County and Micro in Johnston County for representative well yields. This sixth paragraph in Section 3.12.1 (formerly Section 3.11.1) has been deleted and replaced with the following new paragraph: *"In May 2022, USGS in conjunction with Wake County Environmental Services published an Assessment of Well Yield, Dominant Fractures, and Groundwater Recharge in North Carolina. This study characterized the fractured rock aquifer system to assess the sustainability of groundwater for the purpose of water use decisions. USGS inventoried all of the wells in Wake County and conducted a graphical analysis of well construction (e.g., well depth) to identify the correlation between well yield and well depth. Maximum well yield varied across Wake County, ranging from 0.1 to 150 gpm with a median well yield of 10 gpm. The 75th percentile of the well yield data from USGS was 20 gpm. USGS stated that new well yields will likely range between zero and the maximum value of 150 gpm."*

The USGS study supports the conclusion in the DEIS that limited well yield is available for large water supply systems.

201. Section 3.11.1, eighth paragraph, second sentence: Please consider if Alternative 10 was considered as a "minimization" alternative to the IBT, as described in the first sentence of the paragraph, then explain why the full 8.4 mgd average day of the entire service area was evaluated. Please provide any other considerations given, including if the Neuse River basin portion of the service area was supplemented by groundwater to avoid an IBT. The use of "minimization" to describe this alternative is also found in the first sentence of the first paragraph of Section 3.11.

RESPONSE Section 3.12 (formerly Section 3.11) was revised to only include the 2055 water demands from the Town of Fuquay-Varina's Neuse service area. The well yield was also revised from 30 to 20 gpm/day to reflect the 75th percentile of the data from the 2022 USGS groundwater study in Wake County per response to Comment #201.

202. Section 3.11.3, third paragraph, sixth sentence: Please identify the location of the study and results presented.

RESPONSE Third paragraph in Section 3.12.3 (formerly Section 3.11.3) was edited to remove the water quality sampling reference. The fourth paragraph in this section was revised as follows: *"A study of private well groundwater quality sampling occurred between 2008 and 2009 and between 2018 and 2019 (DWR, 2021). The data was collected by the North Carolina Department of Human Health Services and analyzed by the State Laboratory for Public Health. The data was provided to DWR. The data indicated that private Wake County wells exceeded groundwater quality standards at 0.62 percent, 1.9 percent, and 5.4 percent for arsenic, copper, and lead, respectively. Iron, manganese, and zinc exceeded secondary groundwater standards at 23.91 percent, 22.68 percent, and 1.37 percent respectively. A 2015 study (DWR, 2015b) indicated a low susceptibility of radon in groundwater in Wake County in the vicinity of the Town of Fuquay-Varina's service area. Based on these available studies, groundwater quality in the proposed well field area appears to be variable."*

203. Section 3.11.3, third paragraph, sixth sentence: Please identify the location of the study and results presented in context with the Fuquay-Varina area. Please confirm these results and findings from the cited document.

RESPONSE Please refer to the response to Comment #202. The third paragraph has been revised to only report the groundwater quality data from Wake County, which includes the service area for the Town of Fuquay-Varina.

204. Section 3.12, second paragraph, last sentence: Please spell out the acronym, SDWA.

RESPONSE The acronym for SDWA was spelled out in the last sentence of the second paragraph in Section 3.13 (formerly Section 3.12) as well as added to the acronym list.

205. Section 3.12.1, third paragraph: A water system withdrawing water from a water body that contains some fraction of treated wastewater produced from an entity upstream is not generally considered “reuse” or “de facto reuse”. To present the information in this context, provide citations, specific to NC. In NC, reuse generally refers to the use of treated wastewater prior to the discharge in a body of water. Many water systems across the state participate in reuse programs for a wide-variety of reasons, to include a reduction in the total discharge to a body of water to meet wastewater discharge (NPDES) permitting requirements. Unless the author is able to present a citation in rule or statute, the “five-mile’ de facto policy” is guidance provided by the PWSS that provides water systems a reasonable opportunity to adjust or cease withdrawals in the event of spills of untreated wastewater from an upstream WWTP.

RESPONSE The third paragraph in Section 3.13.1 (formerly Section 3.12.1) has been revised as follows: *“De facto reuse has been a part of normal operations for the vast majority of public water supplies. De facto reuse occurs due to upstream utilities discharging into water bodies that downstream users then withdrawal for water supply. Other than providing dilution and travel time between a wastewater outfall and a drinking water intake, there is no additional treatment required beyond conventional drinking water treatment. North Carolina does not have a code or regulation defining this situation. The DWR Public Water Supply Section has historically provided guidance to water systems that a wastewater treatment facility located at 5 miles upstream of a drinking water intake provides a reasonable opportunity to respond to a spill of untreated wastewater.”*

206. Section 3.12.1, fourth paragraph: Please provide citations.

RESPONSE The information in the fourth paragraph of Section 3.13.1 (formerly Section 3.12.1) is general industry knowledge and not specific to a finding or conclusion that would require a reference.

207. Section 3.12.1, fifth paragraph: Please provide citations.

RESPONSE Citations were provided for the Texas and California references in the fifth paragraph of Section 3.13.1 (formerly Section 3.12.1).

208. Section 3.12.1, sixth paragraph: Please provide citations.

RESPONSE Citations were provided for industry studies related to advanced treatment processes in in the sixth paragraph of Section 3.13.1 (formerly Section 3.12.1).

209. Section 3.12.3, first paragraph: Please explain the context of reuse programs to residential irrigation. Please consider presenting other potential applications of reuse water.

RESPONSE A second paragraph in Section 3.13.3 (formerly Section 3.12.2) was added as follows: *“The Town of Fuquay-Varina does not have industry that would provide a use for reclaimed water. Only one industry is currently permitted to discharge to the Town’s collection system. The flow from this industry is 25,000 gpd. The Town of Fuquay-Varina does not have a planned industrial park or other land use mechanisms for significant industrial growth.”*

210. Table 3-25: Please explain what the total row represents for each column.

RESPONSE In Table 3-28 (formerly Table 3-25), the table rows indicate the number of residential homes constructed during the specified decade. The row headings have been updated as follows, *“Homes constructed between...”* The rows in Table 3-29 (formerly Table 3-26) have also been updated.

211. Section 3.12.3, second paragraph, last sentence: Are the exceedances and reductions mentioned based on the annual average?

RESPONSE The residential meter data in Table 3-29 (formerly Table 3-26) is an average of the 2019 billing data for the specified decade. A footnote has been added to the table.

212. Section 3.12.3, third paragraph, seventh sentence: Please explain how irrigation use for any water system offsets the potable water use, as described.

RESPONSE In the third paragraph of Section 3.13.3 (formerly Section 3.12.3), the following text has been added: *"This evaluation demonstrates that the overall irrigation use is a fraction of the Town of Fuquay-Varina's water demand and therefore does not contribute to a substantial offset in potable water use. A statistically significant difference was not found at a confidence level of 0.05 if the overall per capita use of 85 gpcd is offset annually by the average summer difference in per capita use at 3.1 gpcd per Table 3-26."*

213. Section 3.12.3, fifth paragraph, last sentence: Please explain why agricultural land not being identified in the Town's land use plan excludes developing a reclaimed water program.

RESPONSE The last sentence of the fifth paragraph in Section 3.12.3 (formerly Section 3.12.3) specifically discusses irrigation of agricultural land per the 15A NCAC 2U rules: *"Agricultural land uses are not identified in the Land Use Plan. Therefore, developing a reclaimed water program via the 15A NCAC 2U Rules (e.g., crop irrigation) is not a viable solution."* The previous paragraphs provide an analysis of the Town of Fuquay-Varina's residential irrigation demand compared to the single family residential use.

214. Section 3.12.3: Please consider evaluating land application of treated wastewater in the source basin, including spray fields and golf courses.

RESPONSE The analysis in Section 3.13.3 (formerly Section 3.12.3) is specific to residential irrigation use to offset potable water demand. The Town of Fuquay-Varina does not have outdoor golf courses in the Cape Fear portion of the service area. As stated in the last paragraph of Section 3.13.3, the Town's land use planning is comprised of residential, commercial, and mixed density uses. Large contiguous acreage is not available in the Town's service area, including the Cape Fear portion of the Town's service area. Approximately 2,300 acres of land would be required to dispose of the entire 6 mgd transfer using reuse quality water at 1 inch per acre week.

215. Section 3.13.1, third paragraph, last sentence: Please explain how this trend has directly affected the Town of Fuquay-Varina.

RESPONSE The last sentence of the third paragraph of Section 3.14.1 (formerly Section 3.13.1) was provided as a description of the Town's industrial and institutional per capita use trends. This sentence has been deleted to avoid confusion.

216. Section 3.13.1, fourth paragraph: Please provide appropriate citations.

RESPONSE References have been added to the fourth paragraph in Section 3.14.1 (formerly Section 3.13.1).

217. Section 3.13.1, fifth paragraph, last sentence: Given that the Town is witnessing significant growth in new construction, please provide the demand range for newer homes.

RESPONSE The second to last sentence in the fifth paragraph of Section 3.14.1 (formerly Section 3.13.1) provides the demand range for new homes, as follows: *"Annual average water use post 2000 falls between 149 and 156 gpd/meter."*

218. Section 3.13.1, seventh paragraph, first sentence: Please provide the location of the region that was the basis of the study.

RESPONSE A sentence has been added to Section 3.14.1 (formerly Section 3.13.1) as follows: *“The survey included utilities from fourteen states representing multiple geographic regions to include North Carolina, Georgia, Canada, Washington, Oregon, California, Pennsylvania, Arizona, Texas, Colorado, Florida, Illinois, Nevada, and Connecticut.”*

219. Section 3.13.1, ninth paragraph, last two sentences: Please consider providing the regional per capita data to support this claim. The selected per capita value (85 gpcd in this example) represents an “average” per capita and should not be intended to ensure full coverage related to “year-to-year fluctuations” for the planning period.

RESPONSE The last paragraph in Section 3.14.1 (formerly Section 3.13.1) has been revised as follows: *“A total per capita total use of 85 gpcd for the Town of Fuquay-Varina was carried forward in the water demand projection analysis over the planning period. Per Section 2 of this EIS, the Town of Fuquay-Varina’s total per capita use is less than other communities in the Cape Fear and Neuse River basins with a difference ranging from 5.4 gpcd to 69.1 gpcd. Out of the utilities compared, only the Town of Holly Springs demonstrated a total per capita use comparable to the Town of Fuquay-Varina. Per Table 2-5, the total per capita use for Raleigh Water and Cary-Apex is 90.44 and 95.3 gpcd, respectively. Total per capital use for other utilities in the Cape Fear and Neuse River basins range from 72 to 125.6 gpcd. The Town of Fuquay-Varina’s per capita use is comparable to national per capital use trends and exceed or comparable to regional per capita use trends.”*

220. Section 3.13.3, first paragraph, first sentence: Please explain how a flat rate pricing structure, instead of the more common increasing block pricing structure, encourages water conservation.

RESPONSE The first sentence in the first paragraph of Section 3.14.3 (formerly Section 3.13.3) has been revised. The paragraph was revised to correct that the Town has a uniform rate structure, not a flat fee rate structure. Customers are charged for every 1,000 gallons used on top of the minimum base rate. The paragraph has been revised, as follows: *“The Town of Fuquay-Varina has implemented a uniform rate structure for water consumption charges inside and outside corporate limits. The minimum base water rate increases based on meter size (e.g., larger meters are charged a higher minimum base rate). Water users pay a rate per 1,000 gallons consumed beyond the minimum base rate. Therefore, customers are charged for the water consumed via the actual metered use. The rate structure applies to base water meters and irrigation meters. Per the Town’s Code of Ordinances Part 5, Chapter 1, Article B, water users outside of corporate limits are assessed rates double of the corporate limit rate. The Town of Fuquay-Varina’s rate structure does not inhibit water conservation. Per Sections 2 and 3.13.3 of this EIS, the Town exhibits some of the lowest total per capita water use rates in the Cape Fear River basin.”*

221. Section 3.13.4, first paragraph, third sentence: Please explain how this AMI system will “enhance and promote water conservation.”

RESPONSE The first paragraph in Section 3.14.4 (formerly Section 3.13.4) has been revised as follows: *“In July 2018, the Town of Fuquay-Varina initiated a conversion of the Town’s monthly drive-by Automated Meter Reading (AMR) system to an advanced meter reading system, or Advanced Metering Infrastructure (AMI) system. The AMI system provides hourly reading through a fixed radio network. The Town of Fuquay-Varina has approximately 250 miles of water line, over half of which is greater than 20 years old. The AMI system provides Town staff real-time usage information to enhance and promote water conservation, reduce water leaks in the system, and improve operational efficiency. Town staff receive leak alerts from the AMI system that staff investigates daily. The conversion to the AMI system provides 720 water meter readings per each billing cycle in lieu of the one monthly reading currently collected with the existing AMR technology. Therefore, the Town of Fuquay-Varina’s customers are more informed about water use in the monthly water bill.”*

222. Section 3.13.5: Please provide any data on usage of the website by customers. Also, include any promotion conducted by the Town to make customers aware of the service.

RESPONSE Section 3.14.5 (formerly Section 3.14.5) has been revised to add the following paragraph: *“The Town of Fuquay-Varina offers online services to their residents via an online services webpage: <https://www.fuquay-varina.org/372/Online-Services>. Town of Fuquay-Varina customers have the opportunity to sign up and view and pay for consumption through eUtilities. Alternatively, customers can receive detailed daily consumption and notifications of high usage periods (e.g., leaks) via the on-line service eMeters. Currently, the Town of Fuquay-Varina has 18,043 active utility accounts. Approximately 16,800 customers, or 93 percent of total customers, have registered for the Town’s eUtilities and eMeters online services.”*

223. Section 3.13.6: Please provide details on the reasons for the decline in non-revenue water over the past 5 years. Please provide a listing of the major water projects the Town has undertaken over the past 5-10 years to improve water efficiency and reduce non-revenue water, include specific financial commitments the Town has made for future projects. Please provide an explanation for why the Town has not conducted a formal water audit, such as the AWWA water audit, and if there are any plans for conducting such a study.

RESPONSE Section 3.14.6 (formerly Section 3.13.6) has been revised to add the following text to the end of the first paragraph: *“Over the last ten years, water use has increased with growth and the Town of Fuquay-Varina’s distribution system has extended to approximately around 100 miles. In general, the percentage of non-revenue water has declined as a result of newer infrastructure and greater use. The Town of Fuquay-Varina averages 2,500 feet of waterline replacement per year. Recent projects have replaced 2-inch galvanized waterline with 6-inch PVC waterline to increase water quality, quantity and pressure in the system. The Town of Fuquay-Varina Board of Commissioners currently funds \$500,000 per year towards waterline replacement and is increasing the annual amount to \$1,000,000 per year in fiscal year 2024/2025.”*

224. Section 3.13.7, third paragraph: Please provide details on any water conservation programs or initiatives by the Town since passing the current water conservation measures in 2008, particularly in advance of the proposed IBT request, to ensure the Town meets or exceeds the strictest water conservation measures and initiatives regionally.

RESPONSE The Town of Fuquay-Varina has not modified their water conservation ordinance since 2008. As a comparison, the Towns of Cary and Apex last modified their water conservation ordinances in 2009 and 2010, respectively. New text has been added to Section 3.14.17 (formerly Section 3.13.7) has discussed in the response to comment #226.

225. Table 3-27: For ease of reading, please state the water conservation stage on every page.

RESPONSE A page break has been inserted in front of every water conservation stage in Table 3-31 (formerly Table 3-27). Each water conservation stage starts on a new page.

226. Section 3.13.7: Please consider including an ending paragraph for this important section that summarizes the information from Table 3-27 and provides an argument that the Town has a sufficiently strong water conservation plan, measures, and initiatives to meet the statutory requirements for an IBT Certificate.

RESPONSE Section 3.14.7 (formerly 3.13.7) has been revised to add a new Table 3-30 and new text summarizing the Town of Fuquay-Varina’s water conservation measures compared to the Towns and Cary and Apex. The new text and Table is as follows:

“Per General Statute §143-215.22L, water conservation of the IBT applicant must be equal to the most stringent water conservation measures in the source basin. The applicant is required to

minimize the transfer to the extent practicable. An evaluation of existing water conservation protocols in the Cape Fear River basin (e.g., source basin) was conducted as part of this minimization alternative.

The Town of Fuquay-Varina Board of Commissioners passed a Water Conservation Ordinance in January 2008 that went into effect in May 2008. The ordinance mandates year-round water conservation measures (Code of Ordinances Part 5, Chapter 1, Article C) and stage 1 through 3 water conservation mandates. The Town of Fuquay-Varina has not made any changes to the ordinance since 2008. The ordinance applies to all users connected to the Town of Fuquay-Varina's water system (e.g., inside and outside corporate limits). The Town of Fuquay-Varina has not implemented Stage 4 or 5 restrictions.

Table 3-31 provides a summary of the Town of Fuquay-Varina's most significant water conservation measures compared to the Towns of Apex and Cary. The Towns of Cary and Apex have the most restrictive Stage 1, 2, and 3 requirements in the Cape Fear River basin as a result of the Cary/Apex IBT. The Town of Cary adopted a revised conservation ordinance in July 2009 with a modification in January 2010. The most recent water conservation ordinance for the Town of Apex is dated April 2010.

The Town of Fuquay-Varina's water conservation ordinance is equivalent to the water conservation measures for the Towns of Cary and Apex. All three Towns require mandatory year-round irrigation restrictions limited to irrigation three days per week on alternating days by street address. All three towns do not limit indoor or outdoor water use on a year-round basis. In a stage 1 water shortage restriction, the Town of Fuquay-Varina does allow outdoor irrigation on alternating limited days. The Towns of Cary and Apex limit outdoor irrigation to one day per week in a stage 1 restriction. The Town of Fuquay-Varina limits outdoor water use during stage 1, 2, and 3, whereas the Towns of Cary and Apex do not prohibit outdoor use until stage 3. The Town of Fuquay-Varina requires indoor use to be reduced by 10 percent, 20 percent, and 30 percent for stage 1, 2, and 3 water restrictions, respectively. The Town of Apex limits indoor use in all three stages. The Town of Cary does not limit indoor use until severe restrictions in Stage 4 and 5. The Town of Fuquay-Varina does not limit new turf permits during a stage 1 restriction compared to the Towns of Cary and Apex. Other water conservation measures, such as restrictions on hand watering and new turf permits in stages 2 and 3 are directly comparable across all three town ordinances.

The Town of Fuquay-Varina's water conservation ordinances meet the requirements of General Statute §143-215.22L. Per the aforementioned discussion, the Town of Fuquay-Varina's water conservation mandates differ slightly compared to the Towns of Cary and Apex; however, the Town of Fuquay-Varina has demonstrated that their 2008 water conservation measures are effective. The Town of Fuquay-Varina's water use metrics exceed other communities in the Cape Fear River basin.

Table 3-33 provides a summary of the water conservation measures for communities in the Cape Fear River basin as a comparison to the Towns of Fuquay-Varina, Apex, and Cary. The list of conservation measures in Table 3-28 is not exhaustive. Each community has nuances and/or exceptions to water conservation ordinances and policies that cannot be reflected in a summary table. Appendix B provides an extensive summary of water conservation measures for each community. The applicable code, ordinance, or policy is referenced for each water conservation measure. Water conservation stages or levels are meant to be additive. For example, restrictions in Stage 1 are also required in Stage 2 unless superseded by a more stringent requirement."

Table 3-31: Summary of Water Shortage Response and Conservation Measures for Towns of Fuquay-Varina, Apex, and Cary

	Water Shortage Response Stages	Outdoor Spray Irrigation	Hand watering, drip irrigation, subsurface irrigation, athletic field maintenance	Other outdoor water use (e.g., pressure washing, car washing, filling/topping off swimming pools)	New Turf Watering Exception Permits	Indoor Water Use Restrictions
Fuquay-Varina	Mandatory year-round	Three days per week	Allowed	Allowed	Allowed	None
Apex	Mandatory year-round	Three days per week	Allowed	Allowed	Allowed	None
Cary	Mandatory year-round	Three days per week	Allowed	Allowed	Allowed	None
Fuquay-Varina	Stage 1	Three days per week	Allowed	Business Only, No pool filling, Wash vehicles at home Monday to Friday only	Allowed	Reduce consumption by 10%
Apex	Stage 1	One day per week	Allowed	Allowed	No new permits issued, permits issued prior to water shortage can continue	Limit indoor water use
Cary	Stage 1	One day per week	Allowed	Allowed	No new permits issued, permits beginning more than 14 days after stage 1 date rescinded	None
Fuquay-Varina	Stage 2	One day per week, Night only	One day per week, Night only	Recycled Car Wash Only, Therapy Pools Only	Prohibited	Reduce consumption by 20%
Apex	Stage 2	Prohibited	Allowed	Allowed	Prohibited	Limit indoor water use
Cary	Stage 2	Prohibited	Allowed	Allowed	Prohibited	None
Fuquay-Varina	Stage 3	Prohibited	Prohibited	Prohibited	Prohibited	Reduce consumption by 30%
Apex	Stage 3	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
Cary	Stage 3	Prohibited	Prohibited	Prohibited	Prohibited	Limited to normal Tier 1 indoor winter use
Fuquay-Varina	Stage 4/5	Not adopted	Not adopted	Not adopted	Not adopted	Not adopted
Apex	Stage 4/5	Prohibited	Prohibited	Prohibited	Prohibited	Limit indoor water use
Cary	Stage 4/5	Prohibited	Prohibited	Prohibited	Prohibited	Reduce normal winter use by 15%

Notes: 1. **Red Text** indicates Town of Fuquay-Varina measures less stringent than Cary and Apex. **Green text** indicates Town of Fuquay-Varina measures more stringent than Cary and Apex

227. Section 3.14, second paragraph, last sentence: Please detail what is included in the “15 percent of engineering”.

RESPONSE The last sentence of the second paragraph in Section 3.15 (formerly Section 3.14) has been revised to clarify that 15 percent for engineering includes design services, construction services, administration, and legal.

228. Section 3.14, third paragraph, fourth sentence: Please ensure that Alternatives 9 A/B/C are treated equally to the other alternatives with regards to assigning costs. Since several of the other alternatives also have partners that will share in the cost of the project or if much of the infrastructure is already in place.

RESPONSE The cost opinions in the EIS reflect the capital cost that the applicant, the Town of Fuquay-Varina, will be responsible for paying as a result of implementation for each alternative.

229. Table 3-28: Ensure that all cost estimates provide full breakdowns and itemizations for all projected costs for all alternatives.

RESPONSE An itemized cost breakdown is provided in an Appendix of the EIS.

Section 4.0

230. Section 4.0, second paragraph, last sentence: Please consider providing an explanation.

RESPONSE: Alternative 13 was incorrectly listed as not being discussed in Section 5. An explanation as to why Alternatives 11 and 12 are not discussed in Sections 4 and 5 has been added to the end of the second paragraph.

231. Section 4.1, first paragraph, first sentence: Section 3.11 (Alternative 10) does not discuss any of the project area as located in the Coastal Plain. Please clarify.

RESPONSE: Section 4.1 of the DEIS has been revised to address the Coastal Plain.

232. Section 4.1: Please consider including maps to illustrate what is described in the first and second paragraphs.

RESPONSE: The physiographic province boundary has been added to Figure 3-1 and a reference to this figure has been added to Section 4.1 of the DEIS.

233. Section 4.9, second paragraph, first and last sentences: Throughout Section 3.0, including the cost estimate section, appears to suggest that alternatives 9A/B/C will require a new intake. Please clarify as needed.

RESPONSE: Alternative 9A/B/C/D will utilize infrastructure that will be existing at the time this project moves forward. The City of Sanford is in the process of obtaining construction permits for an expansion to the existing Sanford WFF, including a new intake and raw water main. The new intake is a whole and complete project, separate from the proposed conveyance line associated with this project. The new intake and treatment plant upgrades will take place regardless of this project; however, the upgrades will be sufficient to support alternatives 9A/B/C/D.

234. Section 4.9, third paragraph: Please define and explain the differences between a 100-year floodplain and a floodway.

RESPONSE: The differences between a 100-year floodplain and floodway have been added to the first paragraph of Section 4.9 of the DEIS document.

235. Section 4.9, fourth paragraph, last sentence: Please explain why floodways have not been designated in Lee County.

RESPONSE: FEMA does not conduct flood studies. FEMA incorporates flood studies done by others (e.g., consultants) into periodic updates of FEMA maps through the LOMR/CLOMR process.

236. Section 4.14.2, fourth paragraph: Please consider adding a map or depiction.

RESPONSE: Surface water classifications are shown on Figure 4-8 and a reference to the figure has been added to the fourth paragraph of Section 4.14.2.

237. Section 4.14.3, second paragraph, last sentence: Please consider including the findings from the fish community sampling sites in the project area.

RESPONSE: Additional findings from the fish community sampling sites have been added to Section 4.14.2 of the DEIS document.

238. Table 4-15: Please discuss how Alternative 9 (preferred alternative) will improve or further degrade existing conditions (i.e., Chlorophyll A violation at the Sanford water supply intake and the fair benthic bioclassification at Terrible Creek). Please consider including the proximity of the Terrible Creek WWTP to the Terrible Creek sampling site, perhaps in the discussion adjacent to Table 4-15.

RESPONSE: Section 4.14.3 has been modified to include the following statement: "The Terrible Creek WWTP receiving stream (e.g., Alternative 9C) is listed as meeting designated uses."

Additionally, the following paragraph has been added to Section 4.14.3: *"The Cape Fear River basin is not officially classified as a nutrient sensitive waters. However, the Cape Fear is recognized by DWR as being nutrient over enriched. In a 2018 presentation to EMC, DWR cited recent algal blooms and nutrient over-enrichment as causes of impairment. DWR assembled a monitoring plan for the middle Cape Fear River basin with data collection initiated in 2019 and 2020. Per DWR, water quality conditions decline during periods of low flow, which potentially result in high chlorophyll-a concentrations. The Cape Fear River upstream and downstream of Lillington is currently not 303d listed for dissolved oxygen or chlorophyll-a. The Cape Fear River upstream and downstream of Lillington also does not list any category 4 or 5 impairments."*

239. Section 4.14.3, eighth paragraph, sixth sentence: The use of the Terrible Creek WWTP is the basis for nearly all of the alternatives, particularly the preferred alternative. Please clarify.

RESPONSE: The eighth paragraph, sixth sentence in Section 4.14.3 has been deleted for clarity. Section 4.14.3 is a description of the existing environment. The DEIS text has been revised to clarify that the Terrible Creek WWTP is infrastructure incorporated into the alternatives analysis discussion in Section 3.

240. Section 4.14.4: Please consider discussing the Coastal Plain if any of the project area is within the Coastal Plain physiographic province.

RESPONSE: A discussion of the Coastal Plain was added to Section 4.14.4.

241. Section 4.15.1.1, second paragraph, second sentence: Please clarify the "minority population percentage that exceeds that of North Carolina."

RESPONSE: The DEIS text was revised to add "(e.g., 31.3 percent)" as a reminder of the minority population of North Carolina, which is stated in the paragraph in Section 4.15.1.

Section 5.0

242. Section 5.0, fourth paragraph: Measurable values need to be defined for every evaluation, otherwise the technical document (i.e., EIS) will only serve to support the opinions or discretion of the author, which may or may not be the opinions held by the lead agency or reader.

RESPONSE Section 5, Environmental Consequences, has been written using standards set forth by the North Carolina Department of Administration in the Environmental Assessment Guidelines. Per the guidelines in Section E (Predicted Environmental Effects of Projects), quantifiable impacts are necessary in all categories, where feasible. Estimated quantifiable impacts are provided in sections where deemed feasible based on available published mapping and data. Where impacts cannot be quantified at this time, definition of impact intensities is based on National Environmental Policy Act definitions for context and intensity.

243. Section 5.0, fifth paragraph, second sentence: Please clarify what is meant by “raw water storage facilities” in this context.

RESPONSE: The term “raw water storage facilities” refers to raw water storage areas/reservoirs. The fifth paragraph in Section 5.0 has been revised with this change in terminology.

244. Section 5.1.1, second paragraph, fourth sentence: Please clarify if this statement is intended to represent the potential indirect and cumulative impacts from all of the alternatives. Please consider providing any available demonstration or evidence.

RESPONSE: Section 5.1.1 of the DEIS text has been revised to provide clarification.

245. Section 5.3.2: Please consider including information regarding any coordination between the development of the various land use plans. Please consider including the land use plans that most directly affect this project area or provide citations to support the statement in the last sentence.

RESPONSE: Section 5.3.2 of the DEIS text has been modified for clarification and a citation has been added.

246. Section 5.4.1, sixth paragraph, second sentence: Please consider providing a similar level of quantitative impact assessment as is done here (i.e., 1.0 acre) for the other sections.

RESPONSE: Reference to the quantification table provided in Section 4 has been added to Section 5.4.1.

247. Section 5.6.1.1: Please provide the basis for this determination given that the document states no research has been conducted for this subject.

RESPONSE: The comment appears to be in reference to the statement that “*No indirect impacts to archaeological resources are anticipated to occur...*”. Therefore, no changes to the document have occurred for text associated with **direct** impacts. Relative to indirect impacts to archaeological resources, the text has been modified to state that “*Indirect impacts to archaeological resources are possible from the proposed project regardless of which alternative is chosen.*”

248. Section 5.9, last sentence: Please clarify if this statement is intended to represent the potential indirect and cumulative impacts from all of the alternatives. Please consider providing any available demonstration or evidence.

RESPONSE: The DEIS text has been modified for clarification. The last sentence of Section 5.9.1 has been modified to state that “*Indirect or cumulative impacts, if any, are anticipated to be negligible for all alternatives since growth and development in the service area is anticipated to continue regardless of the project.*”

249. Section 5.9.1, second paragraph, last sentence: It is questionable that impacts that will likely require permitting are minor. Providing a quantifiable basis for the impact determination is needed.

RESPONSE: Additional information has been added to Section 5.9.1 of the DEIS for clarification.

250. Section 5.9.1, sixth paragraph, last sentence: Please provide the basis for the “moderate” determination. Perhaps consider using the quantified values such as those presented in Table 5-4 to make the impact severity determination.

RESPONSE: The last sentence of Section 5.9.2 has been modified to state: *“Alternatives 1 and 3 will create an unknown amount of new floodplain and floodplain area. However, due to the large amount of floodway and floodplain impacted by implementation of Alternatives 1 and 3, as noted in Table 5-4, direct and permanent impacts to floodplain and floodway in association with Alternatives 1 and 3 are considered moderate.”*

251. Section 5.10, second paragraph: Please consider providing an explanation for the permitting determination (i.e., discussions/coordination with agency staff, permit criteria or other).

RESPONSE: Section 5.10 of the DEIS text has been revised to add a sentence stating that coordination with the regulatory agencies will take place, as necessary, to ensure adherence to regulations associated with the CWA.

252. Section 5.10.1, second paragraph, last sentence: Given that the permanent impacts associated with most alternatives (Table 5-5) are greater than 1 acre, please provide the rationale for why these impacts were all determined to be “minor”.

RESPONSE: The impact rationale for permanent impacts associated with most alternatives is determined to be minor due to the preexisting condition of the sites. The alternatives discussing more than one acre of impact will require upgrades to existing infrastructure. Although impacts greater than one acre are permanent, Alternatives 1 and 3 will create large bodies of jurisdictional water and associated wetlands. A statement has been made in Section 5.10.1 of the DEIS to clarify the impact rationale determination.

253. Section 5.11.1, first paragraph, third sentence: Please explain why Alternatives 9A & 9B are not included.

RESPONSE: Additional details related to proposed intake installation in the Cape Fear River has been added to the first paragraph of Section 5.11.1 in the DEIS regarding Alternatives 9A/B/C/D. The infrastructure will be existing at the time this project moves forward; therefore, no construction activities associated with the raw water intakes will take place for Alternatives 9A/B/C/D.

254. Section 5.13.2.2, second paragraph, last sentence: Please consider providing information related to the “current” occurrence.

RESPONSE: A statement has been added to Section 5.13.2.2 to clarify where current occurrences are discussed within the DEIS.

255. Section 5.13.2.7, first paragraph, second sentence: Need to state that this is the proposed locations for all of the listed infrastructure.

RESPONSE: Information relative to no bald eagle nests within a 2-mile radius of the WTP site has been added to Section 5.13.2.7 of the DEIS.

256. Section 5.14.1, fourth paragraph, last sentence: Impacts associated with stream crossings, particularly those that involve open trench installation as described, will require permitting and should therefore be considered significant. Please provide an explanation for the “minor” determination.

RESPONSE: Open trench installation associated with proposed stream crossings will require permitting; however, no permanent impacts will occur. Impacts are anticipated to be minor due to the temporary nature of the work and the impacts. All stream crossings will be restored to original grade following installation of the pipes. An updated statement has been added to Section 5.14.1 of the DEIS.

257. Section 5.14.1, fifth paragraph, third sentence: Please consider providing a map or depiction to clarify this statement, particularly in regards to Alternatives 4, 5, 8A, and 8B.

RESPONSE: The river basin boundary is illustrated in Figure 4-7 and is referenced in Section 5.14.1 of the DEIS text.

258. Section 5.14.1.1, first paragraph: Please provide an explanation for the “minor” determination.

RESPONSE: Open trench installation associated with proposed stream crossings will require permitting; however, impacts are anticipated to be minor due to the temporary nature of the work. All stream crossings will be restored to original grade following construction. A statement has been added relative to the aforementioned has been added to Section 5.15.1.1 (formerly Section 5.14.1.1) of the DEIS.

259. Section 5.14.1.1, second paragraph, last sentence: Please explain how all other projects other than the preferred alternative will have permanent, direct, minor, adverse impacts. Please provide the impact analysis for Alternatives 9A/B with an explanation as to how they are different.

RESPONSE: Alternatives 9A/B/D will not require construction of a new raw water intake; therefore, no permanent impacts will take place in perennial streams. All impacts associated with Alternatives 9A/B/D will be temporary in nature. Clarification related to this topic has been provided in paragraph two of Section 5.15.1.1 (formerly Section 5.14.1.1).

260. Section 5.14.1.1, fourth paragraph, first sentence: Please clarify that a raw water intake was considered in the cost estimate for 9A/B.

RESPONSE: Opinion of probable project costs and a summary of infrastructure are provided in Section 3.15 (formerly Section 3.14) and in an Appendix.

261. Section 5.14.1.3, first paragraph, third sentence: Please explain “anti-frac out measures”.

RESPONSE: A statement relative to anti-frac out measures has been added to Section 5.15.1.3 (formerly Section 5.14.1.3).

262. Section 5.14.1.3, second paragraph: Please consider stating whether permitting will be required.

RESPONSE: Due to the use of trenchless construction techniques, no impacts will occur to the Cape Fear River. Therefore, no permitting will be required for pipe installation. The DEIS has been updated to include this statement as suggested.

263. Section 5.14.2.1, first paragraph, last sentence: Please consider including the CWA permit as an attachment.

RESPONSE: The City of Sanford is in the process of obtaining a 404/401 permit.

264. Section 5.14.2.2, first paragraph, first sentence: Please clarify that no wastewater will be sent to the North Harnett WWTP for Alternatives 9A or 9B.

RESPONSE: Wastewater will be conveyed to the North Harnett Regional WWTP from the Town of Fuquay-Varina's service area in the Cape Fear River basin. The Town of Fuquay-Varina's Terrible Creek WWTP in the Neuse River basin will continue to serve businesses and residents in the Neuse River portion of the Town's service area. The statement in Section 5.14.2.2, "*Alternatives 2, 4, 5, 6, 7, 9A, and 9B do not include a return of water to the Cape Fear River basin,*" refers to the *interbasin transfer* of water from the Neuse to the Cape Fear. Section 5.14.2.2 of the DEIS text has been revised to clarify that these aforementioned alternatives do not include the interbasin transfer of water from the Neuse to the Cape Fear.

265. Section 5.14.2.3, second paragraph: This paragraph states that the Cape Fear River is impaired, nutrient sensitive waters; however, earlier no formal impairments are listed and the river appears to not be classified as NSW (nutrient sensitive waters). Please clarify.

RESPONSE Section 5.15.2.3 (formerly Section 5.14.2.3) has been revised to reflect Nora Deemer's discussion (second comment).

266. Section 5.14.2.3, fifth paragraph: In order to provide a full evaluation of the alternatives presented, as required by an EIS, and specifically those alternatives that propose to increase the wastewater flows in the Cape Fear, a water quality model evaluation/analysis of these additional inputs in the Cape Fear River at or near the discharge location(s) should be conducted.

RESPONSE Section 5.14 and 5.15 have been edited to provide context for water quality impacts. Please refer to response to David Wainwright's comment in bullet point #5.

267. Section 5.14.3.3, fifth paragraph, last two sentences: Please explain how the impacts can be both "major" and "negligible" for the same alternative on the same resource.

RESPONSE Section 5.14.3.3 has been revised to accurately reflect the anticipated direct, indirect, and cumulative impacts of Alternative 10.

268. Section 5.15, first paragraph: To avoid confusion, please use the language in the statute referenced, and please be explicit as to what DWR is the "steward" of. DWR is not the steward of models owned and managed outside of the agency.

RESPONSE The first paragraph of Section 5.14 (formerly Section 5.15) has been modified to reflect the language revisions in Section 1.5.8.

269. Section 5.15, second paragraph, third sentence: DWR does not have hydrologic models for all of the river basins in North Carolina.

RESPONSE The third sentence of the second paragraph in Section 5.14 (formerly Section 5.15) has been modified.

270. Section 5.15, third paragraph: Please provide a citation.

RESPONSE A citation was provided for the third paragraph of Section 5.14 (formerly Section 5.15).

271. Section 5.15.1, first paragraph, second sentence: Please provide the year of "current" information.

RESPONSE The year 2022 was added to the second sentence of the first paragraph in Section 5.14.1 (formerly Section 5.15.1).

272. Section 5.15.1, third paragraph, last sentence: Please consider explaining “flow splits”.

RESPONSE The third sentence in the last paragraph has been modified in Section 5.14 (formerly Section 5.15). The reference to flow split was removed. This terminology referred to the inflow apportioning process between water quality pool and water supply pool. The text indicates that the CFNCRB model was updated for the Falls Lake Reallocation.

273. Section 5.15.2: Please provide citations throughout this section.

RESPONSE Additional citations were added to Section 5.14.2 (formerly Section 5.15.2).

274. Section 5.15.2, tenth paragraph, third sentence: Please clarify the average that is being discussed (i.e., daily, monthly, annual)

RESPONSE The referenced statement was to the monthly average discharge and these values are provided in Table 8 in Appendix F of the DEIS. Section 5.14.2 (formerly Section 5.15.2) was revised to reference to the monthly average discharge in the river at the CFPWA intake being much higher than the demand is now in item #1 in the tenth paragraph.

275. Section 5.15.2, tenth paragraph, last sentence: Please provide context that this scenario depends on the current condition/level of the water quality pool and is outside of the management and operations plan of the lake. Therefore, it would be a request to the USACE and not an obligation of the USACE.

RESPONSE This potential solution is now included in the numbered list under paragraph 10, in item #4 in Section 5.14.2 (formerly 5.15.2). The text has been revised to state that application of this solution would be at the discretion of the USACE under current policy. However, evolving conditions in the basin under severe climate change may prompt a more proactive policy change. Additional thoughts on this solution are located in Appendix F Section 4.

276. Section 5.15.2, eleventh paragraph, first sentence: Please consider providing context that downstream users do not have a water supply allocation from Jordan Lake; therefore, the drought plans directly associated with Jordan Lake would not be expected to account for water shortages downstream of Lillington.

RESPONSE This comment suggests that downstream users would need a water supply allocation from Jordan Lake for their water supply needs to be considered under the Jordan Lake Drought Contingency Plan (DCP). While we agree the type of relief suggested would require some discretionary grace from the State and USACE, we disagree that an allocation is a prerequisite for such consideration. The 2008 DCP for Jordan Lake implies broad discretionary authority is available to the State of North Carolina for drought management and that “*the project will be operated to meet water supply requirements and water quality low flow releases*” (page 6 of 2008 DCP). The DCP language does not appear to limit water supply concerns to allocation holders. Furthermore, actions available after the water quality pool is completely exhausted, which are covered in items 2 and 3 on page 9 of the 2008 DCP, suggest the DWR would have broad latitude, in consultation with the USACE, to balance water supply and water quality needs. It is anticipated that this latitude would also be the case in less severe stages of drought before the conservation pool is exhausted with the caveat that the DCP does not address outright shortages downstream in earlier drought stages. Shortages downstream of Jordan Lake have not historically been an issue, which is a point made in Appendix F Section 4. A water supply allocation for downstream users could be a different potential solution.

277. Section 5.15.2, eleventh paragraph, last sentence: According this sentence, this proposed project is dependent on a policy change or discretionary operations change from the USACE to avoid potential downstream impacts. Please clarify as needed.

RESPONSE The DEIS text never intended to suggest the project is dependent upon a policy change

or discretionary operation by the USACE. The downstream impacts to CFPWA and LCFWSA arise regardless of the Town of Fuquay-Varina's preferred water supply alternative. This paragraph has been reworded to clarify that the impacts to CFPWA and LCFWSA are minimally affected by the implementation of the Town's preferred water supply alternative. The DEIS has been revised to state factors that would alleviate these impacts and potential solutions; however, these statements are suggestions are not project-related solutions or actions.

278. Section 5.15.4, second paragraph, first sentence: Please explain the relevance of this project to an analysis conducted over 10 years ago.

RESPONSE The 2014 Cary-Apex IBT is the most recent IBT Study conducted in this region. This IBT is in the same basin and many of the same utilities interested in the Cary/Apex IBT will also be interested in the Town's IBT Study.

279. Section 5.15.4, ninth paragraph, second sentence: Not all releases from Jordan Lake are conducted to merely maintain the flow targets. Please explain why high flow releases are made in the context of this sentence. Citation needed.

RESPONSE The DEIS text has revised this statement to "*During periods of low flow...*" The 2008 Drought Contingency Plan is also cited.

280. Section 5.15.4, ninth paragraph, third sentence: Please consider including the "drought plans" used in development of the OASIS model as an appendix. Please explain what is meant by "removal of the limitation".

RESPONSE The third sentence of the ninth paragraph in Section 5.14.4 (formerly Section 5.15.4) has been revised to clarify the subject of the statement to be the Jordan Lake Drought Contingency Plan (DCP). The 2008 DCP is referenced in DEIS Section 10 (*Literature Cited*).

281. Section 5.15.4, ninth paragraph, last sentence: Please explain how the flows from the Deep River maintain flows for the Cape Fear River, not just releases from Jordan Lake.

RESPONSE The contribution from the Deep River was included into the last sentence of the ninth paragraph in Section 5.14.4 (formerly Section 5.15.4).

282. Section 5.15.4, tenth paragraph, fourth sentence: Please provide a citation.

RESPONSE The 2008 DCP is now a citation in the DEIS.

283. Table 5-11, page 5-47: Under Alternatives 9A/B, the water supply for the Town of Dunn appears to be impacted 0.25% of the time. Under the No Action, the water supply for Town of Dunn is impacted 0.12% of the time. Please provide a detailed analysis or drought triggers as provided in the Water Shortage Response Plans (WSRPs) to demonstrate how the Town of Dunn will continue to meet its demands. This level of evaluation also needs to be conducted for water systems such as Fayetteville PWC and the communities supported by Lower Cape Fear Water and Sewer Authority who do not have their water conservation triggers within the OASIS model. Perhaps this evaluation is achievable by use of the OASIS data outside of the model, through a post-process activity.

RESPONSE Table 5-10 has been added to Section 5.14.4 to provide additional information regarding the WSRP activation severity and duration for the City of Dunn. The updated modeling results show the same trend referred to in this comment; however, the WSRP activation frequency is now 0.17% for the No-Action alternative and 0.23% for the preferred Alternative 9A/B. These events are triggered whenever the flow at Lillington drops to less than 225 cfs, which may happen in a Jordan Lake Drought Stage 3 or Stage 4. Per Table 5-10, these events are always brief: the median event length is just over a week and the worst case event is less than three weeks in duration. The additional statistics that clarify the event severity are basically the same in the No-Action alternative

as in the preferred Alternative 9A/B and any other option for water supply from the Cape Fear Basin except Alternatives 6 and 7. The City of Dunn and the Town of Benson (by virtue of their purchase from Dunn) will spend slightly more time in a Stage 1 Voluntary Conservation in Alternative 9 than otherwise in the No-Action alternative. According to the CFNCRB model results, mitigation with a return of wastewater to the Cape Fear (Alternatives 9C and 9D) offer no improvement in this particular metric. There is no substantial difference between the No-Action alternative and the preferred Alternative 9A/B in the frequency of reaching any mandatory conservation stages (Stages 2, 3, or 4). The Town of Fuquay-Varina's preferred alternative will not affect the City of Dunn's ability to meet its customers' water supply needs. The same conclusion applies to the City of Fayetteville. Fayetteville's system reliability is 100%.

284. Table 5-12: Please provide the minimum flow values and durations of those flows at the nodes provided.

RESPONSE This comment is interpreted as a reference to the minimum flows at Lillington, Fayetteville, Clayton. Table 6 in Section 3.3 of Appendix F provides a discussion of 7Q10 conditions at these nodes. Under the historical hydrology and 2055 conditions, the lowest flow recorded in the 91 year simulation is between 170 cfs and 182 cfs at Lillington. At Fayetteville, that range is 203 to 211 cfs and at Clayton is 190 cfs. The lowest flow metric is less than the 2025 baseline by approximately 23 to 35 cfs at Lillington, 116 to 124 cfs at Fayetteville, and 10 cfs at Clayton. Durations would depend on the flow threshold. We suggest sticking to the 7Q10 since that has a defined duration (7 days) and frequency (statistically a 10% chance of occurring in any year).

285. Section 5.15.4, thirteenth paragraph, last sentence: Please consider clarifying that the cost will be the responsibility of the Town of Fuquay-Varina.

RESPONSE Costs are discussed in Section 3.15 (formerly Section 3.14).

286. Section 5.15.5, third paragraph, last sentence: Please explain how impact determinations are made in this situation.

RESPONSE The lowest percentage of demand that was met on the worst day in the record for the CNRM and MIROC climate scenarios was reported.

287. Section 5.15.5, fourth paragraph: This paragraph appears to state that the avoidance of potential impacts associated with this proposed project are dependent upon discretionary actions by regulatory agencies during a time of a water supply emergency, likely for all in the basin. The applicant should assume that the regulatory agencies will strictly follow the existing plan. Please explain or revise as needed.

RESPONSE The DIES text has never stated that the proposed project was responsible for the described impacts. The future conditions arise regardless of the choice of the Town's water supply alternative. Furthermore, the choice of the Town's water supply alternative does not prevent potential mitigation measures for climate change impacts from being implemented. We have attempted to clarify this point in the revised DEIS and revised Appendix F.

288. Section 5.0: Please provide discussion and analysis for Harnett County's proposed new intake on the Cape Fear River near the Town of Erwin as described in the Harnett Regional Water System 2021 LWSP.

RESPONSE Section 3.6.1 of the DEIS has been revised to clarify that Harnett County has not initiated any studies to permit water infrastructure at the Erwin site. The DEIS reflects the planning numbers and data reflected in the approved LWSPs.

Section 6.0

289. Section 6.0, fifth paragraph, first sentence: Please provide specific quantifiable (i.e., values) metrics for the terms, “negligible, minor, moderate, and major” for each subject presented that uses these terms to define impacts and associated mitigation measures.

RESPONSE: Text directing the reader to Section 5 has been added to the first sentence of the fifth paragraph of Section 6.0.

290. Table 6-2: Please provide the measures (i.e., actions) the Town has in place or is proposing to implement to mitigate for any potential impacts either defined by the hydrologic model results or potential indirect and cumulative impacts as a result of the preferred alternative. These mitigation actions should be measurable with regard to the projected and potential impacts.

RESPONSE As stated in the DEIS, the Town of Fuquay-Varina’s current programs, policies, and ordinances meet the intent of General Statute §143-215.22L.

291. Table 6-2, water use: Please provide the specific water conservation and INI projects that have been implemented from recommendations in this plan and specific projects or line items that have received committed funding by the Town Council.

RESPONSE Table 6-2 has been updated with key A.14 describing the Town’s investments in water conservation.

292. Table 6-2, Surface Water Resources: To fully evaluate the alternatives presented, as required by the EIS process, the applicant needs to conduct water quality modeling of the source basin before determining that the impacts are “unknown”.

RESPONSE Table 6-3 has been updated to reference the new text provided in Section 5.14 and 5.15 with respect to water quality impacts.

Section 7.0

293. Section 7.0, first paragraph, fourth sentence: Considering that the Town, based on the information provided, has one of the weakest water conservation programs in the region, this document has not demonstrated that there is not significantly more potential for water savings by implementing more stringent water conservation measures and initiatives. Some examples include and not to be taken as all inclusive, Stage 3 is the first stage for the Town that indoor water use reductions are called out. Nearly all other water systems had already implemented this requirement in previous/earlier stages. Stage 3 is also the first noted stage for reductions in commercial and industrial water use, and even that is discretionary. There are no mandatory restrictions on commercial or industrial demand, and customers are still allowed to fill pools even in the worst stages of drought. Not only is water conservation a significant concern related to the viability of Alternative 12 and the demand projections as a basis for the purpose and need of the project, but water conservation and efficiency are significant concerns consistently held by the Environmental Management Commission and the public for all IBT projects. The Town needs to demonstrate that they are good stewards of the current resource in order to provide confidence to all concerned parties that they will be good stewards of the proposed future resource.

RESPONSE The Town of Fuquay-Varina has one of the strongest water conservation programs in the region as described in Section 3.14.17 (formerly 3.13.17). Revised text has been added to Section 3.14.17 to provide more detail and clarity of the Town’s program with respect to other programs in the region. Please refer to response to comment #226. Additionally, new text and a new table has been added to Section 2.5 to provide a comparison of the Town of Fuquay-Varina’s water use metrics to other communities in the Cape Fear and Neuse River basins. Please refer to response to comment #34. The EIS has demonstrated that the Town’s water conservation measures are effective given that the Town has one of the lowest water use metrics in the region (e.g., Cape Fear

and Neuse River basins).

A specific response by comment is provided as follows:

- Stage 3 is the first stage for the Town that indoor water use reductions are called out. Nearly all other water systems had already implemented this requirement in previous/earlier stages.
 - Response: The Town of Fuquay-Varina requires indoor water use restrictions in Stages 1, 2, and 3. Indoor use must reduce consumption by 10%, 20%, and 30% in stages 1, 2, and 3, respectively. In comparison, the Town of Cary does not require indoor use restrictions until Stage 4. The Town of Apex limits indoor use in stages 1, 2, and 3 but does not mandate a reduction in consumption. Refer to revised text in Section 3.14.17 (formerly 3.13.7).
- Stage 3 is also the first noted stage for reductions in commercial and industrial water use, and even that is discretionary. There are no mandatory restrictions on commercial or industrial demand, and customers are still allowed to fill pools even in the worst stages of drought.
 - Response: The Town of Fuquay-Varina limits outdoor water use in stage 1. Pool filling is prohibited in Stages 1, 2, and 3 and vehicle washing is restricted. The Town of Fuquay-Varina's outdoor water use mandates are more restrictive than either the Towns of Cary or Apex, which do not limit outdoor water use until stage 3.

Division of Water Resources Comments on
Revised Draft EIS, September 2024

ROY COOPER
Governor

ELIZABETH S. BISER
Secretary

RICHARD E. ROGERS, JR.
Director



September 5, 2024

MEMORANDUM

FROM: Harold Brady, SEPA Review Coordinator - DWR – WPS

A handwritten signature in cursive script, appearing to read 'Harold Brady', is written over the printed name.

TO: Mary Sadler, Hazen

SUBJECT: Town of Fuquay-Varina –Interbasin Transfer request for water supply from the Cape Fear River to the Neuse River

The Division of Water Resources (DWR) has reviewed the responses to the first round of comments related to the revised initial draft Environmental Impact Statement (EIS) document and have the following comments,

Phrasing:

1. Comment #5: It seems the statement, “The preferred alternative water supply results in a requirement for an interbasin transfer (IBT) certificate...” is inconsistent with alternatives 9 C & D mentioned in the paragraph. Please consider revising.
2. Comment #205: The use of the term "defacto reuse" is likely misleading, as the Town currently has no reuse or reclaimed water program. This is important to avoid confusion with several water systems in the source basin that do have such programs.

Water Conservation:

The Town is strongly encouraged to conduct a formal water audit. Attached are links to the AWWA audit as well as NCDWR's small system audit (Comment #223).

[https://www.ncwater.org/WUDC/app/LWSP/files/AWWA Free Water Audit.xlsx](https://www.ncwater.org/WUDC/app/LWSP/files/AWWA%20Free%20Water%20Audit.xlsx)

[https://www.ncwater.org/WUDC/app/LWSP/files/small system water audit.xlsm](https://www.ncwater.org/WUDC/app/LWSP/files/small_system_water_audit.xlsm)

Based upon information in the EIS and readily available information on water system webpages, DWR disagrees with the applicant's assertion that the Town's existing water conservation measures and initiatives, when considered collectively, are equal to or more stringent than all other water systems in the source basin. In general, OWASA and the Town of Cary appear have more stringent water conservation programs/plans. Primary actions and initiatives include more stringent irrigation rules, restricting usage in summer to winter-time demand, and reclaimed water programs. Other water conservation measures and actions from other water systems in the source basin include, an annual water conservation



North Carolina Department of Environmental Quality | Division of Water Resources
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919.707.9000

event and a financial incentive program for changing out older less efficient appliances by the Fayetteville PWC and the City of Greensboro imposing “excess use rates” and compelling commercial and industrial customers to reduce demand by specific percentages. To bring the Town closer to meeting this statutory requirement, one recommendation is for the Town to consider initiating a reclaimed water program. The intent of having a reclaimed water program is not to completely handle the 6 mgd demand related to the transfer. It is intended to be part of a larger water conservation program to minimize the transfer, particularly reducing the peaking, potentially leaving greater available capacity of the North Harnett WWTP. Barring other potential constraints, this action would allow for more water to be returned to the source basin (Comment #214).

Demand Projections:

Based on the information in the Draft EIS as well as LWSP data, DWR staff question the methodology employed to determine the per capita rate used in the projections for the proposed project. For communities with particularly strong growth, the average total per capita demand over the most recent five-year period has been employed with previous projects to better account for the changing conditions than a ten-year time-period. This is due to the fact that newer development incorporates more modern water saving features than older homes do. This assertion appears to be confirmed by the data, considering that the average from 2012-2017 is 85.3 GPCD compared to the significantly smaller average from 2018-2023 (i.e., most recent five years of data) of 78.8 GPCD. Interestingly, the most recent 2023 LWSP data shows a per capita demand of 74 GPCD. Once the methodology used in the EIS for developing projections is resolved, the subsequent LWSP projections will need mirror those findings.

DWR does not disagree with the assertion by the applicant that the per capita used for the analysis (85 GPCD) is within the range of other per capita demand values from neighboring water systems during a similar time period; however, that is merely a check of the reasonableness of the methodology which values from both methodologies (5-year & 10-year averages) fall within (Comments #34, 219). It should not be used as a justification.

It appears that because the 512 properties are in the Neuse IBT basin, their consumptive losses should be added to the Neuse transfer, not subtracted. Please correct as necessary (Comment #163). Please explain the actions that are likely causing the difference of 40 GPCD between summer and winter per capita demand. Please describe what the Town is doing to minimize and control peaking (Comment #212).

Modeling:

During the public meetings in 2020, many members of the public voiced their concern about this proposed project causing water quality impacts in both the source and receiving basins, particularly from the presence of emerging compounds. Please provide an acknowledgement of this concern and a clear statement as why the applicant is not planning to conduct any water quality studies for this proposed project, particularly in light



of the downstream concerns from emerging compounds (Comment #174). The applicant has expressed concern over the cost of modeling, but the Division feels that a steady state model or mass balance assessment for a conservative constituent could potentially provide the needed insight into potential changes in pollutant concentrations as a result of the transfer.

As well, DWR reiterates its request for the applicant develop an analysis to quantify, using the WSRPs, the rate and frequency that downstream users such as, Fayetteville PWC and CFPWA, are projected to go into water conservation stages, similar to the analysis conducted for other downstream water systems (Tables 5-9 & 5-10), as a result of this proposed project. Please consider working with staff from Fayetteville PWC and CFPWA, if necessary, to assist in interpreting their triggers in context with data from the OASIS model (Comment #283). Additionally, the number of occurrences of any water conservation trigger/stage needs to be reported in Tables 5-9 and 5-10.

Cost estimates:

Have been reviewed by staff from the Division of Water Infrastructure (DWI). There are no comments or issues.

Please contact Harold Brady, Water Supply Planning, 919-707-9005, harold.m.brady@ncdenr.gov, or Linwood Peele, Water Supply Planning, 919-707-9024, linwood.peele@ncdenr.gov, if you have questions regarding these comments.



Response to Division of Water Resources
Comments on Revised Draft EIS,
February 2025



Hazen and Sawyer
4011 West Chase Blvd., Suite 500
Raleigh, NC 27607

February 17, 2025

Mr. Harold Brady
Water Planning Section
Division of Water Resources
1611 Mail Service Center
Raleigh, NC 27699-1611

**Re: Response to Agency Comments, Revised Draft EIS
Interbasin Transfer for Water Supply from Cape Fear to Neuse River Basin
Town of Fuquay-Varina**

Dear Mr. Brady,

On behalf of the Town of Fuquay-Varina, Hazen and Sawyer is submitting responses to Division of Water Resources (DWR) comments on the revised Draft Environmental Impact Statement (DEIS). The revised DEIS was submitted to DWR for review on February 28, 2024. Comments on the revised DEIS were received from DWR on September 5, 2024. The response to DWR's September 2024 comments is as follows:

Phrasing:

Comment #5: It seems the statement, "The preferred alternative water supply results in a requirement for an interbasin transfer (IBT) certificate..." is inconsistent with alternatives 9 C & D mentioned in the paragraph. Please consider revising.

Response: Comment #5 is related to the changes made to the first and second paragraphs in Section ES-3. The sentence has been revised to state: *The preferred alternative results in a requirement for an interbasin transfer (IBT) certificate to transfer water from the Cape Fear River basin (2-3) to the Neuse River basin (10-1).*

Comment #205: The use of the term "defacto reuse" is likely misleading, as the Town currently has no reuse or reclaimed water program. This is important to avoid confusion with several water systems in the source basin that do have such programs.

Response: The term de facto reuse was removed from the DEIS.

Water Conservation:

Comment: The Town is strongly encouraged to conduct a formal water audit. Attached are links to the AWWA audit as well as NCDWR's small system audit (Comment #223).

https://www.ncwater.org/WUDC/app/LWSP/files/AWWA_Free_Water_Audit.xlsx

https://www.ncwater.org/WUDC/app/LWSP/files/small_system_water_audit.xlsm

Response: The Town is budgeting for a water audit to be conducted in Fiscal Year 25/26. The DEIS text has been updated to reflect this planned schedule.

Comment: Based upon information in the EIS and readily available information on water system webpages, DWR disagrees with the applicant's assertion that the Town's existing water conservation measures and initiatives, when considered collectively, are equal to or more stringent than all other water systems in the source basin. In general, OWASA and the Town of Cary appear have more stringent water conservation programs/plans. Primary actions and initiatives include more stringent irrigation rules, restricting usage in summer to winter-time demand, and reclaimed water programs. Other water conservation measures and actions from other water systems in the source basin include an annual water conservation event and a financial incentive program for changing out older less efficient appliances by the Fayetteville PWC and the City of Greensboro imposing "excess use rates" and compelling commercial and industrial customers to reduce demand by specific percentages.

Response: Section 3.14 of the DEIS contains a detailed discussion of the water conservation measures for the Town of Fuquay-Varina and communities in the Cape Fear River basin. Table 3-30 has been updated to include the Town's proposed changes to their existing water conservation program. DWR was consulted on these proposed changes in the fall of 2024.

Comment: To bring the Town closer to meeting this statutory requirement, one recommendation is for the Town to consider initiating a reclaimed water program. The intent of having a reclaimed water program is not to completely handle the 6 mgd demand related to the transfer. It is intended to be part of a larger water conservation program to minimize the transfer, particularly reducing the peaking, potentially leaving greater available capacity of the North Harnett WWTP. Barring other potential constraints, this action would allow for more water to be returned to the source basin (Comment #214).

Response: Reclaimed water as a transfer minimization alternative was addressed in Section 3.13 of the DEIS. Section 3.13.3 of the DEIS provides an analysis of reclaimed water use for the Town of Fuquay-Varina. The evaluation demonstrated that the Town's irrigation use is a very small fraction of the Town's potable water demand. A statistically significant difference was not found at a confidence level of 0.05 if the overall per capita use of 85 gpcd is offset annually by the average summer difference in per capita use at 3.1 gpcd. A reclaimed water program will not offset a reduction in per capita demand to minimize the interbasin transfer.

Seasonal irrigation use also does not affect the capacity of wastewater treatment facilities. Peak wastewater flow typically occurs during the winter months when there is negligible demand for reclaimed water. As noted in the DEIS, a reclaimed water program will not provide capacity at the North Harnett WWTP.

Demand Projections:

Comment: Based on the information in the Draft EIS as well as LWSP data, DWR staff question the methodology employed to determine the per capita rate used in the projections for the proposed project.

For communities with particularly strong growth, the average total per capita demand over the most recent five-year period has been employed with previous projects to better account for the changing conditions than a ten-year time-period. This is due to the fact that newer development incorporates more modern water saving features than older homes do. This assertion appears to be confirmed by the data, considering that the average from 2012-2017 is 85.3 GPCD compared to the significantly smaller average from 2018-2023 (i.e., most recent five years of data) of 78.8 GPCD. Interestingly, the most recent 2023 LWSP data shows a per capita demand of 74 GPCD. Once the methodology used in the EIS for developing projections is resolved, the subsequent LWSP projections will need to mirror those findings.

DWR does not disagree with the assertion by the applicant that the per capita used for the analysis (85 GPCD) is within the range of other per capita demand values from neighboring water systems during a similar time period; however, that is merely a check of the reasonableness of the methodology which values from both methodologies (5-year & 10-year averages) fall within (Comments #34, 219). It should not be used as a justification.

Response: Section 2.2.1 of the DEIS and Appendix B have been revised to add the 2023 Local Water Supply Plan data for the Town of Fuquay-Varina. The text has also been revised to provide additional clarification for the 85 gpcd value used in the water demand projections. In the last several years, the Town of Fuquay-Varina has seen a change in the mix of residential and commercial use in the service area. Historically the Town of Fuquay-Varina's land use has consisted of single-family homes and a few commercial businesses. With the recent economic development, the Town of Fuquay-Varina has seen a change from new construction of residential single-family homes to construction of multi-family complexes and increased commercial businesses to support residential development. This change in development type is reflected in the Town's commercial and institutional account growth over the last five years.

Comment: It appears that because the 512 properties are in the Neuse IBT basin, their consumptive losses should be added to the Neuse transfer, not subtracted. Please correct as necessary (Comment #163).

Response: Text edits to the DEIS were made.

Comment: Please explain the actions that are likely causing the difference of 40 GPCD between summer and winter per capita demand.

Response: The average difference in summer and winter per capita use is 3.10 and 2.86 gpcd, respectively, per Table 3-29 of the DEIS. There is a difference of 41 gpd/meter for single-family residential use for homes constructed between 2010 and 2019. However, the annual average, summer, and winter metered use for homes constructed between 2010 and 2019 is slightly less than the prior decade (e.g., homes constructed between 2000 and 2009). Homes constructed between 2010 and 2019 comprise 41 percent of the total number of residential accounts, which is the largest percentage of residential home construction in the Town's history. The 41 gpd/meter summer residential use difference may be due to irrigation for new landscaping. Two footnotes were added to Table 3-29 to provide clarification.

Comment: Please describe what the Town is doing to minimize and control peaking (Comment #212).

Response: Section 3.14.4 of the DEIS provides a discussion of the Town's Advanced Metering Infrastructure (AMI) system. The AMI system provides Town of Fuquay-Varina staff real-time usage information to enhance and promote water conservation, reduce water leaks in the system, and improve operational efficiency. Town of Fuquay-Varina staff receive leak alerts from the AMI system that staff investigate daily. Section 3.15.5 of the DEIS provides a discussion of the *eUtilities* and *eMeters* online services that the Town provides to customers. Customers can receive detailed information regarding daily consumption and notifications during high water use periods. Approximately 93 percent of the Town's customers have registered for these online services. The new AMI system, *eUtilities*, and *eMeters* on-line services will help minimize and control spikes in water use to assist with reducing the maximum month and maximum day demand and peaking factors.

Modeling:

Comment: During the public meetings in 2020, many members of the public voiced their concern about this proposed project causing water quality impacts in both the source and receiving basins, particularly from the presence of emerging compounds. Please provide an acknowledgement of this concern and a clear statement as why the applicant is not planning to conduct any water quality studies for this proposed project, particularly in light of the downstream concerns from emerging compounds (Comment #174). The applicant has expressed concern over the cost of modeling, but the Division feels that a steady state model or mass balance assessment for a conservative constituent could potentially provide the needed insight into potential changes in pollutant concentrations as a result of the transfer.

Response: Hazen prepared a Technical Memorandum for the Town in January 2021 that summarized the comments received during the State Environmental Policy Act (SEPA) scoping phase. The comments are sorted by those received from the public, utilities and municipal government, and state agencies. This Technical Memorandum has been included in Appendix G of the DEIS.

The water quality comments from the public and other utilities referenced potential impacts on water quality due to emerging contaminants, specifically per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane (1,4-D). Comments indicated that PFAS and 1,4-D could potentially be returned to the Cape Fear River basin through the Harnett County North Regional WWTP or to the Neuse River basin through the Town of Fuquay-Varina's Terrible Creek WWTP.

There are several challenges associated with assessing the water quality impact of PFAS and 1,4-D. Water quality standards have not been promulgated by the EPA or DEQ for PFAS or 1,4-D. Additionally, a certified analytical method for PFAS in a wastewater and surface matrix has not yet been promulgated per 40 CFR 136. Additionally, peer-reviewed water quality models are not available to address emerging contaminants in ambient waters. In the event water quality standards for PFAS or 1,4-D are promulgated and incorporated into NPDES permits, wastewater dischargers must comply with NPDES effluent limit discharge requirements, including the Town of Fuquay-Varina.

DWR did not provide comments in the SEPA scoping phase that water quality modeling was required of the applicant. Additionally, DWR conveyed to the applicant during a scoping meeting in February

2020 that water quality modeling was not necessary for the evaluation of the impacts of the interbasin transfer. In lieu of water quality modeling, an analysis of the low flow statistics from the CFNCRB model was used as a proxy to qualify potential water quality impacts. Four categories of relevant discussion are included in Section 5.14.3.3 of the DEIS: potential climate change impact to hydrology, cumulative impact related to Cape Fear River basin development, project-related impacts to 7Q10, and USGS gage accuracy and CFNCRB model precision. Section 5.16.2 of the DEIS also summarizes the results of the CFNCRB model in assessing impacts to water quality.

The CFNCRB modeled differences in 7Q10 between any two alternatives using historical hydrology are less than 10 cfs at Lillington and at the other gage sites. A value of 10 cfs is approximately 0.3 percent of the median discharge at Lillington and less than 4 percent of the historical 7Q10. The CFNCRB model's precise accounting suggests that there is a small difference across the full range of alternatives. In reality, the measurable differences between alternatives are indiscernible due to USGS gage accuracy. For example, the Lillington gage was assigned a "Good" rating in the low-flow range of 250 to 600 cfs, which translates to a margin of error of +/- 25 to 60 cfs.

Comment: As well, DWR reiterates its request for the applicant develop an analysis to quantify, using the WSRPs, the rate and frequency that downstream users such as, Fayetteville PWC and CFPWA, are projected to go into water conservation stages, similar to the analysis conducted for other downstream water systems (Tables 5-9 & 5-10), as a result of this proposed project. Please consider working with staff from Fayetteville PWC and CFPWA, if necessary, to assist in interpreting their triggers in context with data from the OASIS model (Comment #283). Additionally, the number of occurrences of any water conservation trigger/stage needs to be reported in Tables 5-9 and 5-10.

Response: The first revision to the DEIS could not quantify the rate and frequency that Fayetteville PWC and Cape Fear Public Utilities Authority (CFPUA) would be in a water conservation stage. The Water Shortage Response Plans (WSRP) available for Fayetteville PWC and CFPWA at the time the DEIS revisions were submitted to DWR did not include quantifiable water shortage response triggers. In the second round of DWR comments, Fayetteville PWC, CFPWA, and Lower Cape Fear Water and Sewer Authority (LCFWSA) published updated WSRPs in July 2023, December 2023, and May 2023, respectively. The updated WSRPs for LCFWSA and the CFPWA do not contain quantifiable triggers.

Hazen updated the DEIS analysis for Fayetteville PWC to include the quantifiable triggers from the updated WSRP. Section 5.14.3.1, Tables 5-8 and 5-9, and Attachment F of the DEIS were revised with the updated analysis for Fayetteville PWC.

Cost Estimates:

Comment: Have been reviewed by staff from the Division of Water Infrastructure (DWI). There are no comments or issues.

Response: Comment noted. The cost opinions in the DEIS were updated for EPA's published 2025 nominal interest rate per Circular A-94 (M-25-08) and the published 2024 annual average Engineering News Record (ENR) construction cost index.



Hazen and the Town of Fuquay-Varina appreciate the time and consideration of DWR staff to assist with this important project.

Sincerely,

A handwritten signature in blue ink, reading "Mary E. Sadler". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Mary E. Sadler, PE
Associate Vice President

cc: Jim Seymour, Town of Fuquay-Varina
Mike Wagner, Town of Fuquay-Varina
Linwood Peele, Division of Water Resources
Reed Palmer, Hazen and Sawyer

Response to Division of Water Resources
Comments on Revised Draft EIS,
June 2025



Hazen and Sawyer
4011 West Chase Blvd., Suite 500
Raleigh, NC 27607

June 20, 2025

Mr. Harold Brady
Water Planning Section
Division of Water Resources
1611 Mail Service Center
Raleigh, NC 27699-1611

**Re: Response to Agency Comments, Revised Draft EIS
Interbasin Transfer for Water Supply from Cape Fear to Neuse River Basin
Town of Fuquay-Varina**

Dear Mr. Brady,

On behalf of the Town of Fuquay-Varina, Hazen and Sawyer is submitting a final response to the Division of Water Resources (DWR) comment on the revised Draft Environmental Impact Statement (DEIS). The revised DEIS was submitted to DWR for review on February 28, 2024. Comments on the revised DEIS were received from DWR on September 5, 2024 with a second revised DEIS submitted to DWR in February 2025. The response to DWR's comment is as follows:

Comment:

Section 2.2.1 Per Capita Demand: The total per capita demand should not be generated by applying the categorical use type connections growth rate to the per person water use consumption rate. Applying the connections growth rate to the per person consumption rate is an "apples to oranges" comparison. As well, applying the connections growth rate to the gpcd rate suggests that the water system is becoming less efficient rather than more efficient over time.

Response: Hazen has revised the Technical Memorandum *Population, Water Demand, and Interbasin Transfer Projections* and the revised DEIS to reflect recent conversations with DWR staff regarding the 10-year per capita use average (2013 to 2022) to support the Town's 85 gpcd unit water use. The weather model analysis is now an appendix to the Technical Memorandum. The revised Technical Memorandum is attached.

Sincerely,

A handwritten signature in blue ink, reading "Mary E. Sadler". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Mary E. Sadler, PE
Associate Vice President



cc: Jim Seymour, Town of Fuquay-Varina
Mike Wagner, Town of Fuquay-Varina
Linwood Peele, Division of Water Resources
Reed Palmer, Hazen and Sawyer