

LONG-TERM WATER SUPPLY STUDY

DESIGN MEMORANDUM #1

MOORE COUNTY, NC

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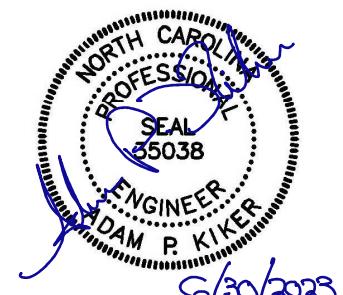
PREPARED BY:



LKC ENGINEERING, PLLC
140 Aqua Shed Court
Aberdeen, NC 28315
(910) 420-1437
License # P-1095
Primary Contact:
Adam P. Kiker, PE
adam@LKCengineering.com

PREPARED FOR:

COUNTY OF MOORE, NC
Moore County Public Utilities
5227 US 15/501, Carthage, NC 28327
Primary Contact:
Randy Gould, P.E., Director
(910) 947-4300
rgould@moorecountync.gov



ADAM P. KIKER, P.E.

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Submittal #2 Change

This Submittal #2 addresses an error made in the first sealed submittal. Specifically Section 7.4.1 incorrectly stated that the City of Sanford withdraws raw water from the Deep River. Sanford withdraws water from the Cape Fear River and as such Sanford is a viable alternative similar to Harnett County. Design Memo #2 will evaluate a Sanford alternative.

1.0 INTRODUCTION

Moore County, through the Moore County Public Works department, owns and operates multiple public water supply systems to provide safe and reliable drinking water to residents and businesses in the County. The County is forecasting a shortage of available water supply within a reasonable planning horizon, and the County commissioned this study to provide guidance for securing additional water supply capacity.

Moore County owns and operates nine different public water supply systems under Moore County Public Utilities, plus the East Moore Water District. Five of the water systems are interconnected. This study focuses only on these interconnected Public Water Supply systems, shown in Table 1 below:

Table 1: Water Supply Study Focus Systems

Public Water Supply ID	Water System Name
50-63-011	East Moore Water District
03-63-103	MCPU – Hyland Hills
03-63-108	MCPU – Pinehurst*
03-63-117	MCPU – Seven Lakes*
03-63-045	MCPU – Vass

**The Pinehurst and Seven Lakes systems are now combined into a single Public Water Supply ID number, 03-63-108, effective January 1, 2022.*

Each system above is experiencing growth in customer base and in average daily water supplied, and some systems are growing at different rates than others.

The Moore County service area straddles three separate regulated river basins: the Deep River basin, the Cape Fear River basin, and the Lumber River basin. While the Deep River flows into the Cape Fear River not far downstream of Moore County, the Interbasin Transfer legislation lists the Deep River as a separate and regulated river basin. Because Moore County occupies three different river basins with water customers in all three basins, the geographic location of current and future water sources is important to the regulatory process of future water supplies.

This Design Memorandum #1 provides background information on Moore County's existing service areas and supply resources. It also uses growth projections to forecast future water supply needs over the planning horizon. Last, it assigns a geographic component to the growth areas to anticipate if or when an Interbasin Transfer certificate might be necessary.

Future efforts in Design Memorandum #2 will provide more detailed analyses of the water supply alternatives deemed feasible for the County's long-term supply needs. Pipeline routing, hydraulic calculations, operational calculations like energy and chemical consumption, and detailed cost estimates will be provided.

2.0 EXISTING WATER SUPPLY SOURCES

Moore County currently has four sources of water supply for the studied water systems:

- Network of groundwater wells in the Pinehurst system
- Bulk purchase agreement with Harnett County
- Bulk purchase agreement with the Town of Aberdeen
- Bulk purchase agreement with the Town of Southern Pines

2.1 Groundwater Wells in Pinehurst

Moore County owns and operates seventeen groundwater supply wells that are located in the Pinehurst area. Table 2 provides a summary of the wells in the Pinehurst system with the capacity of each well.

Table 2: Pinehurst Wells

Well #	Pumping Rate (gpm)	12 hour yield (mgd)	18-hour yield (mgd)
2A	95	0.068	0.102
5A	173	0.125	0.187
7	129	0.093	0.139
9	58	0.042	0.063
10	144	0.103	0.155
11	68	0.049	0.073
12	133	0.096	0.144
13	135	0.098	0.146
15	133	0.096	0.144
16	127	0.092	0.138
17	38	0.027	0.041
18	127	0.092	0.138
19	142	0.102	0.153
20	108	0.078	0.117
21	106	0.077	0.115
22	80	0.057	0.086
23	52	0.037	0.056
TOTALS		1.33	1.995

In addition to the above, Moore County has near-term plans to construct two additional wells on Linden Road, called the Baer site and the Longfellow site. Based on test well information, these well have expected pumping rates of 100 gal/min and 125 gal/min, respectfully. Adding those to the capacities above increases the combined 18-hour yield from all wells to 2.238 MGD.

NCAC Title 15A, Subchapter 18C, Section .0402(g)(3) stipulates that systems supplied with groundwater must be able to satisfy the average daily supply needs using a 12-hour pumping rate. The rule does not govern the use of wells to satisfy the peak day supply needs of a system. For this study the 18-hour pumping capacity is used as the peak day supply volume from the wells. This is a conservative approach and allows for wells to be out of service periodically for repair and maintenance without risking the ability to satisfy the assigned peak day capacity.

The Interbasin Transfer rules do not regulate groundwater. Water from the Pinehurst wells can be moved across basin lines without counting towards basin transfer volumes.

2.2 Bulk Purchase Agreement with Harnett County

Moore County has an interlocal agreement with Harnett County dated September 17th, 2013 providing for the purchase of up to 3,000,000 gallons per day of potable water. A copy of the executed interlocal agreement is included in the Appendices.

Article VIII of this agreement indicates the maximum flow rate from Harnett County into Moore County should be set at 2,100 gallons per minute. As such, the 3.0 MGD purchase capacity must be compared to the peak day supply needs, not the average day supply needs.

Article XXI of the agreement indicates the term is 99 years from the date of execution.

Water from Harnett County enters Moore County via the East Moore Water District, and the entirety of the EMWD is fed from Harnett County. Water is pumped across the East Moore Water District system from east to west by the Thurlow BPS just north of Vass. Another booster pump station, McCaskill Road BPS, transmits water purchased from Harnett County into the Pinehurst and Seven Lakes system. This allows water purchased from Harnett County to augment the water supplied by the Pinehurst wells, boosting the supply to Pinehurst and Seven Lakes.

The Vass and Hyland Hills water systems are also fed from the EMWD with water purchased from Harnett County.

Harnett County's water treatment plant withdraws water from the Cape Fear River. Secondary disinfection is achieved through chloramination.

2.3 Bulk Purchase Agreement with the Town of Southern Pines

Moore County has an interlocal agreement with the Town of Southern Pines dated March 15th, 2010. A copy of the agreement is in the Appendices. The agreement allows for the purchase of a maximum of 1,000,000 gallons per day from Southern Pines. The purchase volume is stipulated as a maximum amount not to exceed for each day. The contract also has a minimum annual purchase volume equal to 300,000 gal/day.

The contract was signed in 2010 and was valid for five years. The contract terms stipulate two automatic five year renewals in the absence of notice of termination by either party. In

March of 2025 the contract will expire. Priority should be given in the near-term to secure the continued ability to purchase 1.0 MGD from Southern Pines.

The water purchased from Southern Pines enters the Moore County system on Midland Road. It is pumped from the Southern Pines system into the Pinehurst elevated tanks. From the Pinehurst tanks it can also be fed to Seven Lakes through the NC211 and the NC73 booster pump stations.

Southern Pines withdraws raw water from Drowning Creek which is in the Lumber River Basin. Secondary disinfection is achieved through chloramination.

2.4 Bulk Purchase Agreement with the Town of Aberdeen

Moore County has an interlocal agreement with the Town of Aberdeen dated August 16, 2010 allowing for the purchase of a maximum daily amount of 600,000 gal/day. A copy of the Agreement is in the Appendices. Similar to the agreement with Southern Pines, the Aberdeen agreement also was valid for five years with two automatic five year renewals in the absence of notice of termination by either party. In August of 2025 the contract will expire. Priority in the near-term should be given to securing the continued ability to purchase water from Aberdeen beyond 2025.

The water purchased from Aberdeen enters the Moore County system on NC-5 near Dawkins Street just south of Pinehurst. The water enters the Pinehurst elevated tanks and can be transmitted to Seven Lakes through the NC211 and the NC73 booster pump stations.

Aberdeen's water is supplied through a network of groundwater wells. Disinfection is achieved using free chlorine. Groundwater is not regulated by the Interbasin Transfer rules and as such water purchased from Aberdeen does not count towards any Interbasin Transfer calculation.

2.5 Summary of All Current Water Supply Sources

Table 3 below provides a summary of the water supply sources discussed above. Moore County has a maximum available daily water supply of 6.838 MGD currently.

Table 3: Summary of Current Water Supply Sources

Source	Volume (MGD)	Expiration Year	Source River Basin
Pinehurst Wells	2.238	N/A	N/A (wells)
Harnett County	3.000	2112	Cape Fear
Town of Southern Pines	1.000	2025	Lumber
Town of Aberdeen	0.600	2025	N/A (wells)
TOTAL	6.838		

The average volume supplied by each available source is shown in Figure 1 below.

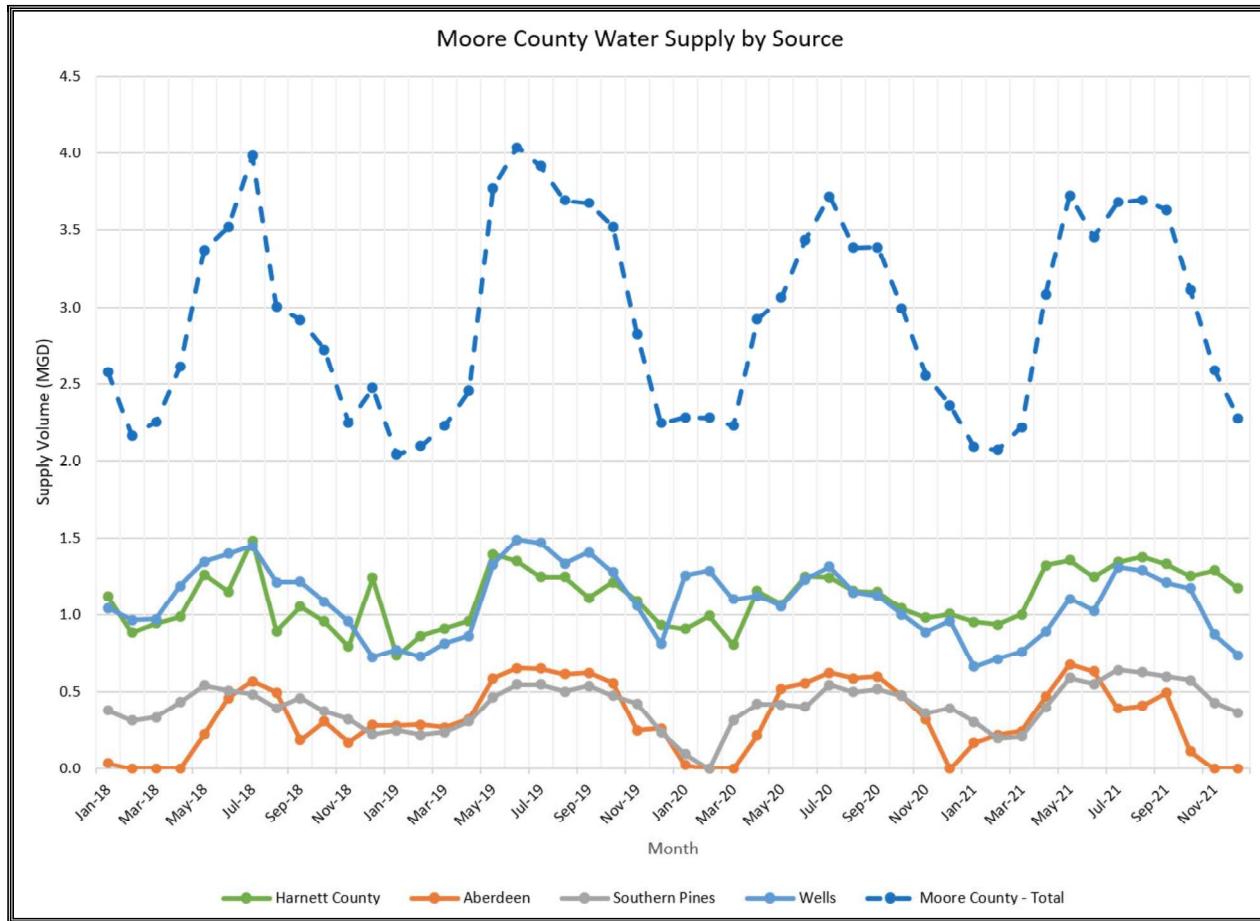


Figure 1: Moore County Water Supply by Source

3.0 RELEVANT SERVICE AREAS

This study focuses only on the higher-growth areas inside the County containing the East Moore Water District, Vass, Hyland Hills, Pinehurst, and Seven Lakes water systems.

3.1 East Moore Water District

The East Moore Water District is a separate body politic that was formed through a bond referendum held in 2001. The general service area of the EMWD is predominantly rural areas in the eastern and central portions of Moore County consisting of the Little River, Greenwood, Carthage, and McNeill townships, excluding the municipalities therein. The majority of the District service area is inside the Cape Fear River Basin, with a small portion extending north into the Deep River Basin.

The District infrastructure has matured through four different phases of construction, with the final phase recently completed in 2022. As of December 2022, the EMWD has 3,238 residential and 57 non-residential customers.

Water to the EMWD is supplied through the bulk purchase agreement with Harnett County through three different connection points. The primary connection is on Line Road at the county line. The EMWD has one elevated storage tank with a high-water level of 650' MSL. Most of the District is served by this pressure gradient. A small portion in the eastern part of the District is served by the Harnett County pressure gradient, and a small portion in the southwest part of the District is served by the Pinehurst tank gradient.

The EMWD provides all water supplied to the Vass and Hyland Hills systems through multiple connection points. In calendar year 2021 the average volume of water supplied to the EMWD, including the Vass and Hyland Hills systems, not including water transmitted to the Pinehurst and Seven Lakes systems, was 0.592 MGD. Each customer averages 150 gallons per day of necessary supply.

Aside from a very small number of customers, the EMWD customers do not have access to sewer.

The EMWD service area partially surrounds the municipalities of Southern Pines, Whispering Pines, Pinehurst, and Carthage. The EMWD has experienced noticeable customer growth as new subdivisions are being developed in the border areas of the municipalities.

3.1.1 Vass Water System

Moore County owns and operates the water and sewer systems inside the Town of Vass. All water customers in Vass are Moore County Public Utilities customers. The service area is limited to the Town's municipal boundary, largely because the EMWD serves the immediate areas outside the town limits.

In December of 2022 there were 566 residential and 84 non-residential customers in the Vass system. In general, all water customers inside Vass are also Moore County Public

Utilities sewer customers. Sewer from the Vass system is pumped to the Moore County Water Pollution Control Plant which discharges treated effluent into the Lumber River Basin.

3.1.2 Hyland Hills System

Moore County owns and operates the water system serving the Hyland Hills community. Located along US-1 between Vass and Southern Pines, the system was originally served by a network of wells and hydropneumatic tanks. During the Phase 2 expansion of the EMWD a water line was extended to Hyland Hills allowing the system to be served by EMWD with water purchased from Harnett County.

In December 2022 there were 140 residential and 2 non-residential water customer in the Hyland Hills system. There is no sewer service in the Hyland Hills system.

3.1.2 Growth in the EMWD, Vass, and Hyland Hills Systems

The EMWD service area, including Vass and Hyland Hills, is experiencing more noticeable growth on a percentage basis than the other Moore County service areas, and all the growth is located in the Cape Fear River Basin. For analysis purposes in this study these three systems are packaged together for evaluation. Table 4 below shows the total number of customers combined between EMWD, Vass, and Hyland Hills at the end of each year for the last seven years. Irrigation meters are not included in the figures below, they would be additive to the numbers.

Table 4: EMWD, Vass, and Hyland Hills Customer Growth

Billing Cycle	Total Residential and Non-Residential Customers	Percent Change
Dec 2016	3,209	N/A
Dec 2017	3,306	3.0%
Dec 2018	3,384	2.4%
Dec 2019	3,489	3.1%
Dec 2020	3,629	4.0%
Dec 2021	3,840	5.8%
Dec 2022	4,087	6.4%

Figure 2 below shows the average volume of water supplied to the EMWD, Vass, and Hyland Hills systems combined compared to the total Moore County supply for the same period. Note that the total Moore County supply only accounts for the systems being analyzed in this study.

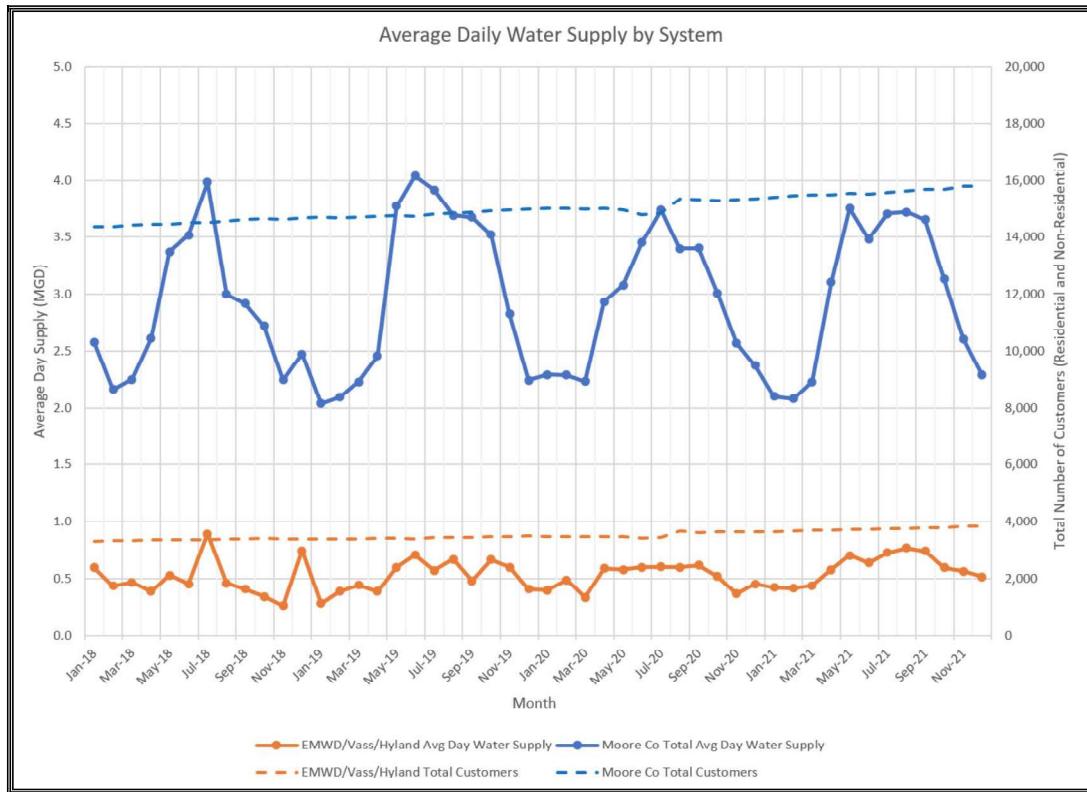


Figure 2: EMWD, Vass, and Hyland Hills Systems Supply

3.2 Pinehurst Water System

The water system in the Pinehurst municipal boundary is owned and operated by Moore County. The water supplied to the Pinehurst system originated from all four of the available sources. In December of 2022 there were 8,703 residential and 410 non-residential customers in the Pinehurst system, and each customer averages 219 gallons per day of necessary supply. The average daily volume of water supplied to the Pinehurst system in calendar year 2021 was 1.855 MGD.

The Pinehurst system has four elevated storage tanks all with a high water elevation of 676.5' MSL. The Pinehurst system supplies the Seven Lakes system through the NC211 and the NC73 booster pump stations. The Pinehurst system occasionally has been needed to back-feed the EMWD system in the event of an emergency.

In general, all water customers in Pinehurst are also sewer customers, and the sewer is collected and conveyed to the Moore County Water Pollution Control Plant that discharges treated effluent to the Lumber River Basin.

The Pinehurst system has experienced moderate growth in customer base primarily attributable to infill building and development. Table 5 below shows the historical growth in customer base. Irrigation meters are not included in the figures below, they would be additive to the numbers.

Table 5: Pinehurst Customer Growth

Billing Cycle	Total Residential and Non-Residential Customers	Percent Change
Dec 2016	8,290	N/A
Dec 2017	8,438	1.8%
Dec 2018	8,631	2.3%
Dec 2019	8,787	1.8%
Dec 2020	8,928	1.6%
Dec 2021	9,109	2.0%
Dec 2022	9,171	0.7%

Figure 3 below shows the average volume of water supplied to the Pinehurst system compared to the total Moore County supply for the same period. Note that the total Moore County supply only accounts for the systems being analyzed in this study.

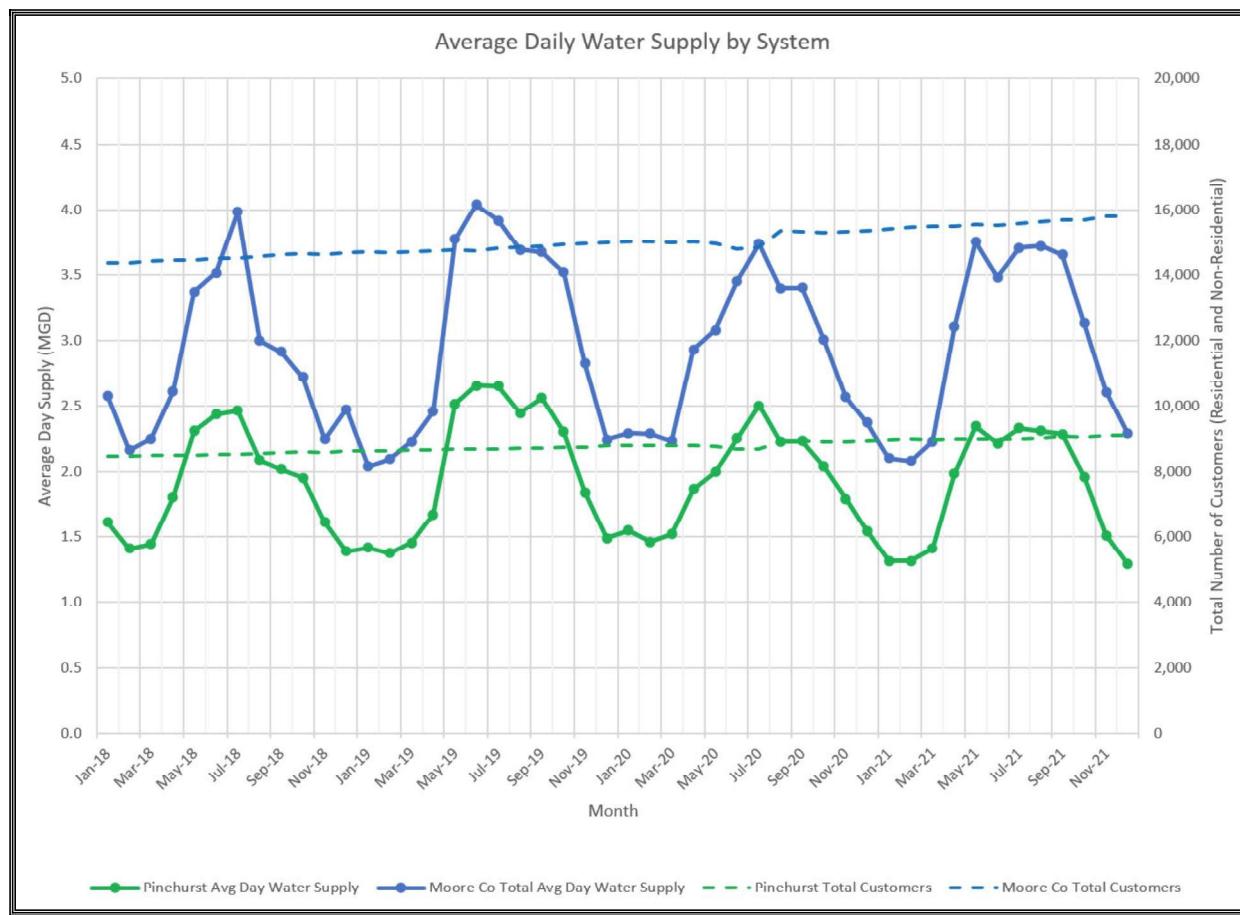


Figure 3: Pinehurst System Supply

3.3 Seven Lakes Water System

The Seven Lakes system is owned and operated by Moore County and serves the unincorporated area of Seven Lakes in the south-central part of Moore County. Moore County is in the process of formally combining the Pinehurst and Seven Lakes system into a single Public Water Supply ID, largely because the two systems are supplied by the same sources. However, for the purpose of this study and analyzing historical and projected supply trends, the Seven Lakes system is analyzed separately.

The Seven Lakes system is fed from two locations, the NC211 and the NC73 booster pump stations. Both pump stations pull suction from the Pinehurst elevated tank gradient. The Seven Lakes system has two elevated storage tanks, both with high water elevation of 724' MSL.

As of December 2022, the Seven Lakes system had 2,838 residential customers and 128 non-residential customers. Each customer averages 179 gallons per day of necessary supply. Irrigation meters are not included these figures, they would be additive. The average volume of water supplied to the Seven Lakes system in calendar year 2021 was 0.540 MGD.

Currently there is not sanitary sewer service in the Seven Lakes system, all water customers have private septic tanks. While Moore County is considering extending sewer service to the business district in Seven Lakes, it is unlikely that the residential areas will have sanitary sewer service in the planning horizon of this report.

The Seven Lakes service area covers three different regulated river basins: Deep, Cape Fear, and Lumber. The spread by number of customers in each basin is as follows:

- Deep basin: 36%
- Cape Fear basin: 21%
- Lumber basin: 43%

Like the Pinehurst system, the Seven Lakes system has experienced moderate growth over the last seven years largely due to infill building. The Seven Lakes service area could experience higher levels of growth in the planning horizon, especially if sanitary sewer service becomes available along the NC211 corridor.

Table 6 below displays the historical total number of customers, residential and non-residential, in Seven Lakes over the last seven years.

Table 6: Seven Lakes Customer Growth

Billing Cycle	Total Residential and Non-Residential Customers	Percent Change
Dec 2016	2,617	N/A
Dec 2017	2,598	-0.7%
Dec 2018	2,664	2.5%
Dec 2019	2,715	1.9%
Dec 2020	2,787	2.7%
Dec 2021	2,843	2.0%
Dec 2022	2,966	4.3%

Figure 4 below shows the average volume of water supplied to the Seven Lakes system compared to the total Moore County supply for the same period. Note that the total Moore County supply only accounts for the systems being analyzed in this study.

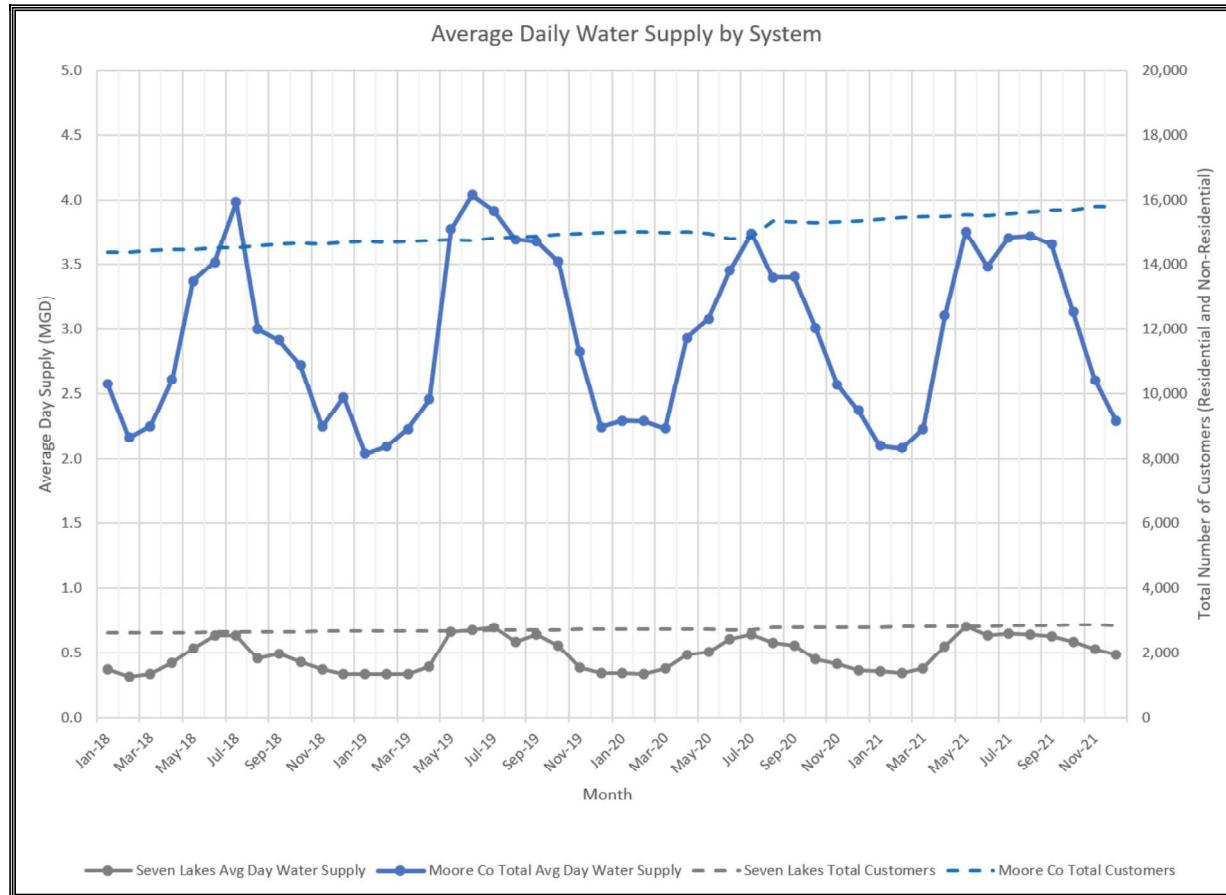


Figure 4: Seven Lakes System Supply

4.0 SUPPLY VERSUS DEMAND, AVERAGE VERSUS PEAK

The availability of drinking water is a supply analysis, rather than a demand analysis. Water supply generally refers to the volume of water supplied to a system necessary to satisfy a given demand. Whereas water demand generally refers to the volume of water consumed by the customer base.

The delta between water supply and water demand is the unaccounted-for and lost water. The accepted satisfactory delta between water supply and water demand is around 10%, meaning that in general 10% of the water supplied to a system is lost (leaks) or unaccounted for (hydrant testing, inaccurate meters, or unmetered connections).

To the benefit of this study, Moore County has several bulk flow meters between and internal to their systems, allowing historical water supply data to be extracted using actual flow readings rather than using customer consumption data generated by the billing software, and estimating the water loss percentage. This provides a much higher level of accuracy because there is no ambiguity associated with a water loss percentage.

Furthermore, water supply analysis is a peak day analysis, not an average day analysis. The usual design condition for calculating how much water supply capacity is necessary is to satisfy the peak day. If a system has significant storage available, this could be reduced to the average of a 2- or 3-day consecutive peak day condition; however, Moore County does not fit this condition.

Average day supply data over each month is usually available because flow meters between systems are usually read once per month for billing purposes. Many systems experience challenges trying to calculate an accurate peaking factor (ratio between peak day and average day) because actual daily demand or supply data is not available.

However, again to the benefit of this study, Moore County has a Supervisory, Control, and Data Acquisition (SCADA) system connected to most of its assets that allows for daily readings. This enables the calculation of a peak-to-average day supply peaking factor for the Pinehurst system using the data presented in Figure 5 below.

The results are as follows:

Pinehurst System

CY2019 Peak Day Supply: 3.487 MG

CY2019 Avg. Day Supply: 1.962 MG

Peaking Factor: 1.78

The accepted industry standard peaking factor for domestic water systems is between 1.5 and 1.7.

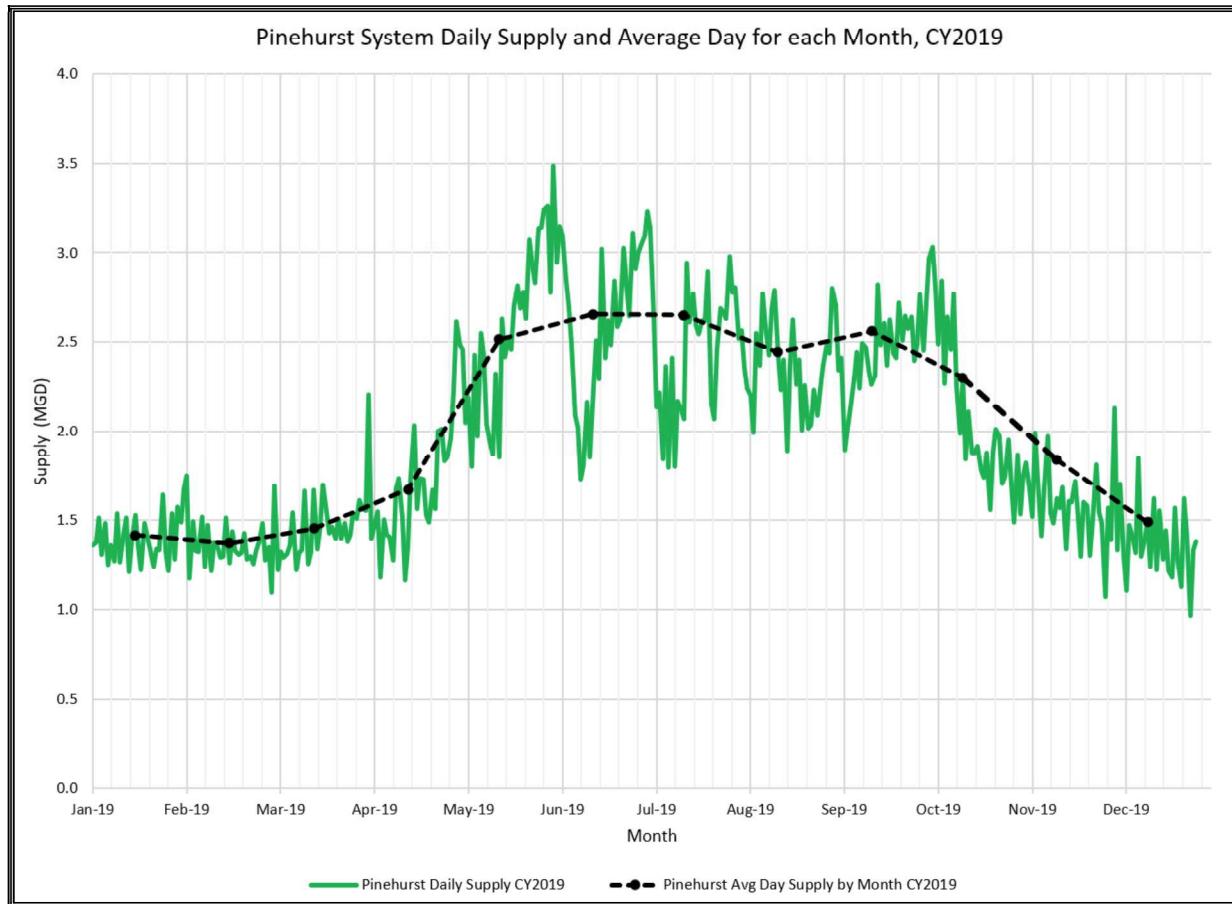


Figure 5: Pinehurst System Daily Supply Data

The Pinehurst system has a slightly higher daily peaking factor likely because there are more residential customers with irrigation systems than the typical water system. However, as Moore County's water systems continue to grow, it is expected the future customer base will be similar to the existing customer base. Therefore, a peaking factor of 1.78 is used for the growth projections later in this report.

5.0 GROWTH PROJECTIONS AND FUTURE SUPPLY NEEDS

The following methodology was used for calculating future water supply needs:

1. Assign an annual growth rate to each of the three systems discussed above (EMWD/Vass/Hyland Hills, Pinehurst, Seven Lakes) and apply the annual growth rate to the number of customers in each system at the end of 2022.
2. Multiply the projected number of customers in each of the three data sets by the average necessary daily supply per customer, obtaining the projected average daily supply needed for each year.
3. Multiply the average daily supply by the peaking factor 1.78.
4. Add an industrial reserve capacity, both average day and peak day supply.

5.1 Annual Growth Rates

The following annual growth rates are used for each of the three system data sets:

- EMWD / Vass / Hyland Hills: 3.00% per year
- Pinehurst: 1.50% per year
- Seven Lakes: 1.50% per year

The EMWD / Vass / Hyland Hills customer numbers have experienced a higher growth rate than the Pinehurst and Seven Lakes systems. Growth corridors inside Pinehurst are limited and Moore County does not control the zoning and entitlement process in Pinehurst. In contrast, the EMWD is still relative rural and falls under Moore County's zoning jurisdiction for the most part. Because the EMWD surrounds the municipalities of Southern Pines, Vass, Whispering Pines, and Carthage, it is experiencing a much higher rate of customer growth.

Using the above annual growth rates, the projected customer base over the next 30 years is as shown in **Figure 6**.

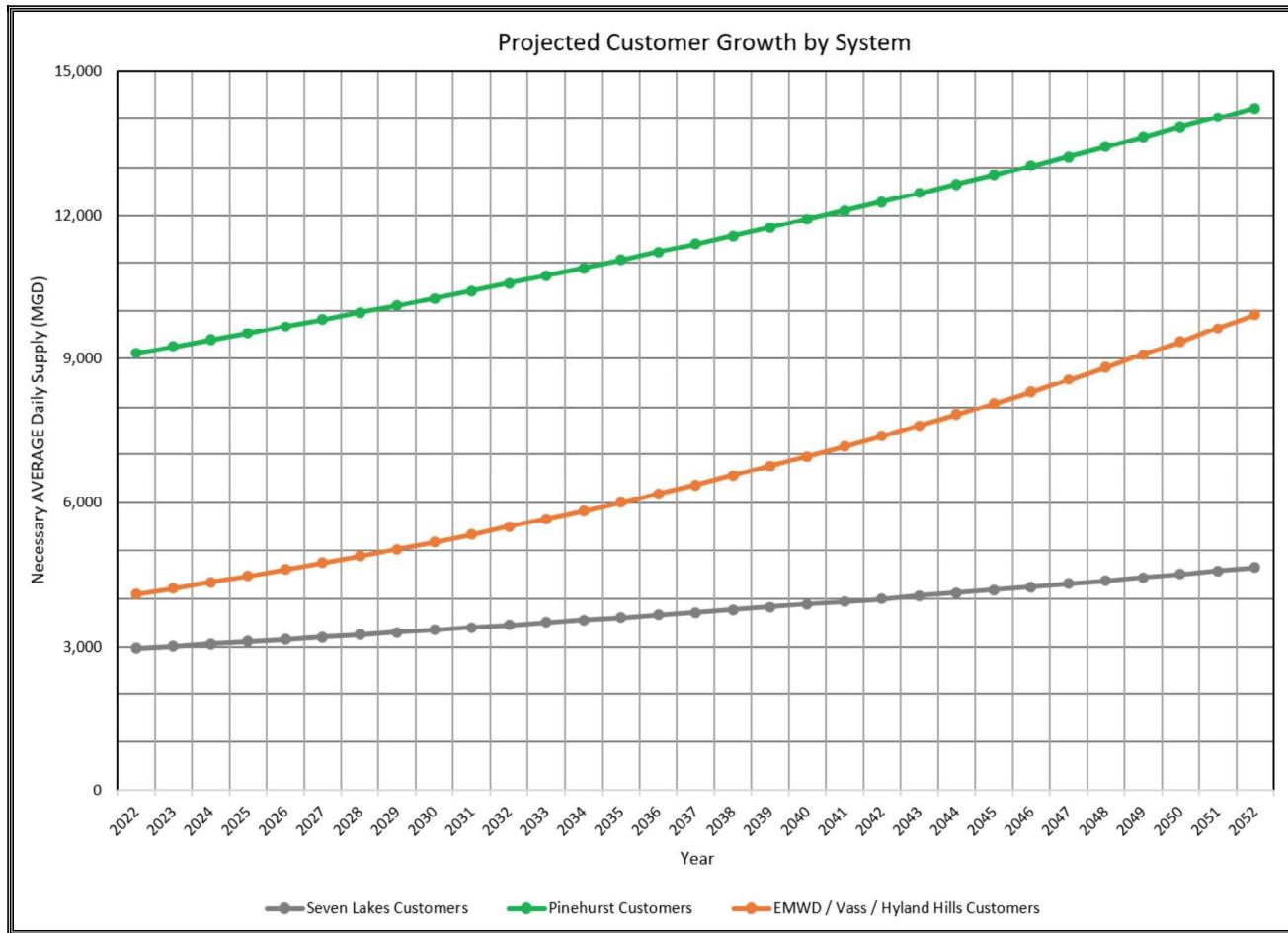


Figure 6: Projected Customer Growth

5.2 Future Water Supply Needs by System

The future water supply needs are calculated by multiplying the projected customer base in Figure 6 above by the average gallons per day consumption figures presented in Sections 3.1, 3.2, and 3.3 above:

- EMWD / Vass / Hyland Hills system: 150 gal/day per customer
- Pinehurst system: 219 gal/day per customer
- Seven Lakes system: 179 gal/day per customer

The resulting projected necessary daily water supply figures are shown in Figure 7.

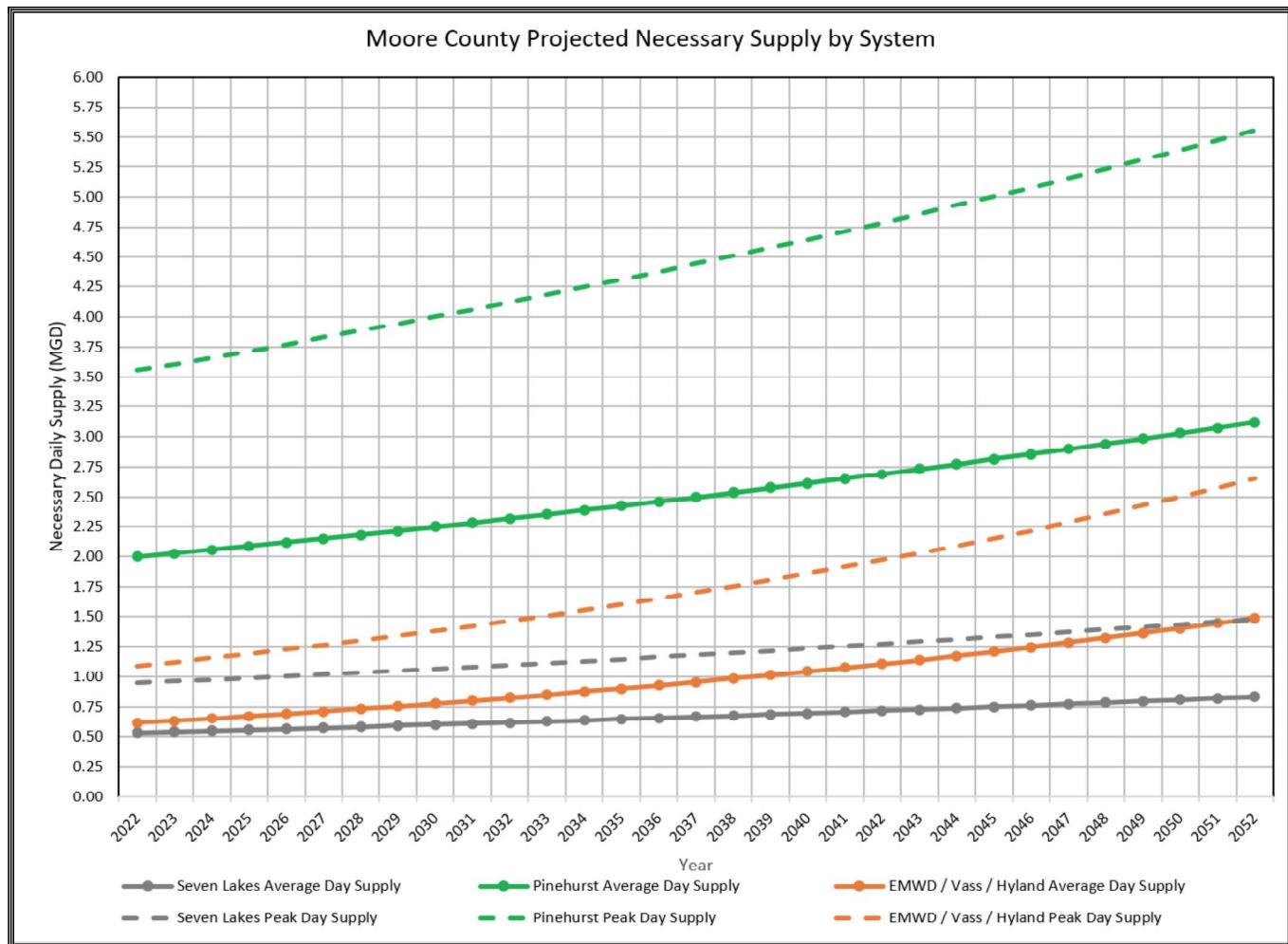


Figure 7: Projected Necessary Supply by System

5.3 Industrial Reserve for Future Water Supply

When planning for future water supply needs, many systems will include a reserve capacity in the projection for potential future industrial or heavy commercial customers. This provides the utility the ability to actively seek economic development opportunities with the confidence there will be sufficient water supply capacity to serve the investment.

In this report, the average day supply need for industrial reserve is calculated as follows:

- 15% of the combined system supply requirement
- Maximum of 750,000 gallons per day
- Reserve starts at zero in year one and progresses linearly to the above calculation over 10 years

The industrial reserve capacity calculated above is added to the system's necessary average day supply for each year. The same peaking factor used for the rest of the system is also

applied to the industrial reserve, creating a peak day supply including the peak industrial reserve.

Many industrial customers have a more consistent daily supply need than normal residential and commercial customers, so using the same peaking factor of 1.78 could be creating a conservatively high estimate of the future supply needs. However, in the absence of a specific type of industrial customer being targeted, it was decided the same peaking factor was appropriate for the analysis at this stage.

5.4 Overall System Projected Total Necessary Supply

Figure 8 below provides the overall system necessary supply over a 30-year horizon.

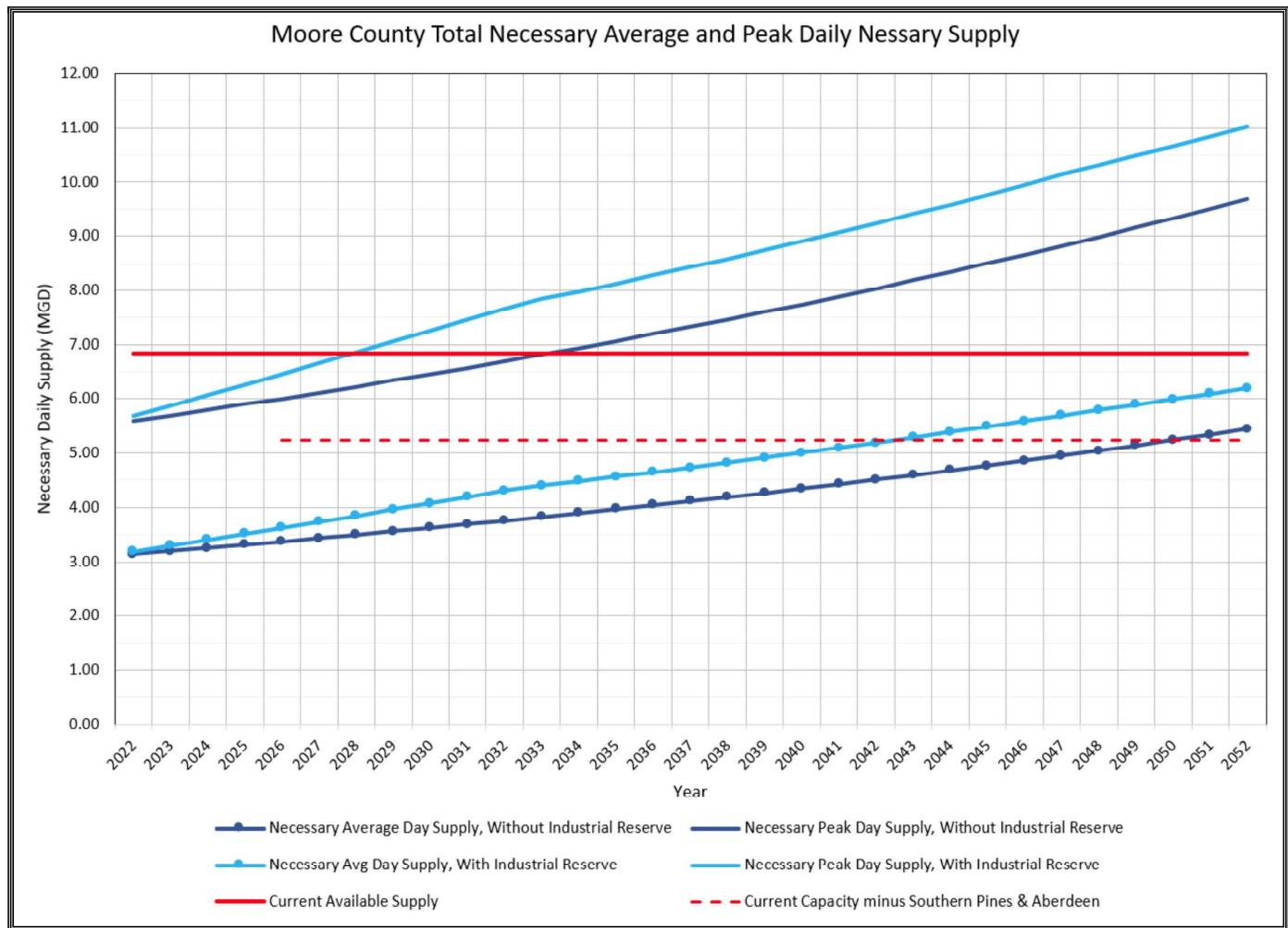


Figure 8: Total Necessary Average and Peak Day Supply

Here are some important items to note in Figure 8:

1. The current peak day supply need is approximately 5.5 MGD, which aligns with the data presented in Section 3, using a 1.78 peaking factor.
2. Securing continued purchase agreements with Southern Pines and Aberdeen is critical to meeting peak day supply needs in the near term.

3. The current available supply, including the current available purchase capacity from Southern Pines and Aberdeen, will accommodate the projected growth trends until year 2028 or 2033, depending on the industrial reserve needs.
4. Using the industrial reserve calculation as presented, **the 30-year additional supply need is approximately 4.0 MGD** to satisfy the necessary peak day supply. This assumes all the currently available supply sources remain in service.

Figure 8 does not account for Moore County supplying water to new bulk purchase customers. Any supply volume to be allocated to a bulk purchaser would be additive to the values shown.

6.0 INTERBASIN TRANSFER (IBT) REGULATIONS AND MOORE COUNTY

6.1 General IBT Rules

North Carolina's Interbasin Transfer laws date back to 1993 and were enacted by Session Law 1993-348. NC General State 143-215.22L provides the following surface water transfer volumes require an IBT certificate:

1. A net surface water transfer of more than 2,000,000 gallons per day calculated as the daily average of a calendar month.
2. A net surface water transfer of 3,000,000 gallons on any given day.

NC General Statute 143-215.22G lists the river basins and subbasins that are regulated under the IBT rules. Moore County has three regulated river basins in its service area: Cape Fear River, Deep River, and Lumber River. The Deep River is a regulated subbasin even though it flows into the Cape Fear River, meaning a transfer from the Deep to the Cape Fear river basin is regulated the same as any other major river basin transfer.

The IBT rules do not regulate groundwater, so water pumped from groundwater wells can cross river basin boundaries without counting towards transfer volumes.

The transfer rules are considered a net transfer. If surface water from one river basin is transferred across the basin boundary, but the wastewater is transferred back to the original river basin and discharged to surface waters, the volume does not count towards the transfer.

Surface water transferred across the basin boundary and disposed in private septic tanks does not count toward the volume limit.

Figure 9 below shows the river basin boundaries inside Moore County:

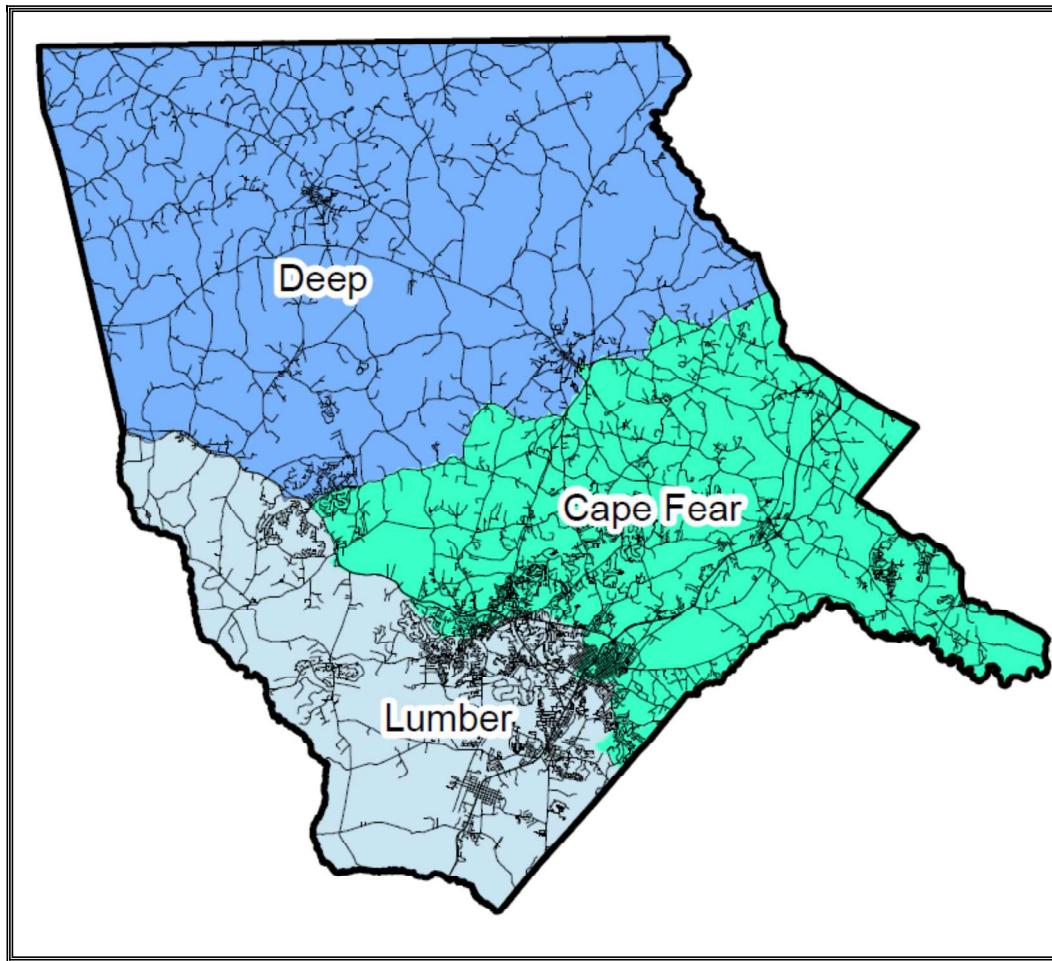


Figure 9: Moore County River Basin Boundaries

Obtaining a certificate to transfer surface water across basin boundaries that exceeds the limits described above can be a lengthy and tedious process and the certificate is not guaranteed to be granted. Typically, an IBT certificate is preceded by an Environmental Impact Statement, and the full process can take 5-10 years to complete.

Because the subject service area of this report spans three different regulated river basins, an important part of identifying feasible future supply sources is evaluating projections of net volume transfers across the river basin boundaries to determine whether or not a potential water supply source would trigger an IBT Certificate. The following sections provide detailed projections of net surface water transfer across basin boundaries if the future water source originates from each of the three regulated river basins: Cape Fear, Lumber, and Deep.

All the analysis below uses the following assumptions:

- Pinehurst wells remain in operation throughout the planning horizon
- Aberdeen and Southern Pines bulk water purchase agreements remain at their current capacity

- All Pinehurst water customers are also sewer customers, with sewer discharging to the Lumber basin
- All Vass water customers are also sewer customers, with sewer discharging to the Lumber basin
- No EMWD, Hyland Hills, and Seven Lakes are on sewer, all remain on private septic tanks

6.2 Cape Fear River Basin as the Future Supply Source

If the future water supply source is from the Cape Fear River Basin, the net basin transfer volume would originate from the sum of the following supplies. Each item has a sub-item that describes how the volume is calculated and projected over the planning horizon.

1. Vass sewer customers
 - CY2021 Vass sewer data was averaged, then the EMWD / Vass / Hyland Hills annual growth rate applied to the average.
2. Seven Lakes customers that are on the west side of NC211 and in the Lumber basin, called Seven Lakes West for this analysis
 - The Seven Lakes supply is calculated by adding the NC211 pump station and the NC73 pump station volumes. Seven Lakes West was calculated by prorating the total Seven Lakes supply by the percentage of the customers that are in the Lumber basin. The Seven Lakes West volume was then averaged over CY2021, and the Seven Lakes annual growth rate applied to the average.
3. Seven Lakes customers that are on the north side of Seven Lakes Drive and east side of NC211 in the Deep basin, called Seven Lakes North
 - Similar to #2 above, Seven Lakes North volume is calculated by prorating the total Seven Lakes supply by the percentage of customers in the Deep basin. The Seven Lakes North volume was then averaged over CY2021, and the Seven Lakes annual growth rate applied to the average.
4. The portion of Pinehurst that is served by water pumped from the Cape Fear basin and discharged into the sewer system.
 - Currently this volume is the output of the McCaskill Road pump station, minus the Seven Lakes volume, and minus the “EMWD Below McCaskill Rd” data. This calculation was averaged over CY2021, and the Pinehurst annual growth rate applied to the average.

The above items are summed together each year to generate Figure 10 below.

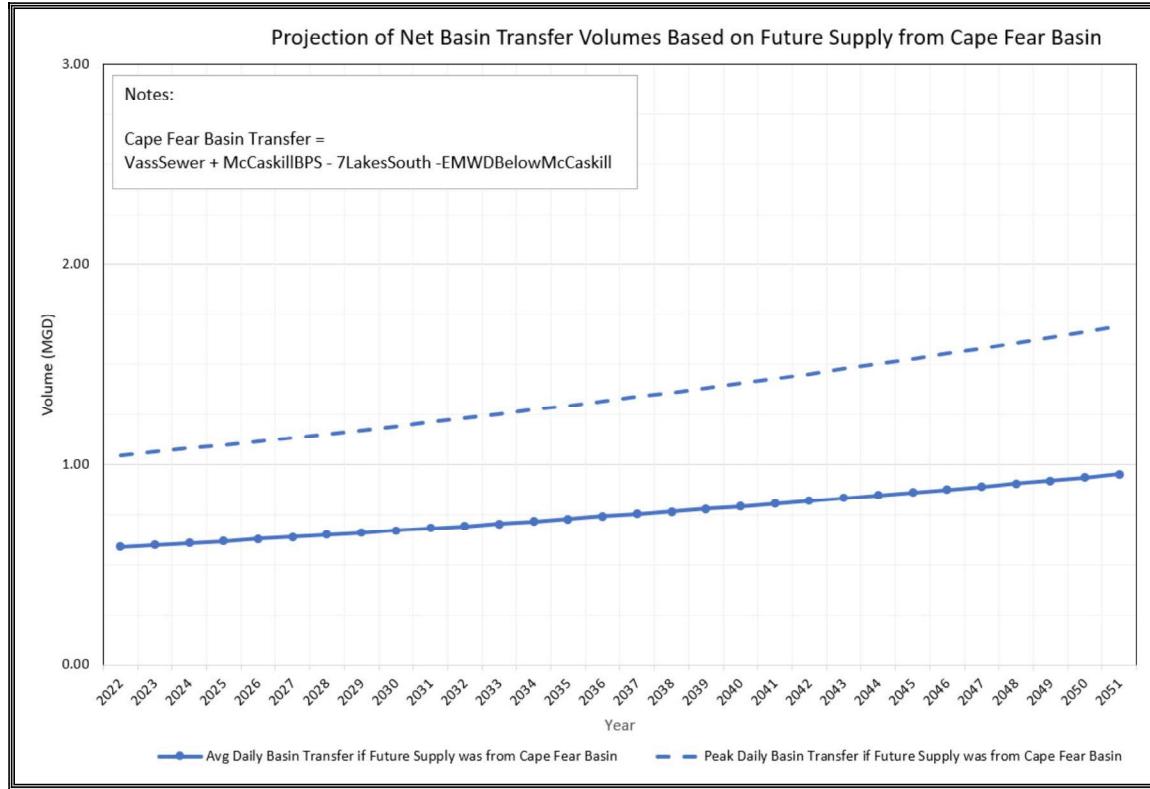


Figure 10: Project of Net Basin Transfer, Cape Fear Basin as source

Because the solid line stays below 2.0 MGD and the dashed line stays below 3.0 MGD, Figure 10 indicates an IBT certificate would not be necessary if the future water supply source was from the Cape Fear River Basin.

6.3 Lumber River Basin as the Future Supply Source

If the future water supply source is from the Lumber River Basin, the basin transfer volume would originate from the shipment of water across the basin boundary into the Cape Fear and the Deep River basins. However, Moore County has a bulk purchase contract with Harnett County for 3.0 MGD, and Harnett County's water supply is the Cape Fear River. This purchase contract is valid beyond the 30-year planning horizon (through year 2112 according to the purchase agreement). Therefore, so long as Moore County's necessary supply inside the Cape Fear River Basin does not exceed 3.0 MGD on an average daily basis, all of that supply need can be satisfied with Moore County's existing purchase agreement with Harnett County.

Moore County's projected necessary water supply inside the Cape Fear River Basin is calculated by adding the following data sets.

1. The portion of the Seven Lakes system in the Cape Fear River Basin, called Seven Lakes South.
 - Seven Lakes South is the portion of Seven Lakes in the Cape Fear basin, located east of NC211 and south of Seven Lakes Drive. This supply is calculated by summing the NC211 and NC73 pump station flows, and prorating the volume

based on the percentage of Seven Lakes customers in Seven Lakes South. The CY2021 data was averaged, and the Seven Lakes annual growth rate applied to the average.

2. The EMWD, Vass, and Hyland Hills systems are all inside the Cape Fear River Basin.

- This supply is calculated by starting with the Harnett County purchase volume, subtracting the McCaskill Rd pump station volume, and adding back the “EMWD Below McCaskill Rd” data. This data is averaged for CY2021. For projection purposes, the EMWD annual growth rate is applied to the Harnett County purchase volume and the EMWD Below McCaskill Rd volume, and the Pinehurst growth rate is applied to the McCaskill Rd pump station volume.

The sum of the above data is displayed in Figure 11. This is not an indication of net transfer across the basin line. Rather, this is a projection of the necessary water supply in the Cape Fear River Basin. So long as this volume stays below 3.0 MGD, the supply can be satisfied by water purchased from Harnett County and it would not need to be supplied from a future Lumber River Basin supply source.

The chart indicates the necessary peak day supply would exceed 3.0 MGD in year 2044. However, since groundwater supply is not covered by IBT regulations, so long as the Pinehurst wells remain in operation, the periodic peaks could be supplied by water from the Pinehurst wells, preventing the need for an IBT certificate if the future water supply source is from the Lumber River Basin.

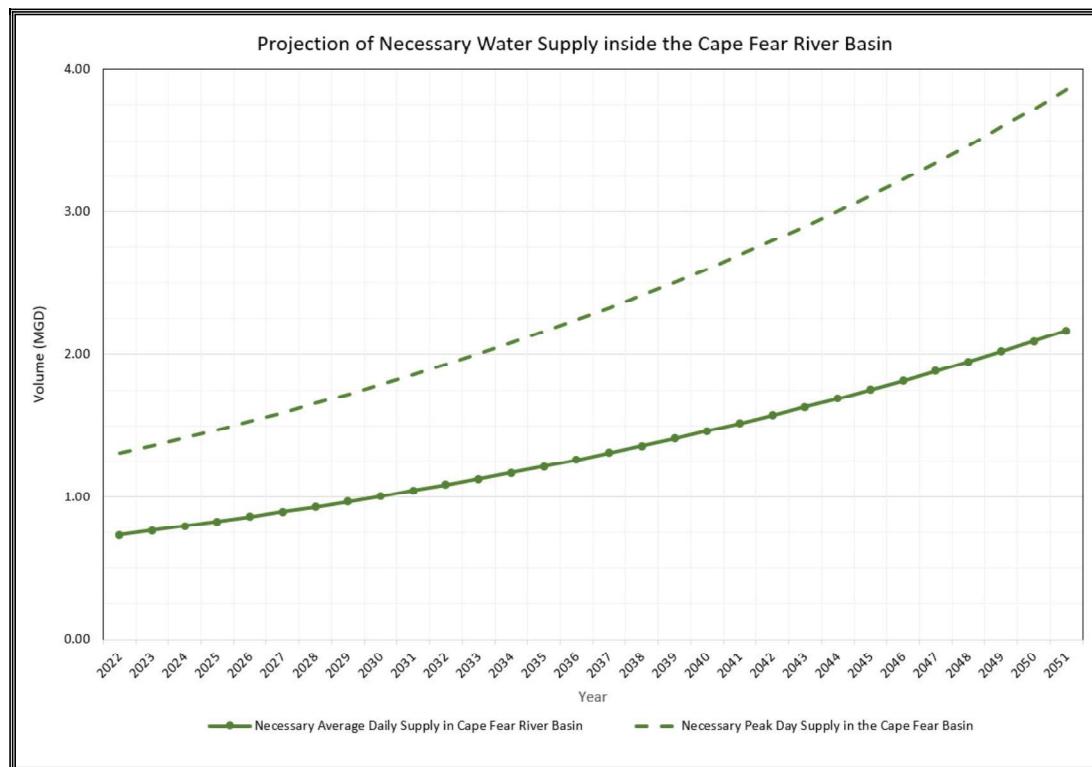


Figure 11: Projection of Necessary Water Supply in the Cape Fear River Basin

The Vass sewer system is a potential exception to the above discussion. In general, all Vass water customers are also sewer customers, and the sewer is collected, treated, then discharged into the Lumber River Basin. If the Vass sewer system's flow grows to over 2.0 MGD, and the water is being supplied by the Harnett County agreement, this would result in a transfer from the Cape Fear to the Lumber River Basin that exceeds the IBT thresholds.

However, in CY2021 the Vass sewer system averaged only 70,600 gallons per day transported to the treatment plant. As such it is unlikely the Vass system would grow to exceed the IBT threshold inside the 30-year planning horizon.

6.4 Deep River Basin as the Future Supply Source

The only current Moore County water system discussed in this report that is in the Deep River Basin is the Seven Lakes North portion. This is the service area east of NC211 and north of Seven Lakes Drive. It is a relatively small area, currently with only 1,115 total customers.

As such, if the future water supply source is from the Deep River Basin, the significant majority of the volume of surface water withdrawn from the Deep River would be shipped across the basin boundary to the Cape Fear and Lumber River Basins.

Figure 8 above indicates the projected necessary peak day supply in year 2051 is between 9.5 MGD and 10.8 MGD, depending on the assigned industrial reserve. The current available supply, including Southern Pines and Aberdeen, is 6.838 MGD. None of the current available supply is surface water from the Deep River Basin. The projected necessary additional water supply is approximately 4.0 MGD including an industrial reserve.

If the future water supply source is from the Deep River Basin, an IBT certificate would be avoided if the new infrastructure is designed for a service capacity less than 2.0 MGD. While this is feasible, it does not satisfy the 30-year projected necessary water supply and another supplemental supply source would be needed. In addition, surface water treatment and finished water transmission infrastructure (intake, reservoir, treatment plant, storage, pipelines, pump stations) are significant financial investments, and it may not be financially feasible to invest in those items if they cannot satisfy the entire projected necessary water supply.

An IBT certificate could be avoided if more than 2.0 MGD was transferred across the basin line and sewer was collected, transferred back, treated, and discharged to the Deep River basin, resulting in a net transfer of surface water below 2.0 MGD. However, much of the growth area in Moore County is currently unsewered, and the areas that are sewered have collection and conveyance infrastructure directed to the County-owned wastewater treatment plant discharging to the Lumber River basin. Constructing new sewer infrastructure in currently unsewered areas, and/or re-directing existing sewer conveyance infrastructure to discharge to the Deep River basin including a new treatment facility (or expanding an existing facility, like Robbins) likely is not financially feasible.

If the Deep River Basin is pursued as a future water supply source, it is recommended that an IBT certificate be pursued as part of the initial project permitting and investment, such that the full projected water supply needs can be met by the infrastructure. Building infrastructure for less than 2.0 MGD in the near term and planning for an IBT certificate as part of a future expansion is a risky endeavor. IBT certificates are highly-scrutinized and are not guaranteed to be issued.

7.0 OVERVIEW OF POTENTIAL SUPPLY SOURCES

The discussion below provides general information on potential future supply sources that have been discussed thus far. More detailed analysis will be provided in future Design Memoranda.

When comparing one supply alternative to another, the following criteria should be used:

- Can the alternative supply the entire necessary supply for the planning horizon?
- Does the alternative require an IBT certificate?
- What are the potential environmental impacts?
- What are the capital and operational costs of the alternative?
- Would Moore County control the supply, or be a captive purchaser?
- Can Moore County gain access to the supply source? This is especially important when crossing into other counties.
- Is the supply source expandable? Could it satisfy the necessary supply beyond the planning horizon?

7.1 Cape Fear River Basin as the Future Supply Source

Using the Cape Fear River as a future supply source likely could feature augmenting the current purchase relationship with Harnett County from 3.0 MGD up to potentially 7.0 MGD to satisfy the needs shown in Figure 8. In order for Harnett County to consider such a request, the following will need to be reviewed in detail:

1. The safe yield of the Cape Fear River at Harnett County's raw water intake.
2. The treatment capacity of Harnett County's water treatment plant and the ability to expand the facility.
3. The capacity of the finished water transmission infrastructure that transmits water from Harnett County's treatment plant in Lillington across the County to Moore County.
4. The capacity of Moore County's internal water transmission infrastructure.

Preliminary review indicates the Cape Fear River has sufficient safe yield at the intake location. Items 2-4 above will require discussions with Harnett County to assess their interest and detailed hydraulic evaluations to generate the scope for new infrastructure. With additional capital investment in both Harnett County's and Moore County's infrastructure, it is likely Harnett County can satisfy Moore County's future supply needs. Furthermore, projections provided in this report indicate using the Cape Fear River as the future supply source will not require an IBT certificate. It is recommended that Design Memo #2 provide a more detailed evaluation of using Harnett County as the future supply source.

Another viable Cape Fear River alternative would feature an interconnection with the City of Sanford. Sanford owns and operates a water plant withdrawing from the Cape Fear River. It is recommended that Design Memo #2 provide a detailed evaluation of a bulk purchase relationship with the City of Sanford.

7.2 Lumber River Basin as the Future Supply Source

A potential solution for future water supply originating from the Lumber River Basin would feature the following:

1. Construct a new raw water intake on Drowning Creek downstream from the Southern Pines intake at a location where there is a sufficient safe yield. During preparation of this Design Memo #1, low-flow characteristics were requested from USGS and NCDEQ at two locations on Drowning Creek:
 - a. Immediately downstream of the confluence with Aberdeen Creek. This captures the Aberdeen Creek drainage area and would capture the discharge volume from Moore County's water pollution control plant. This location is inside Moore County.
 - b. Immediately downstream of the confluence with Quewhiffle Creek. This captures the flow in (a) above plus additional drainage area. This location would be in either Hoke County or Scotland County.
2. Transmit the raw water to a new water treatment plant, and construct transmission pipelines to the service areas; or,
3. Transmit the raw water to the Southern Pines raw water reservoir for storage, requiring partnership with Southern Pines. Partner with Southern Pines to expand their water treatment plant and the associated infrastructure to convey additional finished water into their system and into Moore County's system(s).

The two potential intake locations are shown in Figure 12 below.

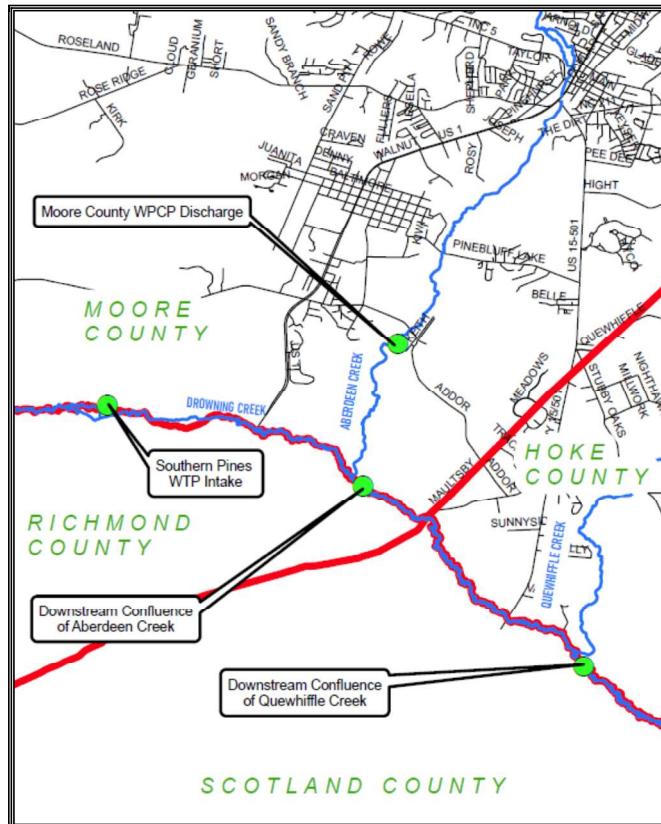


Figure 12: Drowning Creek Potential Intake Locations

Low flow characteristics are commonly expressed as the 7Q10 streamflow. This represents the annual minimum 7-day average streamflow with a 10-year recurrence interval. In terms of probability of occurrence, there is a 1-in-10 probability that the annual minimum 7-day average flow in any one year will be less than the estimated 7Q10 value.

The above locations are downstream of the Southern Pines raw water intake. The streamflow characteristics provided in Table 7 partially use the USGS gaging station located at the US Highway 1 bridge over Drowning Creek. As such, these figures accurately reflect the Southern Pines raw water intake's impact on the stream flow.

In addition, the Moore County sewer treatment plant discharges into Aberdeen Creek. Both locations are downstream of this discharge location. Conversations with NCDEQ and USGS indicated that their process for estimating the low flow characteristics does not account for the treated wastewater discharged to Aberdeen Creek, and the flow from the sewer treatment plant should be added to the low flow estimates provided.

The daily discharge flows were obtained for the County's sewer treatment plant, and a running seven-day average of the discharge flows tabulated as shown in Figure 13.

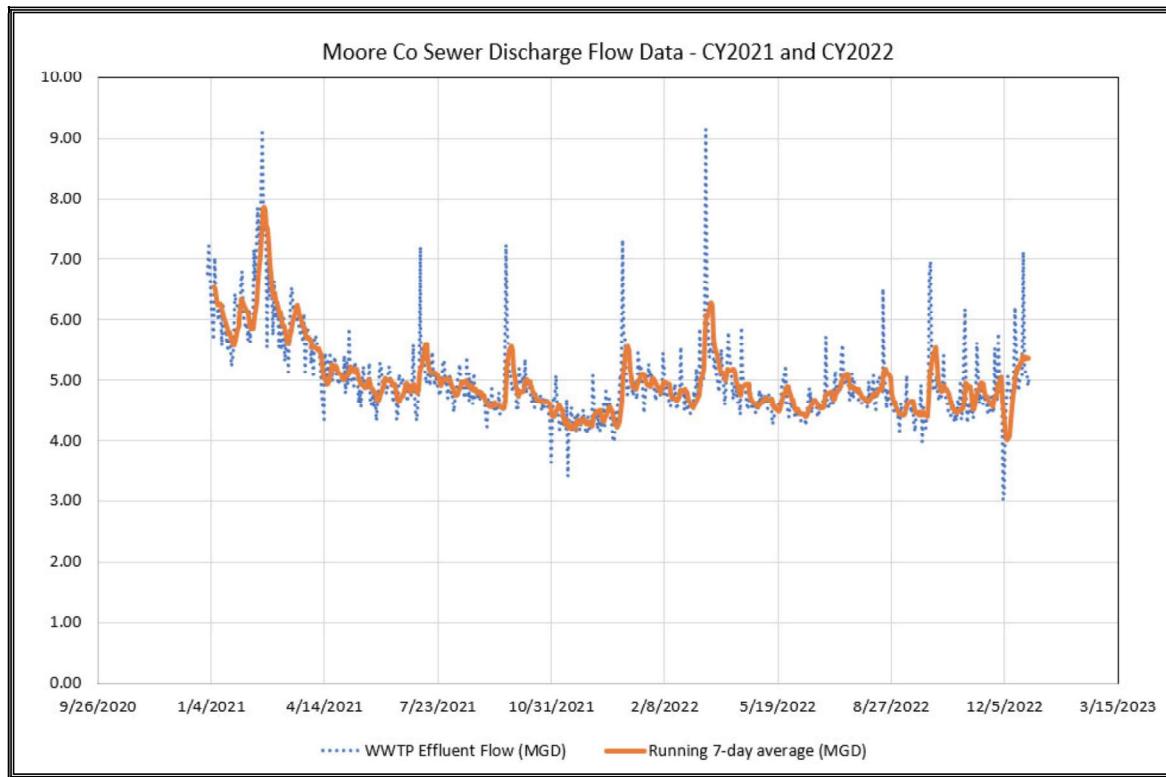


Figure 13: Moore County Sewer Plant Discharge Flow, CY2021-2022

The lowest 7-day running average flow for 2021 and 2022 was 4.01 MGD. The previous two years' worth of data is considered acceptable for planning purposes since the sewer plant flows generally trend up over time as more customers are added to the system.

Table 8 shows a summary of the estimated low flow characteristics of each site including the flow from the sewer treatment plant.

Table 7: Drowning Creek Low-Flow Characteristics

Location	Drainage Area (sq mi)	Estimated 7Q10 (MGD)	Moore Co Sewer Plant Lowest 7-day Average Discharge, 2021-2022 (MGD)	Stream Low Flow plus Sewer Plant Low Flow (MGD)	20% of Combined Low Flows (MGD)
Drowning Creek at Aberdeen Creek confluence	223	10.65	4.01	14.66	2.93
Drowning Creek at Quewhiffle Creek confluence	276	20.19	4.01	24.21	4.84

The generally accepted concept for planning purposes is that a public water supply system can access 20% of the documented 7Q10 for use as a water supply source. Based only on stream flow, the location downstream of Quewhiffle Creek can satisfy Moore County's long-term water supply needs.

It is possible that if off-stream storage volume in a raw water reservoir, either a new reservoir or the Southern Pines raw water reservoir, is factored into the safe yield calculation that the location downstream of Aberdeen Creek would also satisfy Moore County's needs.

It is recommended that using Drowning Creek as the future water supply source be evaluated further as part of Design Memo #2.

7.3 Deep River Basin as the Future Supply Source

The Deep River flows through the northern part of Moore County. As discussed previously, using the Deep River as the long-term water supply solution would require an IBT certificate. There have been recent discussions by the NC Rural Water Association about requesting that the Environmental Management Commission ask the NC state legislature to remove the sub-basin designations in the IBT rules. If this were to happen the surface water transfer from the Deep River Basin to the Cape Fear River Basin would no longer be regulated and would not require an IBT certificate. It is recommended that Moore County monitor and perhaps participate in discussions with NCRWA about their plans and progress.

For comparative value and potential future use, it is recommended a Deep River supply alternative be vetted in more detail as part of Design Memorandum #2. In preparation for this study, Moore County requested low-flow characteristics on the Deep River at the following two locations. The 7Q10 flow is defined as the lowest seven-day average stream flow over the previous 10 years. The generally accepted allowable safe yield of an in-stream intake is 20% of the 7Q10.

Table 8: Low-Flow Characteristics of Deep River

Location	Annual 7Q10 Flow (MGD)	20% of Annual 7Q10 (MGD)
Deep River at NC22 Bridge	12.5	2.5
Deep River at S Carbonton Rd Bridge	13.5	2.7

The low-flow data indicates the winter 7Q10 flows are noticeably higher than the summer flows, and the use of an off-stream reservoir could increase the safe yield above the values shown in Table 8. Moore County could build a new reservoir or partner with the Town of Robbins to use their old reservoir.

A Deep River alternative would feature some or all of the following components:

- Raw water intake structure and pump station
- Raw water pipeline
- Raw water reservoir, either new or use Robbins' reservoir
- Water treatment plant
- Finished water transmission line(s) into Moore County's distribution systems

7.4 Other Alternatives Considered

Below are other alternatives with brief descriptions that have been considered during preparation of Design Memo #1.

7.4.1 City of Sanford

Sanford withdraws raw water from the Cape Fear River and owns and operates a 12 MGD water treatment plant located on the northeast side of the city. Sanford is in the process of expanding the treatment plant to 24 MGD to provide additional water supply to the city and to significant bulk purchase customers. Since Sanford's source is from the Cape Fear River, a bulk purchase relationship with Sanford would be a viable alternative for Moore County and will be evaluated as part of Design Memo #2.

7.4.2 Montgomery County / Lake Tillery

Montgomery County withdraws water from Lake Tillery and owns and operates a 6.0 MGD treatment plant located near Mount Gilead. The Montgomery County facility supplies water to all other municipal water systems inside the County, including Biscoe, Star, and Candor. Lake Tillery is a significant surface water resource and likely would have ample raw water capacity. However, the lake is located on the Yadkin / Pee Dee River and using this source for supply in Moore County would require an IBT certificate.

The Montgomery County water treatment plant does not have sufficient available capacity to supply Moore County's long-term necessary supply, nor does Montgomery County's water transmission network. It is not recommended this alternative be considered further unless the other are deemed infeasible.

7.4.3 Richmond County

Richmond County withdraws water from Blewett Falls Lake and owns and operates a 9.0 MGD water treatment plant. Like Lake Tillery, Blewett Falls is a significant surface water resource. Also like Lake Tillery, Blewett Falls is located on the Pee Dee River and would require an IBT certificate to satisfy Moore County's long-term necessary supply.

Richmond County's water treatment plant has excess capacity, and the County has larger-diameter distribution mains up US-1 north of Rockingham. It is feasible that a relationship could be established with Richmond County to purchase a volume below the threshold of an IBT certificate, and that volume could be supplied to the Pinehurst and Seven Lakes systems in a financially-feasible manner. A transmission main could be extended from Hoffman, through Foxfire, and into Pinehurst. Additional upgrades might be necessary inside Richmond County's system, depending on the capacity of the relationship. It is recommended this alternative only be considered further in Design Memo #2 if it is determined that other alternatives cannot feasibly supply the entirety of Moore County's long-term needs.

APPENDIX A

Bulk Purchase Agreement with Harnett County

**STATE OF NORTH CAROLINA
COUNTY OF HARNETT**

AGREEMENT

THIS AGREEMENT (hereinafter referred to as the "AGREEMENT") is made and entered into this the 17th day of September, 2013, by and between the County of Harnett, a body politic, organized and existing under the laws of the State of North Carolina (hereinafter referred to as "Harnett County") and the County of Moore, a body politic organized and existing under the laws of the State of North Carolina (hereinafter referred to as "Moore County"). The East Moore Water District joins this Agreement only for the purposes of approving of the Agreement and permitting Moore County to use the East Moore Water District lines for water transport.

WITNESSETH

WHEREAS, Harnett County, through its Department of Public Utilities (hereinafter, "Harnett County") operates and manages water supply and water distribution facilities and systems located within the boundaries of Harnett County; and

WHEREAS, Moore County, through its Department of Public Works operates and manages water supply and water distribution facilities and systems located within the boundaries of Moore County; and

WHEREAS, the parties recognize that water and its treatment is an important issue concerning long-term environmental soundness and that there exists a limited and finite capacity to supply, treat and distribute potable water; and

WHEREAS, to provide a long-term approach that helps ensure environmental soundness with regards to water, Harnett County has developed the Harnett County Regional Water Initiative, which offers a regional approach to supplying and distributing potable water; and

WHEREAS, Moore County recognizes that a regional approach to supplying and distributing potable water provides benefits to the environment and to the citizens of Moore County; and

WHEREAS, Harnett County and Moore County have previously entered into a Water Purchase and Facilities Contract dated November 29, 1999 and subsequent modifications of said contract dated December 13, 2001 and March 17, 2003. This Agreement supersedes all previous contracts; and

WHEREAS, Moore County desires to continue and expand its supply of potable water from Harnett County by joining the Harnett County Regional Water Initiative; and

WHEREAS, in order to transport said supply of potable water to Moore County, it is necessary for the potable water to be transmitted through Harnett County and through existing water lines and future water lines to be constructed and owned by Harnett County; and

WHEREAS, Harnett County and Moore County have reached an agreement for providing and maintaining water supply and distribution facilities and the purchase of potable water

described herein and the parties desire to set forth the terms and conditions of this agreement; and

NOW, THEREFORE, in consideration of the mutual benefits, representations and agreements contained herein, and for good and valuable consideration, the parties agree to the following:

- I. Purpose.** The purpose of this Agreement is to set forth the understandings and agreements of the parties regarding:
 - a) the allocation and acquisition of water capacity in the upgraded Harnett County Regional Water Treatment Facility (the "Facility"), Harnett County pumping facilities, and Harnett County water transmission facilities (the "Project"); and
 - b) the purchase of potable water from Harnett County by Moore County; and
 - c) the costs to be paid by Moore County for the purchase of water treatment and transmission capacity from Harnett County.
- II. Harnett County is to Design and Construct the Project.** Harnett County is in the process of upgrading, expanding, and enlarging the water supply and transmission system (the "Project"). The Project will permit Harnett County to expand the Facility so as to provide water capacity to Moore County in the amount of three (3) million gallons per day (MGD).
- III. Expansion Requirements.** Decisions regarding upgrades, expansion, or enlargement of the Facility shall be made by Harnett County in coordination with engineers employed or contracted by Harnett County. The Project in this Agreement shall be designed by a duly licensed engineer. Furthermore, all construction shall be performed by a licensed and qualified utility contractor(s), in accordance with the plans and specifications, and in a good and workmanlike manner.
- IV. Payment of Capital Costs of the Project.** Harnett County agrees to pay the costs of the Project, including but not limited to legal, engineering, land acquisition, design and construction costs and other related matters for all aspects of the Project located within Harnett County.
- V. Ownership of the Regional Water Treatment Facility.** Harnett County shall own and operate the Facility and any expansions, upgrades, enlargements, or additions to the Facility. Moore County shall have no right, title or interest in or to the Facility, except as to the rights to allocated capacity in the water plant, the water lines, and pumping facilities as set forth in this Agreement.
- VI. Water Treatment Capacity in the Harnett County Regional Water Treatment Facility.** Upon completion of the Project, Moore County shall be allocated three (3)

MGD of water treatment capacity in the upgraded Harnett County Regional Water Treatment Facility.

VII. Cost of Water Treatment Capacity. The water treatment capacity charge for the allocation of 3 MGD is Five Million Two Hundred Fifty Thousand dollars (\$5,250,000.00) based on a cost of \$1.75 per gallon. Moore County currently owns two (2) MGD of water transmission capacity in the Harnett County Water Distribution System (the "System") and said allocation shall be increased to three (3) MGD. The water transmission capacity charge for the increase of one (1) MGD is two hundred thousand dollars (\$200,000.00), which is based on the necessary pump upgrades specified in the Project. The total cost of the expansion to be paid by Moore County is Five Million Four Hundred Fifty Thousand Dollars (\$5,450,000.00) and shall be due and payable to Harnett County as follows:

- a) Three Million Five Hundred Thousand Dollars (\$3,500,000.00) will be paid throughout the construction of the Project as follows:
 - 1) Twenty-five percent (25%), which equals Eight Hundred Seventy Five Thousand dollars (\$875,000.00), shall be due and payable within thirty (30) days after the award of the construction contract for the Project; and
 - 2) Twenty-five percent (25%) shall be due and payable within thirty (30) days when construction of the Project is 50% complete; and
 - 3) Twenty-five percent (25%) shall be due and payable within thirty (30) days when construction of the Project is 75% complete; and
 - 4) The final twenty-five percent (25%) shall be due and payable three (3) months following final completion of the Project.
- b) The remaining One Million Nine Hundred and Fifty Thousand dollars (\$1,950,000.00) shall be paid in twenty percent (20%) increments, which equals three hundred ninety thousand dollars (\$390,000.00). Payment will be due upon the anniversary date of the completion of the Project and shall be paid every year for five years following the completion of the Project.

VIII. Transmission of Water Capacity via the Harnett County Water Distribution System. Water acquired from Harnett County by Moore County shall be transported to existing meter vaults located along North Carolina State Road (SR) 1100 (Line Rd.) and SR 1106 (Hillmon Grove Rd./McPherson Rd.). Delivery of the water supply will be at a minimum pressure that has been calculated to approximate fifty (50) pounds per square inch from Harnett County's supply mains. Moore County will limit its demand to a rate of approximately two thousand one hundred (2,100) gallons per minute (GPM) to relieve any temporary peaking factors on Harnett County's transmission system, except as agreed by Harnett County.

IX. Water Quality Standards. Harnett County agrees to sell to Moore County potable treated water meeting all applicable purity standards of the North Carolina Department of Environmental Natural Resources (NCDENR).

At all times the quality of the water provided by Harnett County shall meet all state and federal regulations.

X. Billing for Service.

- a) All water furnished under this Agreement shall be metered at the metering points designated in Section VIII of this Agreement. Said metering points shall be constructed, owned, maintained, and replaced, as needed as determined by Harnett County. Harnett County shall perform calibration testing as needed as determined by Harnett County and provide the results to Moore County within ten (10) days of receiving the results. Harnett County shall provide Moore County complete access to the metering points and, in addition, grants Moore County the right to install supervisory control and data acquisition equipment at each metering station.
- b) The meters serving Moore County shall be read by Harnett County on a monthly basis.
- c) If Harnett County is unable to read a meter for any reason, Moore County's usage may be estimated based upon the preceding billing period for which a reading was obtained. Estimated bills shall be considered valid until such time as an actual meter reading is made. Upon the reading of a meter subsequent to the initial estimated usage, Moore County's bill shall be adjusted to reflect Moore County's actual usage. After any period where Harnett County estimates Moore County's usage, Harnett County will provide a bill to Moore County showing the actual usage. If the usage is greater than the estimated amount, then Moore County shall make full payment of its account within thirty (30) days. If the usage is less than the estimated amount, in lieu of reimbursement, a credit shall be placed on Moore County's account with Harnett County. If any credit remains at the end of the term of this Agreement, then Harnett County shall reimburse Moore County the entire amount of the credit.
- d) The term "month" or "monthly" refers to the interval(s) transpiring between the previous meter reading date and the current meter reading date, and bills shall be rendered accordingly.
- e) Moore County's monthly bill for water services shall be computed by multiplying the flow of water used by Moore County, expressed in thousand (K) gallons, by the rate per thousand (K) gallons. The rate per thousand (K) gallons is the generally applicable aggregate bulk rate as subject to and governed by the Ordinances adopted by Harnett County for its Public Utilities Department. All fees, charges and or costs related to the same are controlled by the Ordinances and are subject to change. Said rates are determined on an annual basis by the Harnett County Board of Commissioners. The current applicable bulk rate for water is \$1.92 per thousand

gallons of water used per month, which includes production, transmission, and pumping costs.

- f) Harnett County shall provide Moore County with a monthly bill by the tenth (10th) day of each month. Moore County shall pay Harnett County within thirty (30) days of the billing date. A late payment charge of one percent (1%) per month shall be applicable to all bills rendered by Harnett County for all amounts not paid within thirty (30) days of the billing date. Should Moore County fail to pay the monthly bill when due, Harnett County may suspend water services, provided that Harnett County gives Moore County written notice of the intent to suspend services. Harnett County shall allow Moore County to make payment within thirty (30) days from the date of such notice.

XI. Other Service to Other Water Purveyors. Harnett County may allow other users to be served by the water production and distribution facilities owned by Harnett County, provided that Harnett County is able to fulfill and satisfy all contractual obligations contained within this Agreement with Moore County. Also, Harnett County has neither the right nor the authority to use the water system or facilities within Moore County or East Moore Water District to provide water capacity or water transportation to a water purveyor other than Moore County, except as approved and authorized by Moore County.

XII. Connections Approved. Any bulk supply connection by Moore County made to Harnett County's Water Production and Distribution System(s) shall be approved by Harnett County prior to any such connection.

XIII. Continuance of Service. Harnett County shall use reasonable diligence to provide uninterrupted water production and distribution services to Moore County. Harnett County shall not be liable to Moore County or any consumer purchasing service through Moore County for damage(s) for failure in, temporary interruption or temporary suspension of water production or distribution service, so long as such failure, interruption or suspension is not caused by the willful conduct of Harnett County.

Harnett County reserves the right to suspend service, without liability on its part, at such time, for such period, and in such a manner as it may deem necessary for the purpose of making adjustments to, changes in, or repairs to the infrastructure and facilities for which it is responsible. Harnett County shall make reasonable efforts to minimize any suspension of service and shall provide written notice to Moore County of any planned suspension no less than fifteen (15) days in advance of the suspension of service. In the event of an emergency that impairs service to Moore County, Harnett County shall contact Moore County as soon as reasonably possible by contacting:

Moore County Manager
(910) 947-6363

Director of Moore County Public Works
(910) 947-4300

In the event of an extended shortage of water, or the supply of water available to Harnett County is otherwise diminished by a drought or circumstances beyond its control, the supply of water to Moore County shall be reduced or diminished in the same ration or proportion as other Harnett County customers. Harnett County guarantees that Moore County will be given the same priority for service as all other bulk rate customers.

XIV. Waiver and Indemnity.

- a) To the fullest extent allowed by law, Harnett County assumes responsibility for and shall hold harmless, defend and indemnify Moore County against all liability, claims, judgments, losses, costs, and expenses (including reasonable attorney's fees), for any injury, loss, or damage to persons or property including fines by any Federal or State agency and also including personal injury or property damage on account of, or in any way arising out of, the design, construction, maintenance and operation of water utility infrastructure owned by Harnett County. Notwithstanding the provisions of this agreement, Harnett County explicitly disclaims and excludes any warranties under the Uniform Commercial Code, or any other law, including, but not limited to, an implied warranty of fitness for a particular purpose or an implied warranty of merchantability.
- b) To the fullest extent allowed by law, Moore County assumes responsibility for and shall hold harmless, defend and indemnify Harnett County against all liability, claims, judgments, losses, costs, and expenses (including reasonable attorneys fees) for any and all injury, loss, or damage to persons or property, including fines by any Federal or State agency, and also including personal injury or property damage to Harnett County, its employees, customers, tenants, and citizens on account of, or in any way arising out of the design, construction, maintenance and operation of water utility infrastructure owned by Moore County.
- c) Neither party shall be responsible to indemnify the other against bodily injury or property damage to the extent that such damage is caused by the negligence or intentional acts of the other. Each party shall notify the other in writing of any claim for indemnification hereunder, and shall describe in such notice the nature and cause of the claim. The party against whom the claim is asserted shall be allowed a reasonable time and opportunity to cure, mitigate, defend and otherwise address the claim.

XV. Conveyance, Transfer, or Assignment of Water Treatment and Transmission Capacity. The covenants and agreements contained in this Agreement are specifically binding on the parties hereto. Moore County may not convey, transfer or assign to another water purveyor outside the boundaries of Moore County any part of its allocation of water treatment and transmission capacity without the written authority of Harnett County. Said authority shall not be unreasonably withheld. This paragraph shall in no way prevent Moore County from conveying, transferring, or assigning water treatment and transmission capacity to a water purveyor that is located within the boundaries of Moore County. For any conveyance, transfer, or assignment that occurs within the boundaries of Moore County, Moore County has the authority to convey, transfer, or assign without the written authority of Harnett County; however, Moore County shall

provide notice of such to Harnett County and any such conveyance, transfer, or assignment must abide by the conditions found within this Agreement.

XVI. Mediation. Any claim, dispute, or other matter in question arising out of or related to this Agreement shall be subject to mediation as a condition precedent to the institution of legal or equitable proceedings by either party. The parties agree that the mediation will be conducted and governed by the North Carolina Rules Implementing Statewide Mediated Settlement Conferences in Superior Court Civil Actions, and NGGS § 7A-38.1(c), except as otherwise provided herein. The parties shall share the mediator's fee equally. Any mediation shall be held in a mutually agreed upon location. Any agreement reached in mediation shall be enforceable as a settlement agreement in any court having jurisdiction thereof.

XVII. Governing Law. This Agreement shall be governed by the laws of the State of North Carolina.

XVIII. Entire Agreement. This Agreement represents the entire agreement between Harnett County and Moore County. This Agreement supersedes all prior negotiations, representations or agreements, whether written or oral. This Agreement may only be amended by a written instrument signed by both Harnett County and Moore County.

XIX. No Third Party Beneficiaries. Nothing contained in this Agreement shall create a contractual relationship with or cause of action in favor of a third party against Harnett County or Moore County.

XX. Severance Clause. In the event any provision of this Agreement is adjudged to be not enforceable or found invalid, such provision shall be stricken and the remaining provisions shall be valid and enforceable.

XXI. Term of Agreement. The term of this Agreement shall be for a term of ninety-nine (99) years. Thereafter, the Agreement may be renewed or extended for such additional terms as may be agreed upon by Harnett County and Moore County.

XXII. Termination of the Agreement. Harnett County, in addition to all other legal remedies, may terminate this Agreement or suspend delivery of potable water to Moore County for any material default or breach of this Agreement by Moore County. Material default or breach includes any fraudulent or unauthorized use of Harnett County's water and waste water infrastructure by Moore County in such a manner as to circumvent Harnett County's metering service or failure to pay monthly bills when due. In the event that Harnett County intends to terminate this Agreement with Moore County, Harnett County shall provide written notice to Moore County that specifically identifies the reasoning for the termination. In addition, Harnett County shall provide Moore County with sixty (60) days from the receipt of such notice to cure a breach of this Agreement.

Moore County may terminate this Agreement with Harnett County for any material default or breach by Harnett County. Material default or breach includes, but is not limited to, the following: fraudulent or improper billing of Moore County by Harnett

County; Harnett County's inability to provide water treatment and transfer as provided for in this Agreement; Harnett County's inability to provide water that meets NCDENR standards; In the event that Moore County intends to terminate this Agreement with Harnett County, Moore County shall provide written notice to Harnett County that specifically identifies the reasoning for the termination. In addition, Moore County shall provide Harnett County sixty (60) days to cure any breach of this Agreement.

XXIII. Notices. All notices or other communications, unless otherwise stated, shall be made in writing, sent by certified mail, return receipt requested, to the addresses set forth below:

County of Moore
Attn: County Manager
P.O. Box 905
Carthage, North Carolina 28327

County of Harnett
Attn: County Director of Public Utilities
700 McKinney Pkwy
P.O. Box 1119
Lillington, North Carolina 27546

With copy to:

County of Harnett
Attn: County Staff Attorney
Post Office Box 238
Lillington, North Carolina 27546

XXIV. ADDITIONAL TERMS

- a. Harnett County is an equal employment opportunity employer. The County is a federal contractor, and therefore the provisions and affirmative action obligations of 41 CFR § 60-1.4(a), 41 CFR 60-741.5(a), and 41 CFR 60-250.4 are incorporated herein by reference, where applicable.
- b. The subject headings of the paragraphs are included for purposes of convenience only and shall not affect the construction or interpretation of any of its provisions. This agreement shall be deemed to have been drafted by both parties and no purposes of interpretation shall be made to the contrary.
- c. E-Verify. All parties shall comply with the requirements of Article 2 of Chapter 64 of the General Statutes. Further, if either party provides the services to the County utilizing a subcontractor, that party shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the General Statutes as well. Each party shall verify, by affidavit, compliance of the terms of this section upon request.

Either party to this Agreement may change its designated person or designated address at any time by giving notice of such change to the other.

COUNTY OF HARNETT

Jim Burgin, Chairman
Harnett County Board of Commissioners

ATTEST:

Margaret G. Wheeler, Clerk to the Board

Executed by Moore County, this _____ day of September, 2013.

**STATE OF NORTH CAROLINA
COUNTY OF HARNETT**

I, _____, a Notary Public of the County and State aforesaid, certify that Jim Burgin, who being by me duly sworn, says that he is Chairman of the Board of Commissioners of the County of Harnett, and that Margaret G Wheeler is Clerk of said Board, that the seal affixed to the foregoing and attested instrument is the seal of the County of Harnett, North Carolina, and that said instrument was signed by him as Chairman of the Board of Commissioners of said County and by the Clerk of said Board, who affixed the official seal of County of Harnett to said instrument; and that the said Jim Burgin, Chairman of the Board of Commissioners, acknowledged said instrument to be the act of County of Harnett, North Carolina.

WITNESS my hand and Notarial Seal, this _____ day of September, 2013.

Notary Public
My Commission expires: _____

Notary Seal

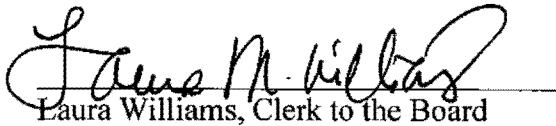
COUNTY OF MOORE

Executed by Moore County, this the 17 day of September, 2013.



Nick Picerno, Chairman
Moore County Board of Commissioners

ATTEST:

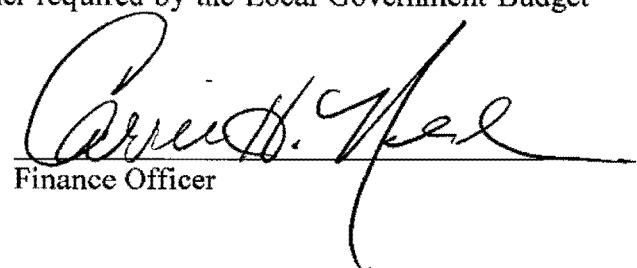


Laura M. Williams, Clerk to the Board



CERTIFICATE OF FINANCE OFFICER

This contract has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

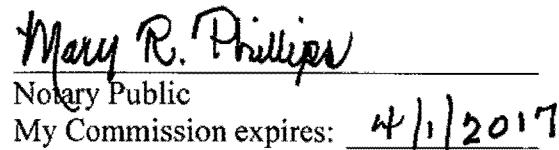


Carrie B. Neel
Finance Officer

STATE OF NORTH CAROLINA
COUNTY OF MOORE

I, Mary R. Phillips, a Notary Public of the County and State aforesaid, certify that Nick J. Picerno, who being by me duly sworn, says that he is Chairman of the Board of Commissioners of the County of Moore, and that Laura M. Williams is Clerk of said Board, that the seal affixed to the foregoing and attested instrument is the seal of the County of Moore, North Carolina, and that said instrument was signed by him as Chairman of the Board of Commissioners of said County and by the Clerk of said Board, who affixed the official seal of County of Moore to said instrument; and that Nick J. Picerno, Chairman of the Board of Commissioners, acknowledged said instrument to be the act of County of Moore, North Carolina.

WITNESS my hand and Notarial Seal, this the 17 day of September, 2013.



Mary R. Phillips
Notary Public
My Commission expires: 4/1/2017



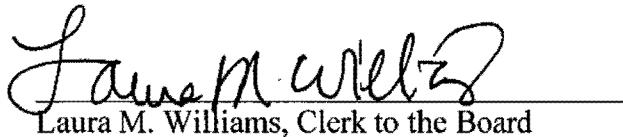
EAST MOORE WATER DISTRICT

Executed by East Moore Water District, this the 17 day of September, 2013.



Randy Saunders, Vice Chairman
East Moore Water District

Attest:

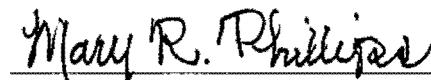


Laura M. Williams, Clerk to the Board

STATE OF NORTH CAROLINA
COUNTY OF MOORE

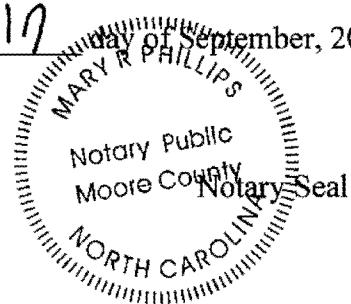
I, Mary R. Phillips, a Notary Public of the County and State aforesaid, certify that Randy Saunders, who being by me duly sworn, says that he is Vice Chairman of the Board of the East Moore Water District and that Laura M. Williams is Clerk of said Board, and that said instrument was signed by him as Vice Chairman of the Board of the District and by the Clerk of said Board; and that Randy Saunders, Vice Chairman of the East Moore Water District, acknowledged said instrument to be the act of the East Moore Water District, North Carolina.

WITNESS my hand and Notarial Seal, this the 17 day of September, 2013.



Notary Public

My Commission expires: 4/1/2017



APPENDIX B

Bulk Purchase Agreement with Southern Pines

STATE OF NORTH CAROLINA

MOORE COUNTY

WATER PURCHASE CONTRACT

COPY

THIS CONTRACT for the sale and purchase of water is entered into as of the 18th day of March, 2010, between the TOWN OF SOUTHERN PINES (hereinafter referred to as "Seller"), and the COUNTY OF MOORE, (hereinafter referred to as "Purchaser").

WITNESSETH:

WHEREAS, the Purchaser is a body politic duly organized and existing under the laws of the State of North Carolina; and

WHEREAS, the Seller is a body politic duly organized and existing under the laws of the State of North Carolina; and

WHEREAS, the Purchaser, among its other functions, operates a water supply and distribution system serving water users within its boundaries, and is in need of an additional supply of treated water therefore; and

WHEREAS, the Seller owns a water supply and distribution system; and

WHEREAS, the Seller currently has available excess capacity of treated water sufficient to supply the request of the Purchaser as set forth in this contract and to satisfy the present and anticipated needs of its customers; and

WHEREAS, the Seller desires to sell to Purchaser and Purchaser desires to buy from Seller a supply of potable water as set forth herein; and

WHEREAS, the Seller and the Purchaser have agreed upon certain terms regarding the sale of water as mentioned above, and now desire to set forth the terms of their agreement; and

WHEREAS, by *motion* ~~Resolution~~ adopted by the Town Council of THE TOWN OF SOUTHERN PINES at its meeting on April 113, 2010, the sale of said water to the Purchaser as provided herein was approved, and the execution of this Contract by the Seller was duly authorized; and

WHEREAS, by *motion* ~~Resolution~~ adopted by the Moore County Board of Commissioners at its meeting on March 15, 2010, the purchase of said water from the Seller as provided herein was approved, and the execution of this contract by Purchaser was duly authorized;

NOW THEREFORE, in consideration of the foregoing and the mutual agreements hereinafter set forth, the

parties agree as follows:

A. SELLER'S OBLIGATIONS:

1. (Quality and Quantity) Subject to the remaining provisions of this contract, Seller shall furnish to the Purchaser at the point of delivery hereinafter specified, during the term of this contract or any renewal or extension thereof, potable treated water meeting applicable purity standards of the State of North Carolina, ~~Rules Governing Public Water Systems, 15 NCAC 18C~~, in such quantity as may be required by the Purchaser not to exceed One million (1,000,000) gallons per day. The annual minimum is Three Hundred Thousand (300,000) gallons per day, averaged over the preceding year or One Hundred Nine Million Five Hundred Thousand (109,500,000) gallons per year. For purposes of this Paragraph A.1, a "year" is defined as July 1st through June 30th. If Purchaser fails to purchase the required annual minimum, and no restrictions on the purchase of water have been imposed by Seller, or if there is not a state mandated drought restriction during the year, then Purchaser shall nevertheless be obligated to pay to Seller the difference between the amount paid by Purchaser for the water actually purchased during that year and the amount that Purchaser would have been obligated to pay had Purchaser purchased the 109,500,000 gallons minimum for the year.

2. (Point of Delivery and Pressure) Seller shall furnish water at a reasonably constant pressure from an existing main supply line owned by Seller. The point of delivery shall be at a meter facility owned by Seller and located at mutually agreed upon location(s). If a greater pressure than that normally available at the point of delivery is required by the Purchaser, the cost of providing such greater pressure shall be borne by the Purchaser. Emergency failures of pressure or supply due to main supply line breaks, power failure, water source contamination, flood, drought, fire and use of water to fight fire, earthquake or other catastrophe shall excuse the Seller from this provision for such reasonable period of time as may be necessary to restore service.

3. (Metering Equipment) The metering equipment owned by Seller and located at the point of delivery hereof shall be read by Seller on the 1st working day of each month. An appropriate official of the Purchaser shall have access at all reasonable times to the meter for the purpose of verifying its readings.

4. (Billing Procedure) Seller shall provide to the Purchaser, between the twentieth (20th) day and the twenty-fifth (25th) day of each month, an itemized statement of the amount of water furnished the

Purchaser during the preceding month. Water bills are due by the 10th of the following month. Purchaser is responsible for any applicable late fees as outlined in the Seller's Code of Ordinances.

B. PURCHASER'S OBLIGATIONS:

1. (Rates and Payment Dates) See above A.4 for payment dates and penalties. The rate shall be \$2.10 per 1,000 gallons purchased. The annual minimum total payout will be \$229,950.00.

~~2. (Water Availability) For amounts above 1,000,000 gallons per any given day~~

during the term of this contract, the Purchaser will need to have availability approved in advance by the Public Services Director of THE TOWN OF SOUTHERN PINES. In the event the Seller finds it necessary to go elsewhere to purchase water, which Seller then re-sells to Purchaser, the Purchaser agrees to pay ten percent (10%) above the Seller's cost or Purchaser shall have the option to suspend the contract until sufficient water is available.

C. ANNUAL RATE ADJUSTMENTS

(1) The seller will adjust the rate per thousand gallons sold to the purchaser at the same rate as its regular in-town rate paying customer. For the purpose of this contract, the "same" means cost per 1,000 gallons volume charge. If regular in-town rates increase/decreases by a certain percentage, the bulk rate volume will increase/decrease at the same percentage rate.

D. IT IS FURTHER AGREED BETWEEN THE SELLER AND THE PURCHASER AS FOLLOWS:

1. (Term of Contract) That this Contract shall extend for a term of five (5) years from the date of the initial delivery of water as shown by the first bill submitted by the Seller to the Purchaser and, thereafter may be renewed or extended for such term, or terms, as may be agreed upon by the Seller and Purchaser. This contract will automatically extend for two (2) additional five (5) year terms unless either the Seller or Purchaser, within one hundred eighty (180) days of each renewal date, decide to make changes to or terminate the contract. Any changes to or termination notice is only valid if received by the other party in writing. For clarification of the one hundred eighty (180) day rule, if the renewal date is July 1st then any notice to change or terminate would have to be received by the other party on or before December 31st.

2. (Emergency Services) That Seller and Purchaser shall endeavor to provide mutual quantities of water each to the other as may be needed in the case of emergency water needs, such as water source contamination, production facility failure, natural disaster, or other catastrophe. The cost of such water shall be at the rate described in Paragraph B.1

3. (Delivery of Water) The Purchaser shall notify the Seller in writing of the date for the initial delivery of water.

4. (Failure to Deliver) ~~The Seller will, at all times, operate and maintain its system in an efficient manner and will take such action as may be necessary to furnish the Purchaser with quantities of water required under the terms of this Contract by the Purchaser. Temporary or partial failure to deliver water shall be remedied with all possible dispatch.~~

5. (Modification of Contract) That the provisions of the contract may be modified or altered by mutual written agreement of the parties.

6. (Termination) This contract may be terminated, for cause, by the non-breaching party notifying the breaching party of a substantial failure to perform in accordance with the provisions of this contract and if the failure is not corrected within ten (10) days of the receipt of the notification. Upon such termination, the parties shall be entitled to such additional rights and remedies as may be allowed by applicable law. Termination of this contract shall not form the basis of any claim for loss of anticipated profits by either party.

7. (Notices) Any notice required to be given hereunder by Seller to Purchaser shall be made by Seller in writing and mailed by first class mail or transmitted by facsimile to the County Manager, County of Moore at the following address: Post Office Box 905, Carthage, NC 28327, or by facsimile to (910) 947-1874. Notice shall be effective upon receipt. Any notices required to be given hereunder by Purchaser to Seller shall be made by Purchaser in writing and mailed by first class mail or transmitted by facsimile to the Town Manager, Town of Southern Pines, 125 S.E. Broad Street, Southern Pines, North Carolina 28387. Notice shall be effective upon receipt.

8. (Regulatory Agencies) This contract is subject to such rules, regulation, or laws as may be applicable to similar agreements in this State, and Seller and Purchaser will collaborate in obtaining such permits, certificates, or the like, as may be required to comply therewith.

9. (Governing Laws) This contract shall be governed by and in accordance with the laws of the State of North Carolina. All actions relating in any way to this contract shall be brought in the General Court of Justice in the County of Moore and the State of North Carolina.

IN WITNESS WHEREOF, the parties hereto, acting under authority of their respective governing bodies, have caused this contract to be duly executed in duplicate counterparts, each of which shall constitute and original.

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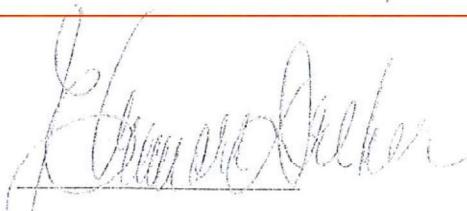
Executed by the Town of Southern Pines, this 15th day of July, 2010.

Town of Southern Pines

By Michael Haney

Michael Haney, Mayor

ATTEST:



Eleanore Dreher, Town Clerk

Certificate of Town of Southern Pines Finance Officer

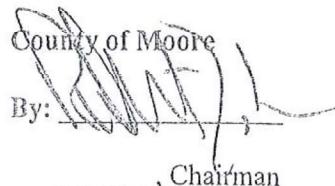
This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.



Town of Southern Pines Finance Officer

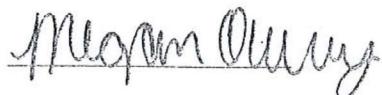
Executed by the County of Moore, this 15th day of July, 2010.

County of Moore

By: 

, Chairman

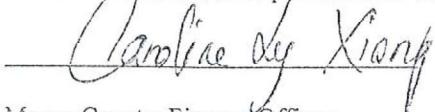
ATTEST:



Megan Owrey, County Clerk

Certificate of Moore County Finance Officer

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.



Moore County Finance Officer

APPENDIX C

Bulk Purchase Agreement with Aberdeen

**RESOLUTION FOR THE PURCHASE OF WATER BETWEEN THE
COUNTY OF MOORE AND THE TOWN OF ABERDEEN**

WHEREAS, the County of Moore, the Purchaser, is a body politic duly organized and existing under the laws of the State of North Carolina; and

WHEREAS, the Town of Aberdeen, the Seller, is a municipal organization duly organized and existing under the laws of the State of North Carolina; and

WHEREAS, the Purchaser, among its other functions, operates a water supply and distribution system serving water users within its boundaries, and is in need of an additional supply of treated water therefore; and

WHEREAS, the Seller owns a water supply and distribution system; and

WHEREAS, the Seller currently has available excess capacity of treated water sufficient to supply the request of the Purchaser as set forth in this contract and to satisfy the present and anticipated needs of its customers; and

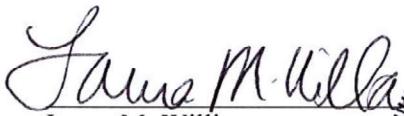
WHEREAS, the Seller desires to sell to Purchaser and Purchaser desires to buy from Seller a supply of potable water as set forth herein; and

WHEREAS, the Seller and the Purchaser have agreed upon certain terms regarding the sale of water as mentioned above, and now desire to set forth the terms of their agreement; and

WHEREAS, by Resolution adopted by the Board of Commissioners of the Town of Aberdeen at its meeting on August 9, 2010, the sale of said water to the Purchaser as provided herein was approved, and the execution of this Contract by the Seller was duly authorized;

NOW, THEREFORE, BE IT RESOLVED, that the Moore County Board of Commissioners approves this resolution, enters into a contract with the Town of Aberdeen for the purchase of water and authorizes the Chairman to sign.

Adopted this 16th day of August 2010.



Laura M. Williams
Clerk to the Board



Robert Timothy Lea, Chairman
Moore County Board of Commissioners

COPY

THIS CONTRACT for the sale and purchase of water is entered into as of the 9th day of August, 2010, between the TOWN OF ABERDEEN (hereinafter referred to as "Seller"), and the COUNTY OF MOORE, (hereinafter referred to as "Purchaser").

WITNESSETH:

WHEREAS, the Purchaser is a body politic duly organized and existing under the laws of the State of North Carolina; and

WHEREAS, the Seller is a municipal organization duly organized and existing under the laws of the State of North Carolina; and

WHEREAS, the Purchaser, among its other functions, operates a water supply and distribution system serving water users within its boundaries, and is in need of an additional supply of treated water therefore; and

WHEREAS, the Seller owns a water supply and distribution system; and

WHEREAS, the Seller currently has available excess capacity of treated water sufficient to supply the request of the Purchaser as set forth in this contract and to satisfy the present and anticipated needs of its customers; and

WHEREAS, the Seller desires to sell to Purchaser and Purchaser desires to buy from Seller a supply of potable water as set forth herein; and

WHEREAS, the Seller and the Purchaser have agreed upon certain terms regarding the sale of water as mentioned above, and now desire to set forth the terms of their agreement; and

WHEREAS, by Resolution adopted by the Board of Commissioners of the Town of Aberdeen at its meeting on August 9, 2010, the sale of said water to the Purchaser as provided herein was approved, and the execution of this Contract by the Seller was duly authorized; and

WHEREAS, by Resolution adopted by the Moore County Board of Commissioners at its meeting on 8-11-2010, the purchase of said water from the Seller as provided herein was approved, and the execution of this contract by Purchaser was duly authorized;

Service Agreement, in consideration of the foregoing, the parties agree to the following:

A. SELLER'S OBLIGATIONS:

1. (Quality and Quantity) Subject to the remaining provisions of this contract, Seller shall furnish to the Purchaser at the point of delivery hereinafter specified, during the term of this contract or any renewal or extension thereof, potable treated water meeting applicable purity standards of the State of North Carolina, Rules Governing Public Water Systems, 15 NCAC 18C, in such quantity as may be required by the Purchaser not to exceed Six Hundred Thousand (600,000) gallons per day. The annual minimum is Two Hundred Thirty Thousand (230,000) gallons per day, averaged over the preceding year or Eighty Three Million Nine Hundred and Fifty Thousand (83,950,000) gallons per year. For purposes of this Paragraph A.1, a "year" is defined as May 15th through May 14th. If Purchaser fails to purchase the required annual minimum, and no restrictions on the purchase of water have been imposed by Seller during such year, then Purchaser shall nevertheless be obligated to pay to Seller the difference between the amount paid by Purchaser for the water actually purchased during that year and the amount that Purchaser would have been obligated to pay had Purchaser purchased the 109,500,000 gallons minimum for the year.

2. (Point of Delivery and Pressure) Seller shall furnish water at a reasonably constant pressure from an existing main supply line owned by Seller. The point of delivery shall be at a meter facility owned by Seller and located at the base of the Seller's elevated water storage tower on NC Hwy. 5 in Aberdeen. If a greater pressure than that normally available at the point of delivery is required by the Purchaser, the cost of providing such greater pressure shall be borne by the Purchaser. Emergency failures of pressure or supply due to main supply line breaks, power failure, water source contamination, flood, drought, fire and use of water to fight fire, earthquake or other catastrophe shall excuse the Seller from this provision for such reasonable period of time as may be necessary to restore service.

3. (Metering Equipment) The metering equipment owned by Seller and located at the base of Seller's elevated water storage tower described in Paragraph A.2 hereof shall be read by Seller on the last day of each month. An appropriate official of the Purchaser shall have access at all reasonable times to the meter for the purpose of verifying its readings.

4. (Billing Procedure) Seller shall provide to the Purchaser, between the first (1st) day and the fifth (5th) day of each month, an itemized statement of the amount of water furnished the Purchaser during the preceding month. Water bills are considered past due after 30 days from the date of current bill. After the 30 days, a five percent (5%) penalty or five dollar (\$5.00), whichever is greater, will be added to the bill. If payment is not received by the Seller by the 5th of the following month, this shall constitute a material breach of this contract, and Seller may terminate this contract as provided in Paragraph C.6. If the 30th day falls on a Saturday, Sunday, or a holiday, the customer will be given until 5:00 pm, on the next working day to pay their bill before water is cut off.

Once the account becomes delinquent and appears on the "cut-off" list, the customer will be charged \$25.00 to reconnect. The bill, plus the reconnect fee, must be paid before service is restored. The Town of Aberdeen will not be responsible for late, undelivered bills or payments delayed by the Postal Service.

B. PURCHASER'S OBLIGATIONS:

1. (Rates and Payment Dates) See above A.4 for payment dates and penalties. The rate shall be \$2.10 per 1,000 gallons purchased. The annual minimum total pay out will be \$176,295.

2. (Water Availability) For amounts above 600,000 gallons per day Purchaser will need to have availability approved in advance by either the Aberdeen Public Works Director, at 910-690-2309 or Aberdeen Water Production Superintendent, at 910-690-4193. In the event the Seller finds it necessary to go elsewhere to purchase water, which Seller then re-sells to Purchaser, the Purchaser agrees to pay ten percent (10%) above the Seller's cost or Purchaser shall have the option to suspend the contract until sufficient water is available.

C. IT IS FURTHER AGREED BETWEEN THE SELLER AND THE PURCHASER AS FOLLOWS:

1. (Term of Contract) That this Contract shall extend for a term of five (5) years from the date of the initial delivery of water as shown by the first bill submitted by the Seller to the Purchaser and, thereafter may be renewed or extended for such term, or terms, as may be agreed upon by the Seller and Purchaser. This contract will automatically extend for two (2) additional five (5) year terms unless either the Seller or Purchaser within ninety (90) days of the renewal date decide to make changes to or terminate the contract. Any changes to or termination notice is only valid if received by the other party in writing. For clarification of the

any day and each of the parties may, at least 120th days, by notice in writing, to terminate, provided that notice is received by the other party on or before February 15th.

2. (Emergency Services) That Seller and Purchaser shall endeavor to provide such quantities of water each to the other as may be needed in the case of emergency water needs, such as water source contamination, production facility failure, natural disaster, or other catastrophe. The cost of such water shall be at the rate described in Paragraph D.1

3. (Delivery of Water) The Purchaser shall notify the Seller in writing of the date for the initial delivery of water.

4. (Failure to Deliver) The Seller will, at all times, operate and maintain its system in an efficient manner and will take such action as may be necessary to furnish the Purchaser with quantities of water required under the terms of this Contract by the Purchaser. Temporary or partial failure to deliver water shall be remedied with all possible dispatch. Notwithstanding the foregoing, Seller retains the right to restrict the amount of water it furnishes under this contract. In the event of an extended shortage of water, or the supply of water available to the Seller is otherwise diminished over an extended period of time, the supply of water to Purchaser shall be reduced or diminished in the same ratio or proportion as the supply to Seller's consumers is reduced or diminished.

5. (Modification of Contract) That the provisions of the contract may be modified or altered by mutual written agreement of the parties.

6. (Termination) This contract may be terminated, for cause, by the non-breaching party notifying the breaching party of a substantial failure to perform in accordance with the provisions of this contract and if the failure is not corrected within ten (10) days of the receipt of the notification. Upon such termination, the parties shall be entitled to such additional rights and remedies as may be allowed by applicable law. Termination of this contract shall not form the basis of any claim for loss of anticipated profits by either party.

7. (Rate Escalation Clause) The Rate can only be increase on an annual basis, based on the same percentage increase that the Town of Aberdeen Board of Commissioners raises the rate for all customers (e.g., if the water rate per 1000 gallons is increased 10 percent then the rate per 1000 gallons for this contract will increase by 10 percent).

8. (Notices) Any notice required to be given hereunder by Seller to Purchaser shall be made by Seller in writing and mailed by first class mail or transmitted by facsimile to the County Manager, County of Moore at the following address: Post Office Box 905, Carthage, NC 28327, or by facsimile to (910) 947-1874. Notice shall be effective upon receipt. Any notices required to be given hereunder by Purchaser to Seller shall be made by Purchaser in writing and mailed by first class mail or transmitted by facsimile to the Town Manager, Town of Aberdeen, at the following address: Post Office Box 785, Aberdeen, NC 28315, or by facsimile to (910) 944-7459. Notice shall be effective upon receipt.

9. (Regulatory Agencies) This contract is subject to such rules, regulation, or laws as may be applicable to similar agreements in this State, and Seller and Purchaser will collaborate in obtaining such permits, certificates, or the like, as may be required to comply therewith.

10. (Governing Laws) This contract shall be governed by and in accordance with the laws of the State of North Carolina. All actions relating in any way to this contract shall be brought in the General Court of Justice in the County of Moore and the State of North Carolina.

IN WITNESS WHEREOF, the parties hereto, acting under authority of their respective governing bodies, have caused this contract to be duly executed in duplicate counterparts, each of which shall constitute and original.

The rest of this page is left intentionally blank.

Done under the Seal of Aberdeen, this 11th day of August, 2009, A.D.

TOWN OF ABERDEEN

By Robert G. Farrell

Robert A. Farrell, Mayor Pro Tem

ATTEST:

Regina M. Rosy

Regina M. Rosy, Town Clerk

Certificate of Town Finance Officer

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Beth T. Wentland

Town of Aberdeen Finance Officer

Executed by the County of Moore, this 11th day of August, 2009.

County of Moore
By Tim Lea
Tim Lea, Chairman

ATTEST:

Laura M. Williams

Laura M. Williams, Clerk to the Board

Certificate of Moore County Finance Officer

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Moore County Finance Officer