JORDAN LAKE APPLICATION ROUND 3 CITY OF SANFORD

May 31, 2001

May 15, 2001

Mr. Sydney Miller
Water Allocation Section
Division of Water Resources
NCDENR
1611 Mail Service Center
Raleigh, NC 27699-1611

Re: Jordan Lake Allocation Application
Round 3
Final Draft

Dear Mr. Miller:

The City of Sanford desires to apply for a Jordan Lake water supply storage allocation during the third round of allocations. We are not requesting a level 1 allocation, but are requesting a level 2 allocation in the amount of 28 mgd by year 2015, and an additional 40 mgd by year 2045. Our allowable draft from the Cape Fear River is currently 12.6 mgd, and the additional 28 mgd will bring us to a total allocation of 40.6 mgd by year 2015.

We project to be at 82% capacity by the year 2010, and at 99% capacity by the year 2020. We have previously requested, via a letter to Ms. Chrys Baggett, to increase our allowable withdrawal of water from the Cape Fear from 12.6 mgd to 30 mgd. However, it is our understanding that the rules for these allocations are not in place at this time. Therefore, we have determined we need to apply for an allocation from Jordan Lake to ensure an adequate water supply for the City of Sanford.

We are a regional system and currently have contracts to sell water to Chatham County, Lee County, the Town of Broadway, and Carolina Trace Corporation. We are currently in the process of negotiating a contract with the Town of Cameron, and are also negotiating a contract to increase the flow to Chatham County. With a historical growth rate of 3.3% residential water demand per year and 4% commercial for Lee County, we expect to be favorably served by the increased allocation, and these nearby entities will be favorably served as well.

As moratoriums on building permits occur in the northern part of North Carolina, we anticipate increased growth in Sanford, which is conveniently located approximately 35 miles southwest of Raleigh, and has a close proximity to Fayetteville. With the four laning of US1 from Sanford to Raleigh and the widening of Highway 87 South from

Sanford to Fayetteville, along with reasonable property values here, Sanford could easily have a population boom in the near future. Also, Sanford's economy is heavily industry based, and growth in industry locating here is expected to continue.

Our 1998 Update of the 1997 Water Supply Plan for the City of Sanford has been adopted by our City Council, and includes approval of attachment 8-B as shown in the appendix section of this application.

The City of Sanford is committed to all financial obligations that will be necessary should we receive an allocation from Jordan Lake. Management as well as our Mayor and City Council support us in this request.

We respectfully submit the following as the final draft of our application for a Jordan Lake allocation. Thank you for your consideration of this application. Should you have further questions, or need additional information, please call myself or Fay Woodruff at (919)775-8231.

Sincerely,

Larry B. Thomas
Public Works Director

LBT:fw

Section I-Water Demand Forecast:

We have divided our customers into small and large users, which reflects the manner in which our records are maintained. Our small users (which we call residential) are mostly residential but include some commercial and industrial users. Our large users (which we call commercial) are mostly industrial users, but include some commercial and residential users. We have also included an institutional sector that includes unmetered uses by city government.

The City of Sanford furnishes and maintains Lee County's water system. For purposes of this report, the Lee County system is treated as one system within our system. We have already incurred one major phase of county water line additions to our system. Approximately 80 miles of line and 1800 customers were added in one year. We will be adding the county's second major phase of water line additions in 2001, adding approximately 90 miles of line and another 1300 customers. Therefore, we subtracted the numbers for Lee County so our projections would more accurately reflect our true growth.

We have 10,974 metered residential connections. This includes 1,890 connections for Lee County. We have 1,413 commercial connections that include 159 connections for Lee County. Our industrial use is included in the commercial sector.

Our institutional sector includes unmetered use by city municipal buildings and facilities. This includes unmetered use at the wastewater plant, public works service center, fire stations and the municipal golf course. Our unaccounted for water is less than 9% and includes water used for flushing lines, firefighting, leaks, and street sweeping. System processes includes backwash, sludge decant water, discharged wastewater, and leakage at the plant. It is the difference between water treated and water pumped to town.

Bulk sales represent a very small percentage of our water demand. We have had interest expressed by other entities to increase their flows and to add new service areas. We did not include these in our request since we have no formal requests at this time.

We have had a historical water demand usage rate of 3.3% for small users and 4% for large users. Between years 2000 and 2005, there are two major phases of waterlines being added for Lee County, so the 3.3% growth rate becomes skewed during these years. To eliminate this problem, we have subtracted out Lee County for this time period. The system is expected to continue to grow at 3.3% from year 2005-2030. At year 2030, we expect to have most of Lee County on city water, with the exception of Carolina Trace and the Town of Broadway. Therefore, we have slowed our residential growth rate to 1.95% at this point, which corresponds to the expected population growth rate for Lee County. The commercial sector will continue to grow at a higher rate. Therefore, we have taken the difference between population projections at 3.3% and at 1.95%, and multiplied the difference by 69 (170 gpd/2.46 persons per household) to project the average daily service demand for the residential category from year 2030-2050.

We have made our projections based on this data. We believe our water demand forecast to be a very conservative estimate.

Section II-Conservation & Demand Management:

The City of Sanford is committed to ensuring the efficient use of our water supply, and to restrict demand as necessary. According to our projections, we will exceed 80% of our available water supply by the year 2010. Should we not receive an additional water allocation by that time, it will be necessary for us to implement a more stringent water conservation program.

The City emphasizes conservation in many ways. Our water treatment plant superintendent gives tours of the water plant to school and civic groups, and emphasizes the importance of conservation to them. She distributes literature on good conservation practices via a pamphlet published by AWWA. She goes to civic organizations and schools to speak to them about water treatment and conservation, and distributes literature there as well. Also, our water plant superintendent and wastewater plant superintendent participate in the Environmental Conservation Program for Lee County Schools every year.

As a part of our water loss reduction program, a water audit is done on a monthly basis by tracking water pumped versus water billed as is show in the appendix section of this application. Unmetered water is tracked on a report as well. Non-potable water is used for the cooling water on the pumps at our raw water pump station.

Leak detection and repair is a high priority at the City of Sanford. A variety of equipment is used including three types of listening devices. We maintain a computer inventory of the location of leaks by street name and repairs that are made. Our meter readers do an outstanding job of relaying information concerning leaks to the public. We have a door hanger system that informs residents of probable leaks, and meter readers carry cards explaining how much water is lost by the size of the leak.

The City offers a rebate program for water customers that install ultra low flow toilets.. This conservation incentive includes a $50 rebate for one replacement and $75 maximum rebate for two or more replacements. Customers submit their original receipt for each toilet replaced to our water billing department, and a credit is applied to the customer's account. This incentive is advertised to the public on our water and sewer rate schedule.

In addition to promoting water conservation, our wastewater plant personnel are doing an excellent job of promoting water reuse. In several cases our pretreatment coordinator has worked with industries to find ways to reuse process water. This often helps to keep the industry in compliance for their effluent and it reduces the load at our plant. The wastewater plant itself uses treated non-potable water for irrigation at the plant, process wash down, scum control and chlorination.

The City of Sanford recently received $2.4M to implement a sewer reuse irrigation project at our municipal golf course. This will be an efficient reuse of water and will significantly reduce the load at the plant.

Our horticulturist goes to schools and to organizations throughout the community to speak with them about conservation issues from a horticulture standpoint. He speaks to approximately 30 groups per year. He speaks on using water-efficient plants for landscaping and promotes the soaker hose. He also ensures these conservation practices are being adhered to at the City.

As our economy is heavily dependent on industry, we have used a declining block rate system for water billing. We have reduced the number of blocks in the past from seven to four blocks, and as we approach 80% of our available supply, we will continue to reduce the number of declining block rates used in our water billing. The elimination of blocks in our rate schedule has promoted water conservation by large users. We will also focus on industrial recruitment toward "dry industries" in an effort to conserve water while maintaining the needed jobs for our growing population.

As demand approaches 80% of the available water supply, the City will look at other available supplies including interconnections with other systems. A moratorium may need to be placed on additional connections to our system until our supply is increased. A water conservation ordinance triggering mandatory water conservation will be enacted to limit demand if water demand approaches the available supply.

In the appendix are some examples of the materials we use at the City of Sanford to promote conservation of water.

Section III-Water Supply Sources:

The City of Sanford's water supply is from the Cape Fear River. Our current allowable withdrawal from the river is 12.6 mgd. We have requested our withdrawal from the river to be increased to 30 mgd. Our wastewater is discharged into the Deep River and enters the Cape Fear River upstream from our point of intake. Since our only receiving basin is upstream from our source basin, we strongly feel that we do not have an interbasin transfer situation in Sanford. All water discharged is returned by our withdrawal point.

The City has received a substantial loan to do some major renovations to the water treatment plant and the raw water pump station in an effort to prepare for increased future demand. These improvements include the rehabilitation and upgrade of filters that were put in around 1970; the chemical addition of chloramine to reduce thm's to satisfy EPA guidelines; upgrading sludge removal in the first two sedimentation basins which have been there since 1972, and reconstruction of the raw water pump station. There will be new, large pumps installed at the raw water pump station, all of equal size. Currently we have pumps of varying size, and it puts a strain on the smaller pumps when a large pump malfunctions.

We have a 60 million gallon raw water reservoir located directly across from our water treatment plant. Though the pumping capacity and treatment capacity will be the same after the above-mentioned upgrades, the impellers will be able to be changed out to withdraw more water from the reservoir if we receive an allocation. This would increase our pumping capacity. Within the next 5 years, we will begin the design of a water treatment plant expansion to allow for the increased treatment capacity that will be needed in the next 10 years.

As noted in our local water supply plan, our 20-year safe yield is 18.5 mgd, and our 50-year safe yield is 12.6 mgd. These estimates are without augmented flows from Jordan Lake and with no restrictions based on minimum releases, evaporation, seepage, drawdown, or instream flow needs. Our current permitted capacity at the water plant is 12 mgd. Our finished water storage capacity is 2.7 million gallons.

In the case of a water supply emergency, the City of Sanford has a mutual aid contract with Triangle J, which is renewed every 5 years.

Section IV-Future Supply Needs:

As stated earlier, our existing surface water supply is 12.6 mgd. As shown in Table 8-A, we project we will be at 82% capacity by year 2010 and at 99% capacity by year 2020. Therefore, we are applying for a level 2 allocation based on 30 years. We will need to begin withdrawing at year 2015.

Section V-Alternative Water Supplies:

Our first alternative project for water supply is to receive an increased withdrawal from the Cape Fear River, from 12.6 mgd to 30 mgd by year 2005. Then in year 2035, we would request our withdrawal be increased to 75 mgd. This is our preferred method of receiving a future water supply for the City of Sanford.

Our second alternative project for water supply is to continue being able to withdraw up to 12.6 mgd from the Cape Fear River, and by year 2015, receive a 28 mgd allocation from Jordan Lake. This would bring us to a total allocation of 40.6 mgd by year 2015. Then, we would request an additional 40 mgd allocation from Jordan Lake in year 2045.

If we receive an allocation from Jordan Lake, we would simply like water to be released from the Jordan Lake dam to us as needed during drought conditions. This is an environmentally sound alternative and inexpensive. It would be well received politically and is not technically complex.

Section VI-Plans to Use Jordan Lake:

The City of Sanford will not request a level 1 allocation. We are requesting a level 2 allocation in the amount of 28 mgd based on our calculated needs over 30 years. Our allowable draft from the Cape Fear River is currently 12.6 mgd, and the additional 28 mgd will bring us to a total allocation of 40.6 mgd.

We project being at 82% capacity by the year 2010, and at 99% capacity by the year 2020. We estimate needing to begin withdrawal by year 2015. If we do not receive approval to increase our withdrawal from the Cape Fear River from 12.6 mgd to 30 mgd, the allocation from Jordan Lake will be crucial to the City of Sanford.

Our preferred method of receiving water from Jordan Lake is by releasing water to us from the Jordan Lake Dam during drought conditions as needed. This method is simple, inexpensive, and environmentally sound.

North Carolina Department of Environment and Natural Resources

Division of Water Resources

LOCAL WATER SUPPLY PLAN for JORDAN LAKE ALLOCATION APPLICATION 2000-2001
Part 1: Water Supply System Report for Calendar Year 2000

Completed By: Fay Woodruff Date: 3/13/01

SECTION 1: GENERAL INFORMATION

1-A. Water System: City of Sanford 1-B. PWS Identification #: 03-53-010

1-C. River Sub-Basin(s): Cape Fear and The Deep

1-D. County(s): Lee

1-E. Contact Person: Larry B. Thomas Title: Public Works Director

1-F. Mailing Address: PO Box 3729 CITY Sanford ZIP 27331-3729

1-G. Phone: 919-775-8231 1-H. Fax: 919-774-8179 1-I. E-mail: fay.woodruff@sanfordnc.net

1-J. Type of Ownership (Check One): ●? Municipality ○ County ○ Authority ○ District ○ Non-Profit Association ○ For-Profit Business
○ State ○ Federal ○ Other_____

SECTION 2: WATER USE INFORMATION

2-A. Population Served in 2000 Year-Round 27,000

Seasonal (if applicable) -0- For Months of N/A

2-B. Total Water Use for 2000 including all purchased water: 2,391 Million Gallons (MG)

2-C. Average Annual Daily Water Use in 2000: 6.55 Million Gallons per Day (MGD)

2-D. List 2000 Average Annual Daily Water Use by Type in Million Gallons per Day (MGD):

	Metered Connections		Non-Metered Connections		Total
Type of Use	Number	Average Use (MGD)	Number	Estimated Average Use (MGD)	Average Use (MGD)
*(1) Residential	10,974	1.76			1.76
**(2) Commercial	1,413	2.50			2.50
***(3) Industrial					N/A
****(4) Institutional			8		.50
(5) Sales to other Systems					.25
(6) System Processes					.93
(7) Subtotal [sum (1) thru (6)]					5.94
(8) Average Annual Daily Water Use [Item 2-C]					6.55
(9) Unaccounted-for water [(8) - (7)]					.61

*Includes 1890 residential-Lee County

**Includes 159 commercial-Lee Co.

***Included in commercial.

****Includes unmetered uses by city government.

2-E. List the Average Daily and Maximum Day Water Use by Month for 2000 in Million Gallons per Day (MGD):

	Average Daily Use	Maximum Day Use	Max/Ave Ratio		Average Daily Use	Maximum Day Use	Max/Ave Ratio		Average Daily Use	Maximum Day Use	Max/Ave Ratio
Jan	5.925	6.944	1.17	May	7.097	9.076	1.28	Sep	6.919	8.632	1.25
Feb	6.244	7.384	1.18	Jun	7.122	8.678	1.22	Oct	6.63	7.726	1.16
Mar	6.031	7.05	1.17	Jul	7.057	8.117	1.15	Nov	6.288	7.163	1.14
Apr	6.084	7.278	1.20	Aug	7.504	8.538	1.14	Dec	6.165	7.015	1.14

2-F. List the system's 10 Largest Water Users and their Average Annual Daily Use in Million Gallons per Day (MGD) for 2000: (include sales to other systems)

Water User	Average Daily Use	Water User	Average Daily Use
Sandhills Printing & Finishing	.14	Frontier Spinning Mills	.09
Chatham County	.12	GKN Automotive	.08
Parkdale America (2018 Boone Trl Rd)	.11	Wyeth-Lederle	.08
Utilities, Inc. (Carolina Trace)	.10	Parkdale America (1921 Boone Trl Rd)	.07
Stanadyne	.10	National Textiles	.04

2-G. WATER SALES TO OTHER WATER SYSTEMS IN 2000 List all systems that can be supplied water through existing interconnections (regular and emergency). Mark the locations of connections on the System Map.

1 Water supplied to:		2 Average Daily Amount		3 Contract Amount		4 Pipe Size(s)	5* R or E
Water System	PWSID	MGD	# of Days	MGD	Expiration Date	Inches	
Town of Broadway	03-53-015	.03	365	.066 max	11/8/09	10	R
Chatham County	03-19-045	.12	365	.30 max	1/23/02	8	R
Utilities, Inc. (Carolina Trace)	03-53-101	.10	365	.10	6/30/96	12	R
Lee County*	03-53-111	See Note*	365	2 max	7/1/35	See Note*	R
*Lee County customers are metered							
individually by the City of Sanford.							
These usages are included in 2-D.							
Estimated Lee County usage=.32 mgd							

***NOTE** Column 5 **R=**Regular Use, **E=**Emergency Use

2-H. What is the Total Amount of Sales Contracts for Regular Use? 2.466 MGD

SECTION 3: WATER SUPPLY SOURCES

3-A. SURFACE WATER List surface water source information. Mark and label locations of intakes on the System Map.

1 Name of Stream and/or Reservoir	2 Drainage Area Square Miles	3 Is Withdrawal Metered? Y / N	4 Sub-Basin	5 Average Daily Withdrawal for days used		6 Maximum Day Withdrawal	7* Available Supply		8* System Component Limiting Daily Output		9 Useable On-Stream Raw Water Supply Storage Million Gallons	10* R or E
				MGD	# of Days	MGD	MGD	Qualifier	Capacity MGD	System Component		
Cape Fear	3,100	Y		6.55	365	9.076	18.5*	SY20	12	T	-0-	R
							12.6*	SY50				
								Totals				

***NOTES** Column 7 Supply Qualifiers: **C=**Contract amount, **SY20=2**0-year Safe Yield, **SY50=**50-year Safe Yield, **F=**20% of 7Q10 or other instream flow requirement, **T=**Treatment plant capacity, O=Other (specify) _____

Column 8 Component: **R=**Raw water pumps, **T=**Treatment facilities, **M=**Transmission main, **D=**Distribution system, **O=**Other (specify)_____

Column 10 **R=**Regular Use, **E=**Emergency Use *Estimates without augmented flows from Jordan Lake and with no restrictions based on minimum releases, evaporation, seepage, drawdown or instream flow needs.

3-B. What is the Total Surface Water Supply available for Regular Use? 18.5* MGD

3-C. Does this system have off-stream raw water supply storage? ○No ● Yes Useable Capacity ____60_____ Million Gallons

3-D. WATER PURCHASES FROM OTHER WATER SYSTEMS IN 2000

List all systems that can supply water to this system through existing interconnections (regular and emergency). Mark the locations of the connections on the System Map.

1 Water supplied by:		2 Average Daily Amount		3 Contract Amount		4 Pipe Size(s)	5* R or E
Water System	PWSID	MGD	# of Days	MGD	Expiration Date	Inches	
Triangle J Mutual Aid Contract	N/A	N/A	N/A	short-term as needed	1/1/99	N/A	E

***NOTE** Column 5 **R=**Regular Use, **E=**Emergency Use

3-E. What is the Total Amount of Purchase Contracts available for Regular Use? ____-0-_____MGD (Do not include emergency use connections in total)

3-F. GROUND WATER List well information. ***Mark and label the location of all wells on the System Map.***

1 Name or Number of Well	2 Well Depth Feet	3 Casing Depth Feet	4 Screen Depth Top Feet	4 Screen Depth Bottom Feet	5 Well Diameter Inches	6 Pump Intake Depth Feet	7 Is Well Metered? Y / N	8 Average Daily Withdrawal for Days Used MGD	8 Average Daily Withdrawal for Days Used # of Days	9 Maximum Day Withdrawal MGD	10 12-Hour Supply Million Gallons	11* System Component Limiting Daily Output Capacity MGD	11* System Component Limiting Daily Output System Component	12* R or E
N/A														

***NOTES** Column 11 Component: **R=**Raw water pumps, **T=**Treatment facilities, **M=**Transmission main, **D=**Distribution system, **O=**Other (specify)_____
Column 12 **R=**Regular Use, **E=**Emergency Use

3-G. What is the Total 12-Hour Supply of all wells available for Regular Use? _____-0-_____ million gallons

3-H. Are ground water levels monitored? ❍No ❍ Yes How often? _____N/A_____

3-I. Does this system have a wellhead protection program ❍ No ❍ Yes ❍ Under development

3-J. WATER TREATMENT PLANTS List all WTPs, including any under construction, as of 12/31/2000. ***Mark and label locations on the System Map***.

Water Treatment Plant Name	Permitted Capacity MGD	Source(s)
City of Sanford WTP	12	Cape Fear River

3-K. What is the system's finished water storage capacity? _____5_____ Million Gallons

SECTION 4: WASTEWATER INFORMATION

4-A. List Average Daily Wastewater Discharges by Month for 2000 in Million Gallons per Day (MGD)

	Average Daily Discharge		Average Daily Discharge		Average Daily Discharge		Average Daily Discharge
Jan	5.93	Apr	4.37	Jul	4.20	Oct	3.74
Feb	5.69	May	3.98	Aug	4.64	Nov	4.31
Mar	4.31	Jun	3.96	Sep	4.58	Dec	4.21

4-B. List all Wastewater Discharge and/or Land Application Permits held by the system***. Mark and label points of discharge and land application sites on the System Map***.

1 NPDES or Land Application Permit Number	2 Permitted Capacity Dec. 31,2000 MGD	3 Design Capacity MGD	4 Average Annual Daily Discharge MGD	5 Name of Receiving Stream	6 Sub-Basin	7 Maximum Daily Discharge MGD
NC0024147	6.8	6.8	4.38	Deep River	Deep River	8.30
WQ0000543	1,000 dry tons per year				Deep River & Cape Fear	

4-C. List all Wastewater Discharge Connections with other systems. Mark and label the locations of connections on the System Map.

1 Wastewater Discharger		2 Wastewater Receiver		3 Average Daily Amount Discharged or Received		4 Contract Maximum
Name	PWSID	Name	PWSID	MGD	# of Days	MGD
N/A						

4-D. Number of sewer service connections: 6,954

4-E. Number of water service connections with septic systems: 5,496 (Number in Sub-basin 1 1,780* Number in Sub-basin 2 3,716** Number in Sub-basin 3 ____)
*Cape Fear **Deep River

4-F. Are there plans to build or expand wastewater treatment facilities in the next 10 years? ● No ○Yes Please explain. _____

SECTION 5: WATER CONSERVATION and DEMAND MANAGEMENT ACTIVITIES

5-A. What is the estimated total miles of distribution system lines? 347.2 miles

5-B. List the primary types and sizes of distribution lines:

	Asbestos Cement (AC)	Cast Iron (CI)	Ductile Iron (DI)	Galvanized Iron (GI)	Polyvinyl Chloride(PVC)	Other
Size Range	6”-12”	6”-16”	6”-36”	2”-4”	6”-12”	16”-24”
Estimated % of lines	17	11	10	1	59	1

5-C. Were any lines replaced in 2000? ○ No ● Yes 8,100 linear feet

5-D. Were any new water mains added in 2000? ○ No ● Yes 27,000 linear feet

5-E. Does this system have a program to work or flush hydrants? ○ No ● Yes How often? annually

5-F. Does this system have a valve exercise program? ○ No ● Yes How often? ongoing daily

5-G. Does this system have a cross-connection control program? ○ No ● Yes

5-H. Has water pressure been inadequate in any part of the system? ● No ○ Yes Please explain. _____

_____

5-I. Does this system have a leak detection program? ○ No ● Yes What type of equipment or methods are used? __Public reporting, plant reporting by tank levels, and periodically use listening devices _____

5-J. Has water use ever been restricted since 1992? ○ No ● Yes Please explain. ___Transmission line failures. Top 10 water users were contacted and asked to voluntarily conserve.

5-K. Does this system have a water conservation plan? ○ No ● Yes Please attach a copy.

5-L. Did this system distribute water conservation information in 2000? ○ No ● Yes

5-M. Are there any local requirements on plumbing fixture water use which are stricter than the NC State Building Code? ● No ○ Yes Please explain. _____

_____

5-N. Does this system have a program to encourage replacement or retrofit of older, higher water-use plumbing fixtures? ○ No ● Yes

5-O. Does this system have a water shortage or drought response plan? ○ No ● Yes Please attach a copy.

5-P. Is raw water metered? ○ No ● Yes

5-Q. Is finished water output metered? ○ No ● Yes

5-R. Do you have a meter replacement program? ○ No ● Yes

5-S. How many meters were replaced in 2000? _____750__ meters

5-T. How old are the oldest meters in the system? ___8__ years

5-U. What type of rate structure is used? ● Decreasing Block ○ Flat Rate ○ Increasing Block ○ Seasonally Adjusted ○ Other_____

Attach a detailed description of the rate structure to this document.

5-V. Are there meters for outdoor water use, such as irrigation, which are not billed for sewer services? ○ No ● Yes # of meters ___50 est._

5-W. Does this system use reclaimed water or plan to use it within the next five years? ○ No ● Yes # of connections ___1* ; ____.2____ MGD

*golf course reuse irrigation project.

SECTION 6: SYSTEM MAP

Review, correct, and return the enclosed system map Check Plot to show the present boundaries of the water distribution system service area, points of intake and discharge, wells, water and wastewater treatment facilities, and water and wastewater interconnections with other systems. Also, show any proposed points of intake or discharge, wells, water and wastewater facilities, water and wastewater interconnections, and future service area extensions. Use symbols shown on the attached map.

LOCAL WATER SUPPLY PLAN for JORDAN LAKE ALLOCATION APPLICATION 2000-2001
Part 2: Water Supply Planning Report

Completed By: Fay Woodruff Date: 5/15/01

WATER SYSTEM: City of Sanford PWSID: 03-53-010

SECTION 7: WATER DEMAND PROJECTIONS

7-A. Population to be Served	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Year-Round	27,000	34,800	40,900	48,000	56,600	66,600	76,000	83,700	92,100	101,400	111,600
Seasonal (if applicable)*	N/A										

*Please list the months of seasonal demand: _____N/A_____ Attach a detailed explanation of how projections were calculated.

Note:Service population projected at 3.3% growth; tapering to 1.95% growth from year 2030-2050.

Table 7-B. Projected Average Daily Service Area Demand in Million Gallons per Day (MGD). (Does not include sales to other systems)
Sub-divide each water use type as needed for projecting future water demands.

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
(1) Residential	1.76	2.41	2.83	3.32	3.91	4.6	5.25	5.79	6.37	7.00	7.71
Residential Connections											
projected at 3.3%; 1.95% y2030											
(2) Commercial	2.5	3.05	3.70	4.55	5.55	6.75	8.23	10.03	12.23	14.93	18.2
Commercial Water Use											
projected at 4%.											
(3) Industrial*											
*Included in Commercial											
(4) Institutional **	.50	.59	.69	.81	.96	1.12	1.32	1.55	1.83	2.15	2.53
**Includes unmetered uses											
by city government.											
(5) System Processes	.93	1.19	1.42	1.72	2.06	2.47	2.83	3.30	3.88	4.57	5.40
(6) Unaccounted-for water	.61	.68	.80	.94	1.11	1.3	1.50	1.75	2.10	2.40	2.80
(7) Total Service Area Demand [sum (1) thru (6)]	6.30	7.92	9.44	11.34	13.59	16.24	19.13	22.42	26.41	31.05	36.64

7-C. Is non-residential water use expected to change significantly through 2050 from current levels of use? ○ No ● Yes
If yes, please explain; Industrial growth has increased at a greater rate over the past 10 years than residential growth. We project a 4% continued growth.

Table 7-D. FUTURE SUPPLIES List all new sources or facilities which were under development as of December 31, 2000 and mark locations on the System Map.

Source or Facility Name	PWSID (if purchase)	Surface water or Ground water	Sub-Basin of Source	Water Quality Classification	Additional Supply MGD	Development Time years	Year Online
N/A							

***NOTE** **R=**Regular Use, **E=**Emergency Use

7-E. What is the Total Amount of Future Supplies available for Regular Use? _____N/A_ MGD

Table 7-F. FUTURE SALES CONTRACTS that have been already agreed to. List new sales to be made to other systems.

1 Water supplied to:		2 Contract Amount and Duration			3 Pipe Size(s) Inches	4* R or E
System Name	PWSID	MGD	Year Begin	Year End		
N/A*						

***NOTE** **R=**Regular Use, **E=**Emergency Use *We have had several inquiries for additional water from Chatham County, the Town of Cameron, and private developments. No formal requests have been made so unable to project at this time.

7-G. What is the total amount of existing Future Sales Contracts for Regular Use? -0- MGD

SECTION 8: FUTURE WATER SUPPLY NEEDS

Local governments should maintain adequate water supplies to ensure that average daily water demands do not exceed 80% of the available supply. Completion of the following table will demonstrate whether existing supplies are adequate to satisfy this requirement and when additional water supply will be needed.

Table 8-A. AVERAGE DAILY DEMAND AS PERCENT OF SUPPLY Show all quantities in MGD.

Available Supply, MGD	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
(1) Existing Surface Water Supply (Item 3-B)	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
(2) Existing Ground Water Supply (Item 3-G)	-0-										
(3) Existing Purchase Contracts (Item 3-E)	-0-										
(4) Future Supplies (Item 7-E)	-0-										
(5) **Total Available Supply** [sum (1) thru (4)]	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
Average Daily Demand, MGD											
(6) Service Area Demand (Item 7-B, Line 7)	6.30	7.92	9.44	11.34	13.59	16.24	19.13	22.42	26.41	31.05	36.64
(7) Existing Sales Contracts (Item 2-H)	.466	.466	.466	.466	.466	.466	.466	.466	.466	.466	.466
(8) Future Sales Contracts** (Item 7-G)	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
(9) **Total Average Daily Demand** [sum (6) thru (8)]	6.77	8.39	9.91	11.81	14.06	16.71	19.60	22.89	26.88	31.52	37.12
(10) Demand as Percent of Supply [(9) / (5)] x 100	53.73	66.59	78.65	93.73	111.59	132.62	156.00	182.00	213.33	250.16	295.00
(11) **Supply Needed to maintain 80% [(9) / 0.8] - (5)**	-4.14	-2.11	-.21	2.16	4.98	8.29	11.90	16.01	21.00	26.80	33.80
Additional Information for Jordan Lake Allocation											
(12) Sales Under Existing Contracts	.25	.40	.466	.466	.466	.466	.466	.466	.466	.466	.466
(13) Expected Sales Under Future Contracts**	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
(14) Demand in each planning period [(6)+(12)+(13)]	6.55	8.32	9.91	11.81	14.06	16.71	19.93	22.89	26.88	31.52	37.12
(15) Supply minus Demand [(5) - (14)]	6.05	4.28	2.69	.79	-1.46	-4.11	-7.33	-10.29	-14.28	-18.92	-24.51

*Lee County sales of 2 mgd is included in service area demand because sales are at resident's meter. **Have rec'd several inquiries; no formal requests to date.

8-B. Does Line 10 above indicate that demand will exceed 80% of available supply before the year 2030? ❍ No ● Yes
If yes, your Jordan Lake Water Supply Storage Allocation Application should include the following items:

(1) Alternatives for obtaining additional water supply to meet future demands. Use the following tables to summarize the various future water supply alternatives available to your system. Attach a detailed description of each water supply project shown in each alternative. The sooner the additional supply will be needed, the more specific your plans need to be.

(2) A demand management program to ensure efficient use of your available water supply. A program should include: conducting water audits at least annually to

closely monitor water use; targeting large water customers for increased efficiency; modifying water rate structures; identifying and reducing the amount of leaks and unaccounted-for water; and reusing reclaimed water for non-potable uses.

(3) Restrictive measures to control demand if the additional supply is not available when demand exceeds 80% of available supply, such as placing a moratorium on additional water connections until the additional supply is available or amending or developing your water shortage response ordinance to trigger mandatory water conservation as water demand approaches the available supply.

Future Supply Alternative List the components of each alternative scenario including the planning period when each component will come online.

(#1)Increase withdrawal from Cape Fear	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
(1) Line (15) from Table 8-A "Existing Supply – Demand"	6.05	4.28	2.69	.79	-1.46	-4.11	-7.00	-10.29	-14.28	-18.92	-24.51
(2) Available supply from Project 1 (describe)		17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.40	17.4
Available supply from Project 2 (describe)								45.00	45.00	45.00	45.00
Available supply from Project 3 (describe)	N/A										
(3) Supply available for future needs [(1) + (2)]	6.05	21.68	20.09	18.19	15.94	13.29	10.40	52.11	48.12	43.48	37.89
(4) Total discharge to Source Basin											
(5) Consumptive Use in Source Basin											
(6) Total discharge to Receiving Basin											
(7) Consumptive Use in Receiving Basin											
(8) Amount not returned to Source Basin [(6) + (7)]	*Below										

*Receiving basin is upstream from source basin; therefore, there are no interbasin transfers as defined by the law.

List details of the future supply options include in this alternative in the table below.

Future Source or Facility Name	PWSID (if purchase)	Surface water or Ground water	Sub-Basin of Source	Water Quality Classification	Additional Supply (MGD)	Development Time years	Year Online
N/A							

Future Supply Alternative List the components of each alternative scenario including the planning period when each component will come online.

(#2)Receive Jordan Lake Allocation	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
(1) Line (15) from Table 8-A "Existing Supply - Demand"	6.05	4.28	2.69	.79	-1.46	-4.11	-7.00	-10.29	-14.28	-18.92	-24.51
(2) Available supply from Project 1 (describe)				28	28	28	28	28	28	28	28
Available supply from Project 2 (describe)										40	40
Available supply from Project 3 (describe)											
(3) Supply available for future needs [(1) + (2)]	6.05	4.28	2.69	28.79	26.54	23.89	21.00	17.71	13.72	49.08	43.49
(4) Total discharge to Source Basin											

(#2)Receive Jordan Lake Allocation	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
(5) Consumptive Use in Source Basin											
(6) Total discharge to Receiving Basin											
(7) Consumptive Use in Receiving Basin											
(8) Amount not returned to Source Basin [(6) + (7)]											

List details of the future supply options include in this alternative in the table below.

Future Supply Sources

Future Source or Facility Name	PWSID (if purchase)	Surface water or Ground water	Sub-Basin of Source	Water Quality Classification	Additional Supply (MGD)	Development Time years	Year Online

Attach additional pages as needed to summarize all alternatives.

8-C. Are peak day demands expected to exceed the water treatment plant capacity by 2010? ●No ○ Yes
If yes, what are your plans for increasing water treatment capacity?

_____

_____

_____

_____

8-D. Does this system have an interconnection with another system capable of providing water in an emergency? ○ No ● Yes If not, what are your plans for interconnecting (or please explain why an interconnection is not feasible or not necessary).
We have an interconnection with Lee County that can provide us with a maximum of a half million gallons per day. We have a mutual aid agreement with Triangle J to provide water to us on an emergency basis.

8-E. Has this system participated in regional water supply or water use planning? ○ No ● Yes Please describe. We have participated in preliminary discussions with various other governmental unit.s.

8-F. List the major water supply reports or studies used for planning. _____

SECTION 9: TECHNICAL ASSISTANCE NEEDS

Is technical assistance needed:

9-A. to develop a local water supply plan? ● No ○ Yes

9-B. with a leak detection program? ● No ○ Yes

9-C. with a demand management or water conservation program? ● No ○ Yes

9-D. with a water shortage response plan? ● No ○ Yes

9-E. to identify alternative or future water supply sources? ● No ○ Yes

9-F. with a capacity development plan? ●No ○ Yes

9-G. with a wellhead or source water protection plan? ● No ○ Yes

9-H. with water system compliance or operational problems? ● No ○ Yes

9-I. with Consumer Confidence Reports? ● No ○ Yes

9-J. Please describe any other needs or issues regarding your water supply sources, any water system deficiencies or needed improvements (storage, treatment, etc.), or your ability to meet present and future water needs. Include both quantity and quality considerations, as well as financial, technical, managerial, permitting, and compliance issues.