Part V
Written Comments Received

Subject: Water
Date: Thu, 8 Mar 2001 07:05:25 -0500 (EST)
From: LAlabaster@webtv.net (Louise Alabaster)
To: Tom.Fransen@ncmail.net

Please vote against Cary, Apex and Raleigh taking more water from the Cape Fear River. My neighbor, Mrs. Gladys Sandlin asked me to include her vote as well, against these cities taking more water from the Cape Fear River.

Louise Alabaster

Subject: Cape Fear Interbasin Transfer
Date: Thu, 8 Mar 2001 10:58:34 EST
From: LorettaNC@aol.com
To: Tom.Fransen@ncmail.net

Dear Mr. Fransen:

I am opposed to Cary's application to increase the amount of water for interbasin transfer from the Cape Fear River for return into the Neuse River.

Cary should be required to return the water to the Cape Fear River. It is wrong for one town to benefit at the expense of another town down river, especially when it is possible, if money is spent, to return the water to its original source.

As you know, water is one of our most precious resources. As a voting Democrat, I believe that my voice should be heard. I have lived in Hope Mills, NC, south of Fayetteville, for 25 years. This is my home. I want sufficient water to be there for me and for my two children in the years to come. I am not satisfied with the studies that have been done thus far. Further studies by more impartial people should be conducted.

Thank you.

Loretta A. Armstrong
5431 Thompson Circle
Hope Mills, NC 28348
910-424-2581

Subject: Interbasin Water Transfer - Cape Fear to Neuse
Date: Wed, 07 Mar 2001 16:50:20 -0000
From: "John Bantsolas" <johnbants@hotmail.com>
To: tom.fransen@ncmail.net

Please do not proceed with this. The Triangle area can surely afford to build a water treatment plant to return water to the Cape Fear Basin. Do NOT let them start taking additional water until they build the plant. If you do, I'll bet the treatment plant will NEVER get built in a timely manner.

Fayetteville doesn't need to be screwed again. The state has already done it to our transportation network. Don't do it to our natural resources.

John N. Bantsolas, CCIM 910:223-7164
JNB Commercial Properties
Fayetteville, NC

Mark Broadwell
Div. of Water Resources
FYI

Pender County

OFFICE OF COUNTY COMMISSIONERS
108 S. COWAN STREET
POST OFFICE BOX 5
BURGAW, NORTH CAROLINA 28425
TELEPHONE (910) 259-1200 FAX (910) 259-1402

February 26, 2001

North Carolina State Clearinghouse
Department of Administration
1302 Mail Service Center
Raleigh, North Carolina 27699-1302

Re: Project Reference Number 00-E-4300-0678
Cary/Apex/Morrisville/Wake Draft EIS

To whom this may concern:

The County of Pender appreciates the opportunity to provide comment on this application for an interbasin transfer (IBT) request from Lake Jordan. In official action taken by the Board of Commissioners at a meeting on February 5, 2001, it was unanimously determined to convey the concerns of Pender County regarding this practice. Our county is home to many miles of the Northeast Cape Fear River with a vast majority of our population living on or near the river. Issues that affect this body of water are of great concern to us.

We concur with the Cape Fear Water and Sewer Authority who has shown us that the Draft EIS on this matter deals with water ***quantity*** and not water ***quality***. As you know, there are documented problems with assimilative capacity in this river and water flow reductions will only serve to exacerbate that condition. We believe the Draft EIS is flawed for many reasons, including, but not limited to the following: the applicants are under no obligation to build the required wastewater treatment plant unless expressly written into the conditions, an accurate historical low flow impact assessment is missing, downstream water users are already facing critical water supply uncertainties which are not addressed, and, the irrigation withdrawals are not objectively evaluated. We believe that the negative impact on water quality to the Cape Fear River far outweighs any benefits derived from the practice of IBT out of Jordan Lake.

Pender County does not agree that IBT is a good policy and requests that the Division of Water Resources and the Environmental Management Commission fully consider water "QUALITY", and the interest of the downstream stakeholders along the Cape Fear River. We cannot totally agree that all the water quality issues have been sufficiently studied and documented and that future problems will not arise.

Once again, thank you for the opportunity to offer our concerns.

Sincerely,

Martin H. Beach
Clerk to the Board

MHB:mkk

Subject: Cape Fear Water
Date: Tue, 06 Mar 2001 23:12:39 +0000
From: Robert <brickhouse@alltel.net>
To: Tom.Fransen@ncmail.net

Dear Friends:

I believe that our river water should be recycled by users. I believe that it is a serious mistake affecting the 15 to 18 million people who may be living in North Carolina 30 to 50 years from now if out of basin transfer (without a balancing exchange) from the rivers of the central part of the state is allowed.

There is no technical reason for avoiding recycling. Politicians and development promoters often take short cuts they see. Communities using our rivers should be encouraged now and compelled within ten years (or slightly more) to design and build their waste water treatment systems to discharge above the impoundments used for their water supplies. Being more costly is not a valid excuse to take water from one river and dump the waste downhill from the community into a different basin. It also encourages less vigilance and responsibility in waste treatment.

The upper Cape Fear basin may soon be unfairly exploited by communities to the west and east. If the Guilford county people take from Cape Fear and dump to the Yadkin while Durham and Wake counties take from the Cape Fear and dump to the Neuse, the middle and lower Cape Fear valley will be cheated. The days of cheap water are slipping by rapidly. Exchange of water, as exists with Durham taking from the Neuse and dumping to the Cape Fear while a similar amount goes in opposite direction (as may be done soon) seems all right.

I believe that attention to conservation practices in most of the communities on the ridges from Raleigh to Charlotte needs to be encouraged and mandated. Please set policies and rulings which our grandchildren and their grandchildren will appreciate so there will be water for them. Recycling and conservation of water are common sense things to do.

Sincerely,

Robert Brickhouse, 1903 Hamilton Dr., Sanford, NC 27330

Subject: **IBT Comments**
Date: Wed, 7 Mar 2001 08:48:47 -0500
From: Hugh.Caldwell@ci.wilmington.nc.us
To: tom.fransen@ncmail.net
CC: lcfwasa@cape-fear.net, Ken.Vogt@ci.wilmington.nc.us, Mike.Richardson@ci.wilmington.nc.us

Tom, attached is a brief comment letter for the record from the City of Wilmington. We will send a hard copy via regular mail.

(See attached file: IBT Comments.doc).

IBT Comments.doc	**Name:** IBT Comments.doc **Type:** Microsoft Word Document (application/msword) **Encoding:** base64

March 7, 2001

N.C. Division of Water Resources
Water Allocation Section
512 North Salisbury Street
Raleigh, NC 27604
Attn: Tom Fransen

Re: Cary/Apex/Morrisville/Wake Interbasin Transfer Request

Dear Sir:

The City of Wilmington appreciates the opportunity to comment on the Cary/Apex/Morrisville/Wake County interbasin transfer (IBT) request from Jordan Lake. Although the City of Wilmington is located well downstream from Jordan Lake, we do have some concerns regarding potential impacts to the water quality pool at Jordan Lake, low flow augmentation from Jordan Lake and impacts on the assimilative capacity of the Lower Cape Fear Basin. We are also concerned about beginning a trend of negative IBT's in the Cape Fear Basin.

Jordan Lake was designed to provide flow augmentation to maintain downstream Cape Fear River water quality during natural low flow periods. Even with the designated augmentation pool, there have been incidents when the target flow at Lillington has not been met, potentially impacting downstream water quality and assimilative capacity. The Draft EIS prepared by the applicants did not address the water quality impacts of the IBT on the Lower Cape Fear Basin where some stream segments have been placed on the 303d list due to low dissolved oxygen quantities. The conclusions in the EIS assume the construction of a future water reclamation facility discharging to the Cape Fear Basin but there are no specific plans for the facility.

Durham has also applied for an allocation from Jordan Lake, which will not result in an IBT, but will result in a net loss to the Cape Fear Basin by correcting an existing IBT from the Neuse to the Cape Fear basin. The Draft EIS did not consider the effects of this loss to the Cape Fear Basin.

We urge the Division of Water Resources and the Environmental Management Commission to fully consider the needs of the downstream stakeholders when reviewing allocation and IBT requests. Water supply, assimilative capacity and water quality for downstream stakeholders should be protected.

Yours truly,

Hugh T. Caldwell, P.E.
Director of Public Utilities
City of Wilmington

Cc: Mary M. Gornto
Ken Vogt

Subject: Cape Fear River Water
Date: Thu, 8 Mar 2001 09:24:24 -0500
From: "Robert Glenn Capps" <sipco@foto.infi.net>
To: <Tom.Fransen@ncmail.net>

Living in Fayetteville and having worked over the years with the Chamber of Commerce for industry. Water is a large factor when seeking industry and we do not have enough. If the Cary, Raleigh area want to use this water then return it to the Cape Fear Basin. We can all share here on earth what are natural resources. Don't take from some and move it to suit others. Share the water just do not abuse it.

R. Glenn Capps

Haw River Assembly

P.O. Box 187 Bynum, NC 27228
(919) 542-5790 hra@emji.net

March 9, 2001

David Moreau
Jim Melvin
Leo Green
Hearing Officers,
Environmental Management Commission

Attention:
Tom Fransen
Division of Water Resources
DENR
Raleigh NC 27699-1611

Dear Sirs:

The Haw River Assembly would like to submit the following comments on the proposed Round 2 allocations for water from Jordan Lake. We are a non-profit citizen river protection organization, working to protect the Haw River and Jordan Lake. We were established in 1982 and currently have about 1500 members throughout the watershed.

We are opposed in principal to interbasin transfers. We believe that the water supply and quality in each of the state's rivers and major river basins is better protected when the integrity of the source to sea flow is also maintained. This really is the underlying principal of the state's current river basinwide management plan, as well. As an educational organization, we find our work is much easier when people understand the stewardship lessons of protecting the river they are a part of, both for drinking water and wastewater. Thisis the heart of watershed (or basin) river protection.

The proposal in front of the Environmental Management Commission for interbasin transfers from the Cape Fear to the Neuse River via Jordan Lake raises many concerns on our part because of the high growth taking place in western Wake County and the Research Triangle Park. We believe that the state is in an excellent position to require watershed protection mitigation measures as part of any transfer. In addition any approval for transfer to cities in western Wake County should be **temporary** , and contingent on a specific date for building a regional WTTP to return water to the Cape Fear River.

We would like to recommend the following mitigations on any approval for this round of interbasin transfers:

- The Interbasin Transfer should be temporary. The EMC should set a date by which the local governments in western Wake Co. build a regional WWTP (waster-water treatment plant) that returns the water into the Cape Fear River. There should be specific penalties for not reaching this target date.

- 100 ft. buffers should be required on all streams within the said jurisdictions, Wake County and RTP, particularly in the Jordan watersupply watershed. We commend the buffers enacted by the town of Cary as a precedent to be followed.

- Require stronger local and ultimately regional storm-water controls, at a minimum the same as is required in the Neuse River Basin

- The said jurisdictions applying for these water allocations should show the EMC how they will leave at least 25% of the remaining undeveloped land undeveloped. New growth, spurred by new water supply, will result in increased run-off pollution if left unchecked.

- On Jan 5th, the Dept. of Environment and Natural Resources adopted "smart growth" principles. Because these are state waters, and this is a state approval process, the EMC should use these principles as a guide and ask the local governments and the RTP to do the same.

- The local governments should be required to create or strengthen water conservation (use-reduction) plans. We should not wait until our region runs out of water to use these resources wisely.

Furthermore, in anticipation of the next round of water allocations, we believe these kind of mitigating water protection requirements should be seen as a precedent for all future requests. We also believe that the EMC should make all interbasin transfer allocations on a temporary basis so as to maintain the ability to re-assess water resource needs in this fast growing region.

We appreciate the opportunity to have our concerns heard.

Sincerely,

Elaine Chiosso
Executive Director

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DIVISION OF
WATER RESOURCES

Tom Fransen,

On the matter of the proposed interbasin transfer, I want my comments to be part of the public hearing held 3/6/01 in Fayetteville. Do not permit any additional transfer of water from Jordan Lake to Cary, Apex and Raleigh unless they will return that water to the Cape Fear River Basin. Do not grant any additional water to them from Jordan Lake until they are prepared to do that.

Thank you,

Margaret Loggswell
Fayetteville

TOWN MANAGER'S OFFICE

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MAR 1 2001
DIVISION OF
WATER RESOURCES

February 27, 2001

Mr. Tom Fransen
Division of Water Resources
DENR
1611 Mail Service Center
Raleigh, NC 27699-1611

Subject: **Public Hearing on Jordan Lake Water Supply and Interbasin Transfer**
Additional Comments of the Petitioners – Towns of Cary, Apex and Morrisville and Wake County

Dear Mr. Fransen:

I am submitting this letter and the attachments into the record for the subject proceedings on behalf of all of the Petitioners (Towns of Cary, Apex and Morrisville and Wake County). We appreciate the efforts of the Division of Water Resources (DWR) and the Environmental Management Commission (EMC) in getting the proposed increase in our interbasin transfer (IBT) to this stage in the regulatory process. As you are aware, we initiated the process of obtaining additional allocations from Jordan Lake and the increased IBT over five years ago, and it has taken an extensive effort on the part of the Petitioners as well as the DWR staff and the EMC to get to this point.

Detailed technical analyses of the requested allocations and IBT have been documented in the Environmental Impact Statement (EIS), IBT petition and supplemental information provided to DWR. To highlight some of the technical issues, we have attached three documents:

1) *Interbasin Transfers in the Upper Cape Fear River Basin and the Neuse River Basin*
2) *Estimated Costs of Proposed IBT Condition Reducing IBT to 16 mgd After 2010*
3) *Water Conservation and Reuse Efforts to Reduce Water Demand by Cary, Apex, Morrisville and RTP South*

In addition, we have summarized the key technical and regulatory issues associated with the IBT with *Comments In Support Of The Request By Cary And Apex For A Certificate To Increase Their Interbasin Transfer Of Water From The Haw River Subbasin To The Neuse River Subbasin.*

TOWN of CARY
316 North Academy Street •Cary, NC 27513•PO Box 8005•Cary, NC 27512-8005
tel 919-469-4007 • fax 919-460-4929• www.townofcary.org

Thank you for considering our comments. If you have any questions, please do not hesitate to contact me at (919) 469-4602.

Sincerely,

William B. Coleman, Jr.
Town Manager

Comment Transmittal.doc
c: E. Leo Greene, Jr./EMC Hearing Officer
Edwin S. Melvin/EMC Hearing Officer
David H. Moreau/EMC Hearing Officer
Bill Sutton/Town of Apex
David Hodgkins/Town of Morrisville
David Cooke/Wake County

BC/01-15

TOWN MANAGER'S OFFICE

March 6, 2001

Mr. Tom Fransen
Division of Water Resources
DENR
1611 Mail Service Center
Raleigh, NC 27699-1611

Subject: **Public Hearing on Jordan Lake Water Supply and Interbasin Transfer**
Additional Comments of the Petitioners – Towns of Cary, Apex and Morrisville and Wake County

Dear Mr. Fransen:

I am submitting this letter into the record for the subject proceedings on behalf of all of the Petitioners (Towns of Cary, Apex and Morrisville and Wake County).

As I see it, the EMC has a significant challenge in trying to render a decision on our interbasin transfer request, which we strongly believe meets all the statutory requirements while protecting the longer-term needs further down the Cape Fear Basin. The Petitioners have submitted documentation of:

- The clear need for water driven by the continued growth pressures on our communities due to proximity to the Research Triangle Park
- The significant and precedent-setting efforts of the applicants to conserve water, irrigate with reclaimed water and mitigate secondary effects of growth
- The findings of the EIS, which indicate there are no direct impacts on downstream flows from the proposed IBT of 27 mgd
- The benefit of the requested IBT relative to other transfers – our request will tend to balance net transfers out of the Neuse River Basin into the Cape Fear River Basin.

Following is our understanding of the issues raised in objection to our requested IBT:

- Uncertainty over the amount of water available from the Cape Fear River for downstream communities
- Concerns about transferring more water out of the Cape Fear River basin

TOWN of CARY
316 North Academy Street • Cary, NC 27513 • PO Box 8005 • Cary, NC 27512-8005
tel 919-469-4007 • fax 919-460-4929 • www.townofcary.org

- Wanting water returned to the Cape Fear, and requiring a wastewater reclamation facility to do this by 2010
- A willingness to compromise – which is expressed as allowing the IBT of 27 mgd until 2010 and then having it revert to 16 mgd.

We appreciate many of the downstream entities' concerns about these issues. The Petitioners have also indicated willingness to compromise, and have already compromised significantly in our efforts to obtain additional water from Jordan Lake. I would like to provide details on the compromises we have already made and think are reasonable.

Most importantly, by far the cheapest alternative for the applicants would have been to request an IBT of 45 mgd, and not build a water reclamation facility to return water to the Cape Fear River. The EIS shows there are no direct impacts from this alternative, and the secondary impacts due to growth would be the same as our proposal. However, we think it is reasonable to serve as many areas as possible through gravity sewer service. Therefore, as our service areas in the Cape Fear River Basin grow, we intend to keep that water in the basin by sending it to a new water reclamation facility in the Cape Fear River basin. Even though it costs more, building the new facility in the Cape Fear Basin limits the need for transferring wastewater to our existing Neuse River Basin facilities, and it resulted in a reduced IBT, leading to our requested amount of 27 mgd rather than 45 mgd.

In addition to limiting our requested IBT to 27 mgd, the applicants agree with all but one of the proposed conditions on the IBT. We are willing to do whatever it takes to begin discharging high quality reclaimed water to the Cape Fear River by 2010. In fact we welcome this condition, since hopefully it represents a commitment from the EMC and DENR to expedite the permitting process. We agree that we should develop compliance and monitoring plans. And we have already begun to take precedent-setting steps to mitigate the impacts of growth in our communities.

However, we cannot agree with the condition that requires reduction of the IBT from 27 to 16 mgd after 2010. Reducing the IBT to 16 mgd after 2010 is not a compromise – it is essentially the same as denying our request. This condition will require a minimum $55 million dollar capital investment by 2010 - **without any corresponding benefit to the environment or to downstream communities**. The basis of this cost is described in documents submitted to DWR on February 27, 2001. This condition would require extensive pumping of raw wastewater – something we are trying to minimize because of environmental risks. It would also result in under-utilization of existing wastewater facilities. We do not believe that we would be good stewards of public resources to accept this condition for our

customers. We have compromised extensively through the five-year process to get to this hearing tonight and are willing to compromise more by accepting all of the proposed conditions but this one.

In summary, I request, on behalf of all the Petitioners, that you grant the interbasin transfer of 27 mgd. We have already taken extraordinary steps to minimize our request, and the analyses conducted over the last 5 years show that there are no significant negative impacts. In fact, the requested transfer will have a positive impact by balancing existing transfers out of the Neuse River Basin. Reducing the transfer below 27 mgd, or denying our request, would unnecessarily increase the cost of providing water to our customers, with no environmental benefit.

Thank you for considering our comments. If you have any questions, please do not hesitate to contact me at (919) 469-4002.

Sincerely,

William B. Coleman, Jr.
Manager

Comment letter 030601.doc
c: E. Leo Greene, Jr./EMC Hearing Officer
Edwin S. Melvin/EMC Hearing Officer
David H. Moreau/EMC Hearing Officer
Bill Sutton/Town of Apex
David Hodgkins/Town of Morrisville
David Cooke/Wake County

TOWN MANAGER'S OFFICE

March 9, 2001

Mr. Tom Fransen
Division of Water Resources
DENR
1611 Mail Service Center
Raleigh, NC 27699-1611

Subject: **Public Hearing on Jordan Lake Water Supply and Interbasin Transfer**
Additional Comments of the Petitioners – Towns of Cary, Apex and Morrisville and Wake County

Dear Mr. Fransen:

I am submitting this letter and the attachments into the record for the subject proceedings on behalf of all of the Petitioners (Towns of Cary, Apex and Morrisville and Wake County). There are two documents attached:

1) *Comments in response to issues raised in letters from the Fayetteville Public Works Commission to Chrys Baggett dated January 29, 2001 and to Tom Fransen dated March 8, 2001*

2) *Additional Comments in Support of the Request by Cary/Apex for a Certificate to Increase their Interbasin Transfer (IBT)*

Thank you for considering our comments. If you have any questions, please do not hesitate to contact me at (919) 469-4002.

Sincerely,

William B. Coleman, Jr.
Town Manager

Comment Transmittal.doc

c: E. Leo Greene, Jr./EMC Hearing Officer
Edwin S. Melvin/EMC Hearing Officer
David H. Moreau/EMC Hearing Officer
Bill Sutton/Town of Apex
David Hodgkins/Town of Morrisville
David Cooke/Wake County

TOWN of CARY
316 North Academy Street • Cary, NC 27513 • PO Box 8005 • Cary, NC 27512-8005

COMMENTS IN SUPPORT OF THE REQUEST BY CARY AND APEX FOR A CERTIFICATE TO INCREASE THEIR INTERBASIN TRANSFER ("IBT") OF WATER FROM THE HAW RIVER SUBBASIN TO THE NEUSE RIVER SUBBASIN:

Comments prepared in Response to Issues Raised by
The Public Works Commission of the City of Fayetteville
In Letters dated January 29 and March 8, 2001

Submitted by

Cary, Apex, Morrisville
and the Wake County Portion of the Research Triangle Park

March 9, 2001

The Towns of Cary, Apex, Morrisville and Wake County on behalf of the Research Triangle Park ("Petitioners") have prepared the following comments related to issues presented in two letters from the Public Works Commission of the City of Fayetteville (PWC):

1. To Ms. Chrys Baggett of the State Clearinghouse dated January 29, 2001
2. To Tom Fransen/DWR dated March 8, 2001

From our perspective, PWC is attempting to broaden the issue of the approval of the interbasin transfer (IBT) to include all issues related to management of Jordan Lake. The comments focus on issues related to the water quality or flow augmentation pool and the ability of this pool to maintain downstream flows. While we agree that DWR needs to address PWC's concerns about how the low flow augmentation pool is managed, the letters unfairly characterize impacts due to management of that pool as attributable to the IBT. We have shown that this is not the case in the EIS and continue to show this in our response below. Most of their points are related to how the two pools in the lake are set up and operated, which was not the focus of evaluation in the EIS or this regulatory action.

The latest PWC letter repeats many of the same points that are in the January letter regarding the Petitioners' interbasin transfer of water from the Haw River Basin to the Neuse River Basin. While these issues have been addressed on numerous occasions by staff of the Division of Water Resources (DWR) and our consultants, we feel that our perspective also needs to be included in the official record for this action.

Our responses follow major headings used in the PWC letters.

The Proposed Action Should be Redefined (January 29): New Cape Fear River Wastewater Treatment Plant Should Be Required (March 8)

PWC has objected to the proposed alternative since there is no requirement for the applicants to construct a new wastewater treatment plant discharging to the Cape Fear River. PWC had requested that the Proposed Action be redefined as Alternative 5, which would result in an Interbasin Transfer (IBT) of 45 million gallons per day (mgd) in 2030.

By not requesting an IBT of 45 mgd, the Petitioners have committed to minimize the IBT by building a water reclamation facility (WRF) to return water to the Cape Fear River Basin. From a cost perspective, the Town of Cary and other applicants could save $142 million by requesting an IBT of 45 MGD. The EIS clearly shows that even at an IBT of 45 MGD, there are not significant direct impacts on the Cape Fear River and its users, but the Petitioners have voluntarily reduced our request to 27 mgd by building a WRF.

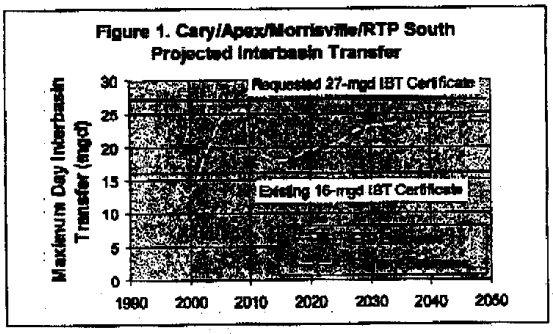
While our proposed alternative does not obligate us to build a WRF that discharges to the Cape Fear River, the IBT certificate will hold us to a transfer of 27 mgd. This certificate is enforceable and constitutes a permit for an IBT on a maximum day basis. If we do not pursue a WRF that discharges to the Cape Fear River or if the Division of Water Quality (DWQ) does not permit the facility, the applicants will be required to pursue other water and wastewater treatment alternatives which could limit our growth. Current projections show that we would need to pursue these other options by 2007.

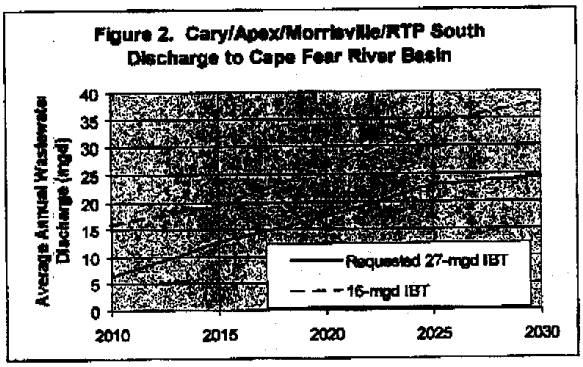
There is no rational basis for requesting that the proposed action be re-defined. There are many factors which influence our projected IBT such as water demand, conservation effectiveness, wastewater reclamation rates, wastewater flows and the location of facilities. All of these factors – not just the presence of a new wastewater treatment facility – need to be managed to meet the requested IBT. Despite these issues, the applicants are willing to accept a permit condition requiring the completion of a new water reclamation facility by 2010.

Completion of New Cape Fear WWTP Should Trigger Reversion of Maximum Allowable IBT Back Down to Existing Level (March 8)

There is no technical basis for reversion of the IBT to 16 mgd after completion of the new water reclamation facility. The applicants provided additional comments on February 27, 2001 including additional detailed technical information regarding the cost of this provision. This provision would require an additional expenditure of $55 to $90 million in capital costs. It might also force Cary into a solution that is less desirable as a regional wastewater solution for Western Wake County Communities.

The following graphs help to illustrate these points.





These graphs show how the anticipated IBT will change over time with the proposed action (including the new discharge) and the difference in the initial amount of wastewater for discharge after 2010 with and without reversion of the IBT from 27 to 16 mgd. When a new wastewater treatment facility is constructed, this provision would require it to have more than double its planned initial capacity at 27 mgd. It would also result in unusable capacity at the existing North and South Cary Water Reclamation facilities, and require transferring wastewater flows to the new treatment plant from service areas in the Neuse River basin currently going to those facilities.

If the IBT were limited to 16 mgd after 2010, it would force Cary to consider a solution for returning water to the Cape Fear that may be less desirable as a regional solution. This would be piping effluent from the South Cary WRF to the Cape Fear and using this facility for future treatment capacity expansions. This would necessitate extensive pumping of raw wastewater and treated effluent and may limit the feasibility of a regional wastewater treatment solution for Western Wake County.

The most important point related to consideration of this provision is that there are no impacts that will be mitigated by forcing reduction of the IBT after 2010. This provision will not significantly change low flows downstream in the Cape Fear River. Since this provision addresses no benefits or detriments of the IBT, it cannot be reasonably required under the requirements of General Statute 143-215.22I.

Completion of New Cape Fear WWTP Should be Required Before Any Possible Allocation for Cary/Apex and their Partners Beyond Round 2 (March 8)

There is no basis for conditioning future allocations to the Petitioners from Jordan Lake on completion of a Cape Fear WWTP. The Round 3 allocations have no relationship to the Round 2 allocations and IBT request. PWC indicates that the Petitioners, and Cary specifically, are examining water supply alternatives other than additional allocation from Jordan Lake. Efforts to look at Kerr Lake and a possible new reservoir on Middle Creek are long-range options that Cary is looking at with our neighboring communities. The purpose of

these efforts is to evaluate their feasibility and potential costs. We do not know whether these are viable alternatives at this time, but examination of the feasibility of these alternatives is important for the region and represents good long range planning practice. With all the criticism of the Petitioners' alleged poor planning by PWC and downstream entities, it seems inappropriate to use these long-range planning efforts as a reason to hold the Petitioners hostage and put a moratorium on further allocations form Jordan Lake. In fact, one reason the Petitioners are investigating these alternatives is to provide supporting documentation required in the Round 3 Jordan Lake allocation applications.

In regard to the Durham transfers that PWC mentions, it is important to examine interbasin transfers in the context of the basin – not just individual communities. Many communities in the Piedmont lie on the ridgeline and transfers of water are common. Durham's transfers are not wrong (as PWC implies) or right but they do represent historic water conditions. They will also not be reversed as PWC implies. The cost of stopping this transfer is tremendous and unjustified. Recent regulatory requirements the Neuse River (Total maximum daily loads for total nitrogen) will also effectively prevent these IBT's from being reversed by returning wastewater discharges to the Neuse River. The projection of transfers for the Haw Basin that was included in our February 27 submittal and mentioned at public hearings is factual and strongly supports the technical analysis - that there will be no negative impacts of the proposed IBT by the applicants. The only reason for ignoring these transfers is to maximize water in the Cape Fear Basin and not to balance naturally occurring flows. The fact remains that if the applicant's IBT is approved, the net transfer will continue to be into the Cape Fear River basin.

EIS Impact Analysis Critically Flawed Due to Narrow Focus (March 8)

First, we do not believe that the EIS is critically flawed or narrowly focussed. PWC implies that the EIS only examined impacts of the IBT on the water supply pool. Extensive analysis of the impact of the IBT on water quality storage was completed as part of the EIS (see attached Exhibit 1). This graph shows no impact of the IBT on the low flow augmentation pool. What does impact that low flow augmentation pool is any water usage - whether returned or not – from the water supply pool. When there is little or no use of the water supply pool and storage is at 100 percent, all inflow to Jordan Lake goes to the low flow augmentation pool. When the water supply pool is being used, the low flow augmentation pool receives two thirds of the inflow to the lake and the water supply pool receives one third. This is the primary difference between the Base Future and Base 98 cases evaluated on the graph and in the EIS. The IBT does not influence this issue.

PWC's focus appears to be that the 600 cfs target at Lillington should be maintained regardless of whether the water quality or flow augmentation pool is exhausted. Later in their letter they indicate that the intent of Congress was clearly that 600 cfs be met all the time. There are volumes of information in the Congressional record that can be interpreted in many ways. However, the clear intent stated in the COE their operating rules is to manage downstream flows so that water quality standards are maintained. It is also clear that Congress added the water supply pool to the projects in part to satisfy concerns of upstream communities impacted by the building of Jordan Lake. There is no evidence of a hierarchy in the importance of the pools or that it was the intent of Congress that downstream flows should be met from the water supply pool.

In reality, there is a return frequency for storage in Jordan Lake – whether this storage is for water supply or flow augmentation. In 1998 when the COE managed the low flow augmentation pool differently than the rule curve would indicate early in the year resulting in a lack of storage for augmenting downstream flows in the fall, the water supply pool was at nearly 100 percent storage volume. DWR, DWQ and the COE practiced effective drought management and managed the low flow augmentation pool to ensure that water quality standards and downstream water supply needs were met. DWR determined that the water supply pool could not be used to augment downstream flows.

The technical analysis done for the EIS clearly documents the capability of the low flow augmentation pool to meet downstream flows. We strongly support the development of additional basin-wide management strategies to better optimize the use of the low flow augmentation pool in meeting these targets during both average and low-flow periods.

Future Irrigation Withdrawals Should be Described (January 29); Irrigation Withdrawals Not Objectively Evaluated (March 8)

During development of the Cape Fear River Basin Hydrologic Model, the Technical Advisory Committee (including PWC) discussed irrigation demands with the consultant's expert. This expert indicated that crops raised in the future could require more irrigation water. However, the same expert indicated that the total acreage irrigated in the Cape Fear River basin will likely decrease substantially but that there are no projections available that could be used for developing accurate future irrigation demands. Therefore, DWR decided to base alternative scenario evaluations on the assumption that overall irrigation demands will remain similar to current levels.

If future irrigation withdrawals in the model input were increased or decreased, it would not change the conclusions drawn from the modeling analyses. Identical irrigation numbers would still be used for all future scenarios, and the model was used only to compare the differences in lake elevation and downstream flow between the different alternatives. While the absolute predictions in flow and lake elevation could potentially change with different irrigation withdrawals, the relative difference between the modeling scenarios would not change, and the conclusions from the modeling would remain the same.

To test how sensitive the model output was to the irrigation assumption, DWR conducted an additional modeling analysis of the proposed action with a 20 percent increase in irrigation demands. This modeling scenario resulted in predicted low flows that were lower than the scenarios with current irrigation, but there was little impact when compared to the base future case. Model predictions are illustrated in the table below.

Low Flow Statistics for Cape Fear River at Lillington and Fayetteville

Modeling Scenario	Predicted 7Q10 Flows (cfs)

	Lillington	Fayetteville
Base Future Case	183	446
Alternative 1A (No Action)	331	496
Proposed Alternative	357	511
Proposed Alternative with 20% increase in irrigation	326	490

Randleman Lake Effects Should be Described (January 29 and March 8)

PWC raises two issues related to the Randleman project. First, they discuss the potential impacts on flows during filling of the reservoir. This is a temporary impact that is not appropriate for a cumulative impact analysis. In addition, this issue was not identified by any agencies or commenters in any of the scoping or EIS process comments, and was only raised by PWC after the EIS comment period had been closed. Since the long-term ability of the low flow augmentation pool to meet target flows is not affected by the IBT, this temporary effect, while it may have some impact on low flows in the Cape Fear River, is not related to the IBT.

The second issue is related to the cumulative impacts analysis. The Petitioners support including Randleman Lake in the Cape Fear River model, but at the time the model was developed, by a consultant to DWR, there was not enough information available to include detailed operating rules for Randleman Lake in the model. This decision did not narrow the focus or flaw the analysis in the EIS and PWC provides no credible evidence for this allegation. The model is a comprehensive, full-basin hydrologic model that was developed with full stakeholder participation, using 60 years of data, and was calibrated based on data available between 1988 and 1998. Since Randleman Lake was not included in the model, information provided in the Randleman Lake final EIS was used to address PWC's concern. The data provided in the Randleman Lake EIS indicate that low flows will be augmented by lake releases while average flows will slightly decrease below the dam. The result is that by not including Randleman Lake in the EIS analysis, the predicted low flows are conservatively low.

A Realistic Low Flow Impact Assessment Should be Provided for Users Downstream of Jordan Lake (January 29); Accurate Historical Low Flow Impact Assessment Missing (March 8)

PWC's main issue is the adequacy of DWR's analysis of the lowest flows in the Cape Fear River. A comprehensive, full-basin hydrologic model was used to assess the impacts of the proposed IBT. This hydrologic model was developed with full stakeholder participation, using 60 years of data, and was calibrated based on data available between 1988 and 1998. The model we used has been scrutinized by the top levels of the Department and the various

environmental divisions. PWC (and their consultants) and numerous other stakeholders have been involved with every step of the model development and application process.

We acknowledge that downstream low flows are not predicted well in 1998. The model was developed based on the Army Corps of Engineers rules and guidelines for releasing water. In 1998, the Corps did not follow these guidelines, and worked with DENR agencies to determine flow releases that would protect downstream water quality and preserve the low flow augmentation pool. We disagree with PWC on the goal of the low flow augmentation pool. The goal is not to maintain 600 cfs but rather to meet water quality standards – the 600 cfs target is an easy way to do this on average, but during a drought more precise management is needed. The active management of the pool in 1998 is an excellent example of an effective drought management plan that protected the resource values downstream in the Cape Fear River.

To determine whether the model was predicting flows well, an analysis was run by DWR in January 2001 and compared to USGS flow estimates. The model was run for 1982-1998 using the water year, and the USGS flow statistics were obtained from the annual *Water Resources Data, North Carolina* for Water Years 1983-1998. This analysis showed that the model predicts flow well on the Cape Fear River mainstem. A comparison of flows at Lillington is provided in the Table below:

	10% Exceedance Probability Flow (cfs)	50% Exceedance Probability Flow (cfs)	90% Exceedance Probability Flow (cfs)
Cape Fear River at Lillington (modeled)	8,824	1,321	619
Cape Fear River at Lillington (USGS)	10,700	1,310	619
Difference between Modeled and USGS	-18%	1%	0%

PWC noted in its letter that this analysis ignored the true low flows since it did not look at exceedance probabilities above 90%. To address this issue, Curtis Weaver of USGS was contacted. Mr. Weaver indicated that the 7Q10 flow at Lillington is at approximately the 95 percent exceedance flow. He indicated that the 95 percent exceedance flow is 526 cfs while the 98 percent exceedance flow is 461 cfs. The model predicts that flows do not fall below 600 cfs. This is because, since DWR's drought management plan for the low flow augmentation pool is not complete and is not modeled, the model is always perfect in meeting the 600 cfs target at Lillington. The COE cannot manage the reservoir nearly so accurately, and as evidenced in 1998 it is not desirable to blindly meet the target during drought periods.

PWC's information related to the number of days the 600 cfs target has not been met is not really relevant – especially to IBT impacts. During the period analyzed by PWC in their exhibits (1990-2000), the only time that the reason for not meeting the 600 cfs flow target

was because of insufficient storage in the low flow augmentation pool was in the fall of 1998. The actual flows in the river do not always meet the target because the gates at Jordan Lake are manually operated and are only manned 5 days a week during the day unless there are some extreme circumstances. The COE also does not have sophisticated equipment to aid in prediction of the actual releases from the reservoir needed to meet the target at Lillington. DWR has been working on these issues with the COE.

Finally, it is important to reiterate that the only relationship between the low flow augmentation pool and the water supply pool is in the division of water coming in to Jordan Lake. The low flow augmentation pool is used to meet downstream flows while the water supply pool is used by Cary and other communities to obtain their water.

The proposed IBT Should Not be Approved When Downstream Users Are Already Facing Critical Water Supply Uncertainties (January 29); Jordan Water Quality Pool Depletion Means Downstream Users Are Already Facing Critical Water Supply Uncertainties (March 8)

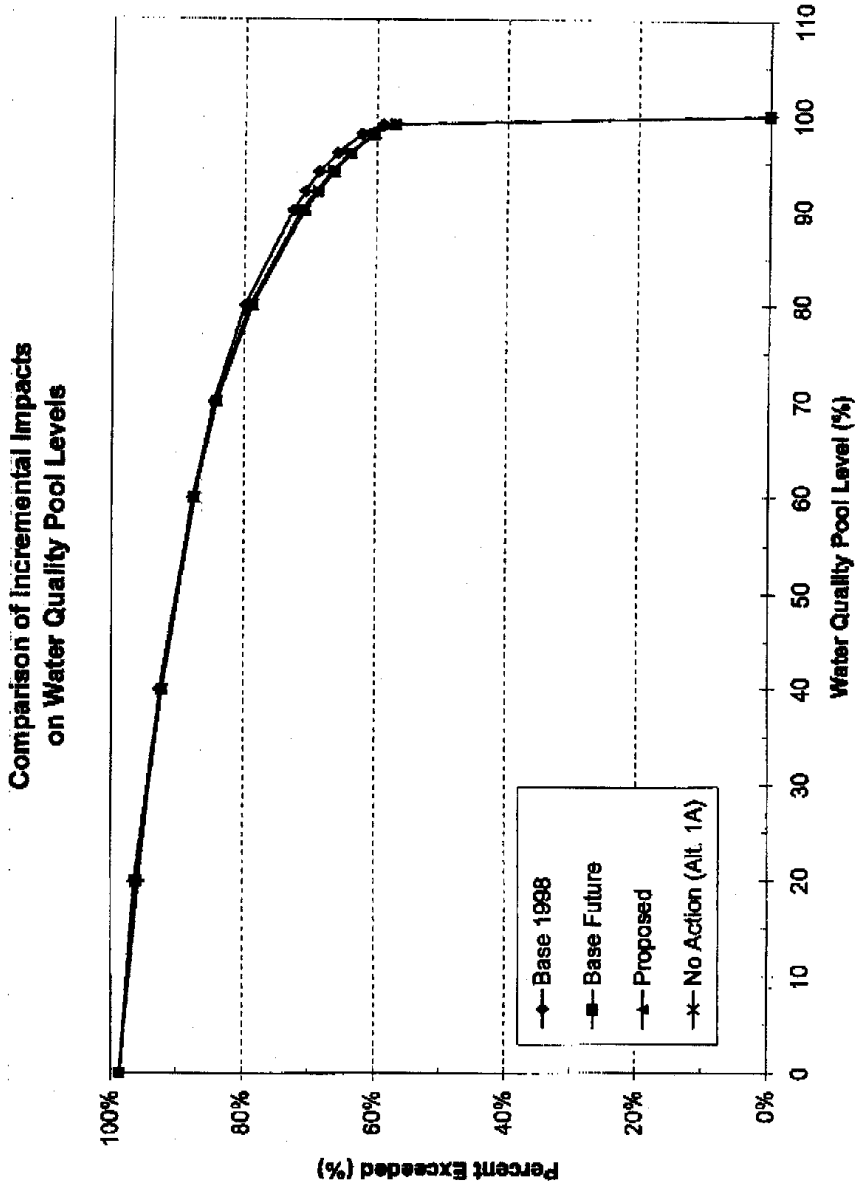
There are two separate issues that are implied in the PWC letter. First, downstream users are facing critical water supply needs, and second, that transferring water withdrawn from the water supply pool will impact downstream flows. When allocating water from Jordan Lake during Round 2, the Division of Water Resources (DWR) and the EMC reviewed the water supply needs of the communities as well as potential water sources. During Round 2 of the Jordan allocation process, DWR and the EMC determined that the Petitioners had critical needs for water from Jordan Lake. Our applications were reviewed in the same context that PWC's application was reviewed.

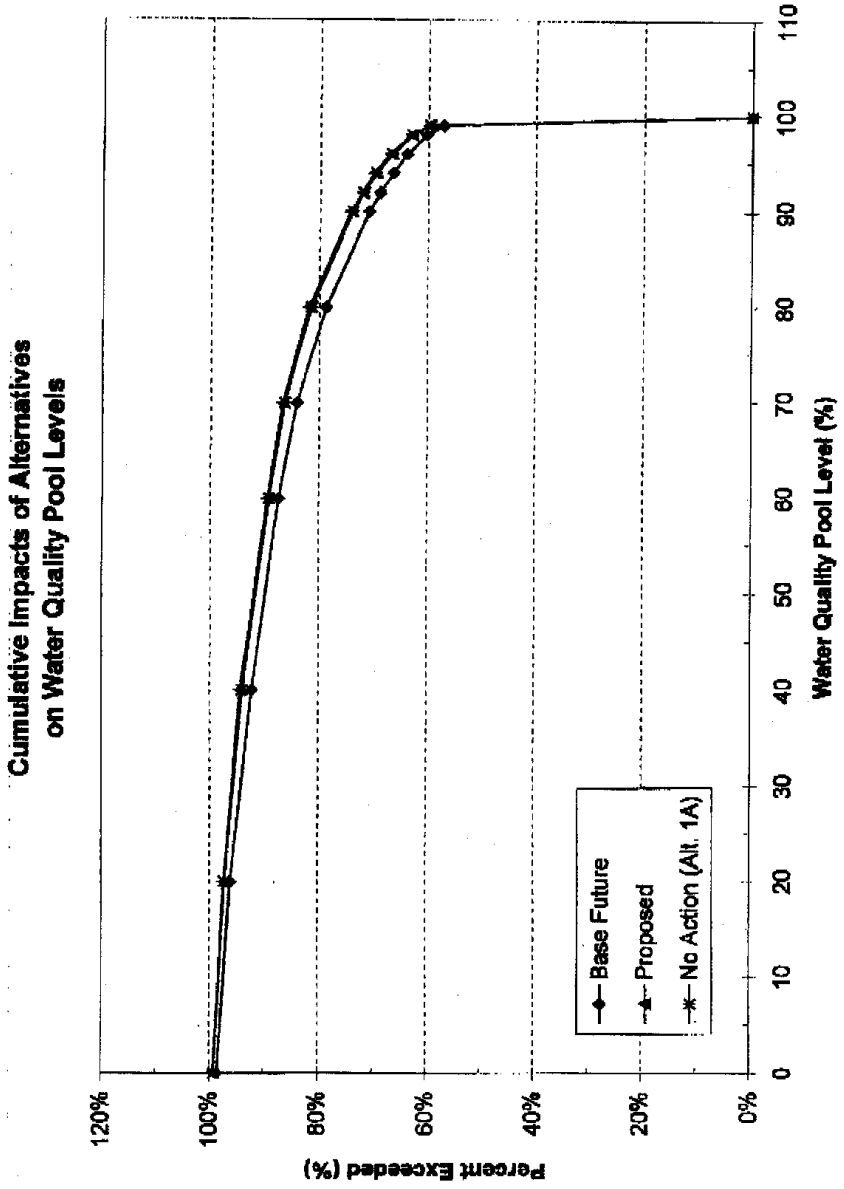
The second item is the proposed IBT's impact on downstream flows. The EIS clearly shows that flows downstream will not significantly be impacted by the proposed IBT. Again, downstream flows are impacted by the low flow augmentation pool which is not affected by withdrawals from the water supply pool.

Water Supply Available to Downstream Communities is Rapidly Dwindling (March 8)

We believe that PWC is over-dramatizing the critical needs of downstream communities. PWC has indicated on numerous occasions that they have little or no concerns about their adequate water supply in the short run. While there is some uncertainty over the long-term yield available from the Cape Fear for PWC, this yield is somewhere in the range of 60 to 90 mgd. No analysis has been done to indicate whether this is a maximum day, average month, or average annual yield, and DWQ and DWR have agreed that the water quality analysis leading to the 60-mgd estimate needs to be reviewed and the yield is probably higher than that. Similar yields are available to upstream communities. These are yields that are available due to releases from the low flow augmentation pool without allocation from the water supply pool. We fully understand PWC's concern over the uncertainty regarding this issue and have embarked on a joint water quality modeling project that will address both their concerns and those of Cary for getting an NPDES permit to discharge to the Cape Fear River. We strongly contend that it is not relevant to the impacts of the IBT.

The information presented in the March 8 letter contends that there is only 56 mgd unallocated from the water supply pool, including the recommended Round 2 allocations.


Comparison of Incremental Impacts
on Water Quality Pool Levels
Percent Exceeded (%)
100%
80%
60%
40%
20%
0%
Water Quality Pool Level (%)
0
10
20
30
40
50
60
70
80
90
100
110
Base 1998
Base Future
Proposed
No Action (Alt. 1A)


Cumulative Impacts of Alternatives on Water Quality Pool Levels
Water Quality Pool Level (%)
Percent Exceeded (%)
Base Future
Proposed
No Action (Alt. 1A)
0
10
20
30
40
50
60
70
80
90
100
110
120%
100%
80%
60%
40%
20%
0%

Additional Comments in Support of the Request by Cary/Apex for a Certificate to Increase their Interbasin Transfer (IBT)

Submitted by

Cary, Apex, Morrisville, and Wake County on behalf of Research Triangle Park ("Petitioners")

March 9, 2001

The Petitioners have already submitted comments to the Environmental Management Commission (EMC) in support of their request for an additional IBT of 11 million gallons per day (mgd). However, after attending the public hearing in Fayetteville regarding this matter, the Petitioners believe it is necessary to submit further comments. The Petitioners are very aware of the concern by residents of the Cape Fear River Basin below Jordan Lake regarding that the proposed IBT may have detrimental effects on the Cape Fear downstream of Jordan Lake. The Petitioners had several representatives at the hearing to listen to and, to the extent possible, to address those concerns and, hopefully, to clear up some of the misconceptions. Many of the comments opposing the IBT appeared to be based on misinformation and many were not factual. However, there was little opportunity to enter comments into the record regarding such misinformation, since at the time most of the attendees who support the IBT were asked not to speak .

Although the public hearing process is designed to solicit all comments without requiring supporting documentation, the IBT decision must be based on factual information. G.S. 143-215.22I provides that the EMC shall grant the certificate if it finds, **based on a preponderance of the evidence**, that the benefits of the proposed transfer outweigh its detriments, and that the detriments have been or will be mitigated to a reasonable degree. The Environmental Management Commission's (EMC) decision must be based on evidence - something that furnishes proof. Proof, in turn, means the cogency of evidence that compels acceptance by the mind of a truth or a fact. While it may not be necessary for evidence considered by the Commission to be in the form of sworn testimony, it is clear that the General Assembly has required that only accurate facts and true statements be considered in making the decision. The following is the Petitioners' effort to correct or otherwise address some misinformation that was presented at the hearing.

1. Comment: A great number of the speakers referred to the Cape Fear as "our river." The Petitioners understand the sentiment behind this statement and respect the importance of the Cape Fear River to the City of Fayetteville and other downstream communities. However, upstream communities also have rights to water from the Cape Fear River. Furthermore, the fact is that the requested interbasin transfer, if granted, would come from a pool of water in Jordan Lake designed to provide 100 mgd for water supply purposes. This capacity was added

to the Lake specifically to store water for communities in proximity to the Lake, like Cary, Apex, Morrisville and RTP. This is the same as if the water were taken from the river during high flow periods and stored in a tank not connected to the river. The Lake also stores water to augment low flows in the Cape Fear – enough to supply 200 mgd – and this storage pool is not available for use by upstream users.

2. Comment: The Petitioners should have to pay for the water.

North Carolina regulations make no provision for payment for the use of water. However, Cary and Apex currently pay the state for the use of their allocated portion of the Jordan Lake water supply pool. The amount paid covers repayment of the capital costs related to construction of the dam, along with annual operation and maintenance costs. It should be noted that although the low flow augmentation pool provides releases for a target minimum flow of 388 mgd (at Lillington) to downstream users, those users do not have to repay the state for the benefits they receive from the low flow augmentation pool. Low flow releases from the dam have increased the potential yield in the Cape Fear River downstream of the dam about seven-fold compared to historic levels. Twenty percent of the 7-day, 10-year low flow is typically used as one guideline for potential water supply yield; that amount has increased from about 10 mgd to about 70 mgd at Lillington. Likewise, downstream users reap the benefits of the flood control pool at no cost.

3. Comment: The IBT is bound to diminish available water downstream and hurt Cumberland County's ability to build a countywide water and sewer system and other water-consumptive projects. In fact, the exhaustive study of the proposed IBT, including the results of a model of the Cape Fear River developed by DWR primarily for this purpose, shows there will be no detrimental impacts on availability of water downstream. In short, downstream users will have just as much assurance of low flow augmentation if the IBT is granted. All the evidence supports this conclusion, and the Petitioners have seen no credible evidence to the contrary nor have they seen or heard any such evidence submitted to the Commission.

In addition, a key consideration in determining the amount of water that can be withdrawn from the Cape Fear River is the impact of withdrawals on water quality during low flow periods. Because of this, a major concern of downstream users is not that there will be less water to use, but that there will be less water *after* their use to assimilate pollutants in their wastewater discharges. As one speaker on March 6 indicated, the solution to pollution is not dilution. Before asking upstream users to spend millions to increase - not just maintain - the flows available to dilute their wastewater, downstream users should follow the Petitioners' leads and use conservation measures and reclaimed water to reduce both demands and wastewater discharges.

4. Comment: The Petitioners' consultants prepared the environmental impact statement, the model and other technical analysis and the results therefore must be biased toward Petitioners.

The model was developed by a consultant under the direction of DWR, not by the Petitioners' consultants. The Petitioners, along with the Cape Fear River Assembly, provided funding for this model. The model was developed under the guidance of DWR and a stakeholders committee that included representatives from downstream communities. The downstream communities and their consultants also participated extensively on a technical subcommittee that provided detailed input during model development. The Petitioners' consultant used the model to analyze the requested IBT and alternatives, and incorporated results into the Environmental Impact Statement. The EIS for the IBT was prepared with direction from and full review by the highest levels of DENR.

It is standard procedure for applicants and/or their consultants to prepare the environmental documentation related to water and sewer projects. DENR does not have enough funding or staff to perform complex modeling and prepare the documentation in a timely manner. In fact, similar projects undertaken by entities objecting to the IBT have also been approved by DENR based on environmental documentation prepared by their consultants or their own staff.

5. Comment: "...the Wildlife Resources Commission [WRC] is opposed to the project as currently proposed." Mr. John E. Pechmann cited impacts to species in the source and receiving basins due to the proposed interbasin transfer.[1]

Richard Hamilton, Assistant Director of the WRC, stated in a telephone conversation on March 7, 2001 that official WRC comments on the proposed IBT were submitted through the Clearinghouse during the EIS development, and that Mr. Pechmann's comments do not represent the WRC. The Petitioners, their consultants, and DWR staff attended numerous meetings with WRC staff in order to address comments received during scoping and draft EIS review. The final WRC comments submitted to the State Clearinghouse included the following summary:

" We concur that there is little direct impact associated with an interbasin transfer and that the significant impacts are related to secondary and cumulative development that is facilitated by the increase in water supply."[2]

Mr. Anderson made specific recommendations for mitigation of significant impacts due to growth, related mostly to open space planning/preservation and stormwater management. The EIS states that these impacts would be the same for all alternatives to the proposed action, other than the no action alternative. Extensive mitigation efforts have been developed and are being implemented to mitigate potential secondary effects of growth.

6. Comment: Petitioners have already begun work on the water plant in order to make it hard for the EMC to deny the IBT certificate. When the allocation and interbasin transfer processes were started, DWR indicated that an EMC decision on the requests could be expected in late 1999, which was when construction was

[1] *NCWRC Comments Regarding the Increase in Interbasin Transfer of Water From Jordan Reservoir.* Written comments submitted by Mr. John E. Pechmann, Chairman, Presentor, at the March 6, 2001 Public Hearing in Fayetteville, NC.
[2] Memorandum from Owen Anderson to Melba McGee dated February 17, 2000.

expected to begin on the plant expansion. In July 1999, with the regulatory schedule slowed considerably, the Petitioners decided to begin work on the water plant expansion, only after the analysis of impacts was complete and it was clear that there were no significant direct impacts. Since the approval of the interbasin transfer is based on a comparison of the benefits and detriments of the transfer, and the analysis showed no direct negative impacts, the Petitioners moved forward with faith that the EMC would act based on the guidelines of G.S. 143-215.22I.

Throughout the EIS scoping process, there were no objections to DWR's recommendation to grant the Petitioners' Jordan Lake allocations – commenters have objected only to the IBT. The WTP will be used whether or not the IBT is granted. If the petitioners did not begin work on the plant until a decision is made on the IBT, it would unavoidably have cost customers more to continue buying water through expensive short-term contracts with neighboring utilities for the additional 2 to 3 year period during construction. By beginning construction before approval of the IBT, the WTP could be ready for use about the same time approval of the IBT could be granted, thus avoiding those costs if the IBT is approved.

7. Comment: There are unanswered questions about whether Environmental Review of the Cary/Apex expansion was conducted in accordance with DENR's North Carolina Environmental Policy Act Rules.[3],[4]

In their letter to Secretary Ross, PWC references statements by the Wildlife Resources Commission that interbasin transfer issues should be addressed in environmental documentation for the water treatment plant expansion. First, it should be noted that the PWC did not submit any comments through the State Clearinghouse on the Environmental Assessment for the expansion. Second, as noted in Item 6, the expanded plant will be used even if the IBT increase is not approved, so it is appropriate for interbasin transfer impacts to be considered separately from the expansion impacts. At a meeting on November 6, 1997 that included representatives from Cary/Apex and their consultants, the WRC, Public Water Supply, and DWR, the relationship between the two NC EPA processes was discussed. The WRC agreed that potential interbasin transfer impacts would be addressed in the IBT EIS, and subsequent comments are discussed in Item 5 above.

8. Comment: Petitioners have avoided a commitment to construct a POTW in the Cape Fear River Basin to minimize the need for future IBTs and cannot be trusted to build it by 2010.

Petitioners have agreed to a condition in the certificate, if it is issued, requiring that the wastewater treatment plant be built in the Cape Fear River Basin by the

[3] *Statement by Fayetteville Public Works Commission.* Written comments submitted at the March 6, 2001 public hearing.
[4] Letter from M. J. Noland, Chief Operating Officer, Division of Water Resources, Fayetteville Public Works Commission to William G. Ross, Jr., Secretary, Department of Environment and Natural Resources, dated February 2, 2001.

year 2010. Petitioners assume this condition will be enforceable unless it cannot be accomplished due to conditions beyond the Petitioners' control. In fact, since the Petitioners requested an IBT of only 27 mgd, they will be required to build a new discharge to the Cape Fear River in order to use water from Jordan Lake at the higher rates supported by their recommended Round 2 Jordan Lake storage allocations.

9. Comment: Petitioners' bad planning has created the need for the IBT.

The need for the IBT is primarily based on the fact that the Petitioners' service areas straddle the basin boundary between the Cape Fear River Basin and the Neuse River Basin. The rules governing interbasin transfers recognize there will be cases like the Petitioners, where the benefits of an interbasin transfer outweigh the detriments, and therefore allow for interbasin transfers to occur. In this case, there are no significant detriments to the transfer.

10. Comment: The Petitioners should plan for longer than a 2015 planning period.

When the Petitioners requested Round 2 Jordan Lake allocations in 1996, those requests were based on a planning period through 2030. DWR made the decision to only recommend allocations based on 20-year needs, which at the time translated to the 2015 planning period. The Interbasin Transfer request is based on a planning period through 2030, and Cary has completed a Long-Range Water Supply Plan through 2050 showing that the 27-mgd IBT is adequate even with increased use of Jordan Lake for water supply, which is the Petitioners' preferred long-term water supply source. The Petitioners' have, along with other Cape Fear River Basin communities, urged DENR to use long-term planning periods to make regulatory decisions.

11. Comment: People follow water; water does not follow people. There is certainly some truth in this statement as a generality, but it is untrue as it relates to this IBT request. The Research Triangle Park is the primary stimulus of growth in the Cary/Apex/Morrisville area. The state has encouraged growth in RTP which has led to growth in the surrounding areas, which include not only the Petitioners, but also areas such as Orange, Durham, Granville, Person, Chatham, Harnett and Johnston Counties. Some of these industries have indicated that they would not come to North Carolina at all if they could not locate in the RTP.

COMMENTS IN SUPPORT OF THE REQUEST BY CARY AND APEX FOR A CERTIFICATE TO INCREASE THEIR INTERBASIN TRANSFER ("IBT") OF WATER FROM THE HAW RIVER SUBBASIN TO THE NEUSE RIVER SUBBASIN

Submitted by

Cary, Apex, Morrisville
and the Wake County portion of the Research Triangle Park

I. Background

The Towns of Apex, Cary and Morrisville and the Wake County portion of Research Triangle Park petitioned the Environmental Management Commission ("EMC") on September 13, 2000 for an increase in the existing Cary/Apex interbasin transfer certificate from 16.0 to 27.0 million gallons per day (mgd). The water would be withdrawn from Jordan Lake, the Petitioners' primary water source. An interbasin transfer is necessary because the Petitioners serve customers in both the Cape Fear and Neuse River Basins, and after it is used much of the water is treated and discharged from existing treatment facilities in the Neuse River Basin.

The Division of Water Resources ("DWR") and the Petitioners have analyzed the potential impacts of this proposed IBT for more than five years. The Cape Fear River Basin Hydrologic Model was developed and applied, and a complete environmental impact statement was prepared and reviewed by all interested environmental agencies and the public. As a result of this analysis, the DWR confirmed that withdrawing the requested water from Jordan Lake's water supply pool will not impinge upon the lake's ability to augment flow in the Cape Fear River. Consequently, the IBT will have no significant detrimental effect on either the Cape Fear River Basin or the Neuse River Basin, other than potential secondary effects on water quality from development that will be facilitated by the additional water, which will be mitigated by stream buffers and other local restrictions. To ensure that they will not need to request an additional IBT in the future, the Petitioners have agreed to build a regional waste treatment facility in the Cape Fear River Basin by 2010.

Because their need for the water is unquestionably great due to the extraordinary growth in the Research Triangle Park area, and therefore clearly outweighs the negligible detrimental effects of the IBT, the Petitioners believe that analysis of the statutory criteria shows that the Petition should be granted.

II. The Decision-Making Procedure

The decision regarding issuance of the Certificate is made pursuant to G.S.143-215.22I, which states that the EMC shall grant the Certificate if it finds, based on a preponderance of the evidence, that the benefits of the proposed transfer outweigh its detriments, and that the detriments have been or will be mitigated to a reasonable degree. In making this decision, the EMC is to consider certain factors which are summarized as follows:

1. The necessity, reasonableness, and beneficial effects of the transfer

2. The detrimental effects on the source river basin
2a. The cumulative effect on the source major river basin of any water transfer or consumptive water use
3. The detrimental effects on the receiving basin
4. Reasonable alternatives to the proposed transfer
5. If applicable, the applicant's present or proposed use of impounded storage
6. If the water to be transferred is stored in a United States Army Corps of Engineers ("Corps of Engineers") multi-purpose reservoir, the purposes and water storage allocations established for the reservoir.
7. Any other facts or circumstances necessary to carry out law

III. Jordan Lake

Jordan Lake is a multi-purpose reservoir built by the Corps of Engineers, with financial assistance from North Carolina, for the express purposes of flood control, downstream water quality enhancement, and water supply. It stores enough water to provide 100 mgd of available water supply in the upper Cape Fear Basin. In addition, it provides great benefits to downstream users in the Cape Fear Basin by storing enough water to ensure substantial low flows - 6 to 10 times greater than before the lake was impounded. Consequently, the available yield for water supply from the Cape Fear River downstream of Lillington was increased from approximately 10 mgd to somewhere in the range of 60 to 90 mgd. The volume of water designated for low flow augmentation is always kept available for this purpose and cannot be used for water supply, which ensures that the requested withdrawal and IBT will not affect the flow available to downstream users.

IV. Discussion of Statutory Criteria

(1) <u>The Necessity, Reasonableness, and Benefits of the Transfer</u>

There is no question that the Petitioners have a pressing need for the additional water. Their growth rate is very high. High-tech industries locating or expanding in the Research Triangle Park require additional water. These industries provide a wealth of high-paying jobs, and many of their employees live in Apex, Cary and Morrisville. In recent years the Petitioners have experienced water shortages during dry periods. In addition to short-term water restrictions, they have implemented water conservation measures that will reduce future water use, and consequently have requested less water than the DWR would generally recommend using standard assumptions. Water conservation and wastewater reuse are key aspects of the Petitioners' water supply projections and their commitment to these programs is unique in North Carolina.

An interbasin transfer is necessary because the Petitioners serve customers in both the Cape Fear and Neuse River Basins, and because Cary's and Apex's existing wastewater facilities, which have considerable unused capacity, discharge into the Neuse River Basin. The cost of avoiding the requested transfer by piping the water into the Cape Fear Basin would be $55 to $90 million. The Petitioners have committed to building a regional treatment facility in the Cape Fear River Basin thus minimizing the requested transfer and avoiding the need for additional future transfers.

(2) The Detrimental Effects on the Source Basin

The IBT would have no direct detrimental effects on the Cape Fear River Basin. To assess the potential direct impacts, the Petitioners participated in the development of a Cape Fear River Basin Hydrologic Model. As required, local water supply plans were considered in developing the model. In addition, industrial and agricultural withdrawals were considered. Model runs for seven alternatives were evaluated for present and 2030 water demands. Impacts were assessed for the Jordan Lake watershed and downstream to Fayetteville. A comparison of the alternatives showed that the proposed IBT will have no significant impacts on Jordan Lake levels or downstream flows compared to the other alternatives and current conditions. Since wastewater assimilation is directly related to flows, no significant changes in wastewater assimilation are expected. Similarly, no impacts were identified for hydropower generation, navigation or recreation.

Indirect effects from growth, such as increased runoff, erosion, and loss of open space, could potentially have negative impacts on water quality and fish and wildlife habitat. These impacts will be mitigated to a reasonable degree through existing regulations and programs, as well as new initiatives, the most notable of which are Cary's Stream Buffer Ordinance and Open Space and Historic Resources Plan.

(2a) The Cumulative Effect on the Source Basin of Any Transfers or Consumptive Water Use Projected in Local Water Supply Plans

Local water supply plan data, including current and projected water use and water transfers, were used in the Cape Fear River Basin Model to evaluate current and future scenarios of basin water use. The model runs demonstrated that there were no significant direct impacts, including cumulative impacts, due to the proposed transfer. The Petitioners' requested transfer will reduce the expected 2030 net transfer into the Upper Cape Fear River Basin by a minimum of 30 percent, by balancing substantial City of Durham transfers from the Neuse River Basin to the Cape Fear River Basin. If Durham begins using water from Jordan Lake, the Petitioners' requested transfer would assist in reducing the current 10-mgd net transfer into the Cape Fear River Basin to approximately zero in 2030.

(3) The Detrimental Effects on the Receiving Basin

There are no detrimental direct impacts on the Neuse River subbasin. The proposed transfer will utilize existing permitted wastewater facilities in the Neuse River subbasin, therefore no NPDES permit increases will be required. Previous studies for the existing permitted discharges indicate no significant direct impacts to water quality or wastewater assimilation on the receiving streams. Stream flows in the Neuse River subbasin are not expected to change significantly due to the proposal, consequently no impacts are likely to occur to navigation, recreation, or flooding.

Indirect effects from growth such as increased runoff, erosion and loss of open space potentially will impact water quality and fish and wildlife habitat in the receiving basin, for the

same reasons as in the source basin. Existing regulations and programs, as well as new initiatives, will mitigate these impacts to a reasonable degree.

The Petitioners' requested IBT will reduce the existing and projected net transfer out of the basin, which occurs due to substantial transfers from the Neuse River Basin to the Cape Fear River Basin by the City of Durham. If Durham begins using water from Jordan Lake, the Petitioners' requested transfer would assist in reversing the current 8-mgd net transfer out of the Neuse River Basin, resulting in about a 2-mgd net transfer into the Neuse River Basin in 2030.

(4) Reasonable Alternatives to the Proposed Transfer

The Petitioners and DWR evaluated six alternatives to the proposed transfer. The alternatives were then compared by the DWR using the following factors:

- required increase in interbasin transfer
- direct and indirect impacts
- ability to meet future water needs
- capital cost
- construction of a regional water reclamation facility
- outside water purchases
- expansion of Cary/Apex water treatment plant

Except for the "no action alternative", which does not meet the future water supply needs of the Petitioners, the alternatives will not substantially reduce the predicted insignificant direct impacts of the proposed transfer increase. The only significant impacts associated with the proposed transfer are indirect impacts associated with growth, which would be essentially the same for all the alternatives and are being mitigated by stream buffers and other local restrictions.

(5) If Applicable, the Applicant's Present or Proposed Use of Impounded Storage
This criterion is not applicable, because the Petitioners do not have an impoundment.

(6) If the water to be transferred is stored in a United States Army Corps of Engineers ("Corps of Engineers") multi-purpose reservoir, the purposes and water storage allocations established for the reservoir.

Jordan Lake is a multi-purpose reservoir constructed by the Corps of Engineers. The Petitioners' request for an 11-mgd IBT increase is consistent with the purposes of Jordan Lake and the allocations for which it is designed and managed. The water supply portion of the lake's storage is designed to provide a water supply yield of about 100 mgd without affecting the impounded water that is reserved for downstream flow augmentation. Currently, only about one-third of the water supply storage has been allocated, including the DWR's recommended allocations to the Petitioners. The low flow augmentation portion of the lake's storage is managed separately from the water supply storage, so the IBT does not threaten to impinge on the water reserved for flow augmentation.

(7) Other Considerations

The Petitioners are actively pursuing water conservation and reuse, with Cary particularly having one of the most aggressive programs in North Carolina. Furthermore, the Towns of Cary and Apex provide finished water to several communities in their region and will be key participants in establishing a regional wastewater treatment facility in the Cape Fear River Basin. This is consistent with the Department of Environment and Natural Resources policy encouraging regional facilities and, furthermore, ensures that the Petitioners will not need to request another IBT.

V. Conclusion

As the above analysis of the relevant criteria shows, the benefits of the proposed transfer far outweigh any detriments. In sum, the water the Petitioners propose to transfer is reserved in Jordan Lake, a multipurpose Corps of Engineers reservoir, for precisely such a purpose. Transferring the water will not deplete the supply of water reserved for augmenting downstream flow in the Cape Fear River, so there will be no significant impacts downstream in the Cape Fear River Basin. Studies of the discharge facilities show there will be no detrimental impacts in the Neuse River Basin. The only impacts in either basin would be indirect impacts of development, which will be adequately mitigated.

The Petitioners have agreed to build a wastewater treatment facility in the Cape Fear River Basin by 2010 to return water from their respective Cape Fear River Basin customers, so that they will not need an additional IBT in the future. Nevertheless, it has been suggested that the Certificate should contain a condition requiring Petitioners to return the entire 11-mgd increase to the Cape Fear River Basin after 2010, presumably to mitigate the detriments of the transfer. However, since there are no detriments to be mitigated by this condition, there is no reasonable statutory basis for requiring the Petitioners to incur the expense of such a measure, which would cost between $55 and $90 million. Furthermore, such a condition is unreasonable and unnecessary based on consideration of current and expected future major interbasin transfers to and from the Cape Fear River Basin and the Neuse River Basin. Such a condition would actually increase the existing net transfers of water into the Cape Fear Basin and out of the Neuse River Basin, whereas the requested transfer balances transfers between the two river basins.

For the above reasons, it has been shown by a preponderance of the evidence that the benefits of the proposed transfer outweigh the detriments of the proposed transfer and that any identified detriments have been or will be mitigated to a reasonable degree. The Petitioners therefore request the certificate for transfer of an additional 11 mgd be issued without a condition requiring that this water be eventually be returned to the Cape Fear River Basin.

Water Conservation and Reuse Efforts to Reduce Water Demand by Cary, Apex, Morrisville, and RTP South

SUBMITTED TO: NC Division of Water Resources
Environmental Management Commission Hearing Officers

PREPARED BY: Town of Apex
Town of Cary
Town of Morrisville
Wake County

DATE: February 27, 2001

Background

Water conservation and wastewater reuse reduce potable water demands, which thereby decreases the amount of interbasin transfer needed. Cary and Apex currently have one of the lowest per capita water demands when compared to other cities within North Carolina, and have also adopted conservation goals to reduce demand by an additional 20 percent by 2030. These goals are considered very aggressive when compared to water savings achieved through water conservation by other utilities around the country. The overall projected 2030 per capita water demand for Cary, Apex, Morrisville, and RTP South is 44% lower than the North Carolina average. This technical memorandum (TM) outlines water conservation and reuse programs being implemented by the Towns of Cary, Apex, Morrisville and Research Triangle Park to meet these aggressive goals.

Water Conservation

The Cary Town Council adopted a formal Water Conservation Plan on April 13, 2000. The Water Conservation Program, which began in 1996, uses a threefold approach to achieve water conservation by citizens and businesses: voluntary, regulatory, and incentive mechanisms. The other applicants have similar programs, and further information on each of these three tiers is provided below:

Voluntary Programs

Voluntary water conservation programs focus on education. Cary's Water Conservation Team has developed a broad spectrum of initiatives to educate the public about water and water conservation issues. Cary's Water Conservation Team currently employs a number of educational programs designed to reach individuals, families, neighborhoods, and schools. These include direct mailings, community newsletters, general newspaper and utility bill inserts, television ads, flyers, distribution of Annual Drinking Water Quality Reports, and providing web site information. Other educational activities include providing free workshops on water efficient gardening, giving presentations to local civic groups, organizing and developing elementary school activities involving water conservation lessons, distributing low-flow showerheads and aerators at community functions, and conducting indoor water use audits for residents upon request. The Towns of Apex and Morrisville have participated with Cary on some of these education efforts.

To address the special needs of Cary's automatic irrigation customers and the landscaping/irrigation industry, the Water Conservation Team sponsors workshops targeted at improving techniques and practices. The Irrigation Association conducts some of the workshops in conjunction with Town staff.

Regulatory Programs

The Cary, Apex, and Morrisville Town Managers are authorized by ordinance to implement water restrictions and to develop and enforce those measures when a water emergency exists. In May 2000 the Cary Town Council approved a Water Shortage Response Plan that outlines the Town's policy to implement water restrictions. Voluntary, mandatory, and water shortage emergency measures may be imposed as needed on all town water customers and other persons who use town water for the duration of the water emergency.

If restrictions or bans are placed on certain types of water use, police officers and the Water Conservation Team have authority to enforce the restrictions or bans. The first violation results in a written notice ordering that the violation be corrected within a specified time. If the violation is not corrected, any of the following penalties may apply: civil penalties, criminal penalties, termination of water service, injunctive relief, or any appropriate equitable remedy issuing from a court of competent jurisdiction.

Cary ordinances also prohibit water waste from irrigation. Wasted water is defined as water that falls on impervious surfaces or accumulates on the surface of the ground and leaves the property and enters gutters, storm drains, ditches, and other conveyances. Penalties and other enforcement action may be imposed if wasting water is repeated or flagrant.

Both Cary and Apex require rain sensors on all automatic irrigation systems that receive town water. Once 0.25 inches of rainfall has occurred, the rain sensor overrides and shuts off the irrigation system. Inspection of all separately metered irrigation systems has determined an 80% compliance rate.

In August 2000 the Cary Town Council approved revisions to the Standard Appearance Specifications Manual to require water efficient landscaping on all non-residential landscapes. Further requirements for irrigation system design are under development. As part of its zoning ordinance review, Morrisville is also looking at landscape requirements that would encourage xeriscaping.

Incentive Programs

Cary's Water Conservation Team provides rebates for water conservation devices, such as early closing toilet flappers that cut water consumption from toilet use. In addition, because implementing tiered rate structures has been documented to reduce consumption, Cary revised its flat rate structure in 1998 to include three tiers for residential customers and a higher rate for irrigation-metered water. The structure was revised to further promote efficient use in early 2001. Cary now has four rate tiers for residential customers and two tiers for nonresidential users, as shown in Table 1. The non-residential tiers are based on water budgets, developed individually from lot size and typical winter (non-irrigation) use for each customer. To staff's knowledge, Cary is the only utility in the eastern United States to link site-specific water use directly to utility rates.

TABLE 1
Town of Cary Water Rates for In-Town Customers

	Usage For Which Rate Applies			
Rate (for in-town customers)	Residential	Residential Irrigation	Non-residential	Non-residential irrigation
$2.74/Kgals	0-4,000 gallons	N/A	N/A	N/A
$3.23/Kgals	4,000-8,000 gallons	N/A	0-Water Budget Amount	N/A
$4.40/Kgals	8,000-23,000 gallons	0-15,000 gallons	N/A	0-Water Budget Amount
$9.90/Kgals	All use over 23,000 gallons	All use over 15,000 gallons	All use over Water Budget	All use over Water Budget

Apex and Morrisville also charge more for irrigation water than the base rate. Although Wake County does not have a water system of its own, it encourages municipalities to conserve and reuse water through its water/sewer funding policy. The County may offer financial aid to municipalities for certain water and sewer improvements including projects for conservation and reuse. The Wake County Soil and Water Conservation Service has, as part of its mission, the conservation of clean surface water.

Water Reuse

Reuse efforts are ongoing in Cary and Apex. Cary is in the process of constructing a 1.6-mgd (MDD) reclaimed water distribution system from the North Cary Water Reclamation Facility (WRF). Customers in the reuse system service area will be required to use the reclaimed water for irrigation systems. The system is projected to be operating at the 1.6-mgd level in 2002, and to increase to 3.2 mgd by 2015.

Additionally, Cary has designed a water reuse project at the South Cary WRF. Several parks, schools, and ball fields have been identified as potential reuse customers. The expected rate of reuse from the South Cary WRF is about 0.6 mgd MDD in 2001. This project is currently under regulatory review.

Apex is currently investigating wastewater reuse with two industries next to the WWTP: Cooper Tools and Ready Mix Concrete. Both facilities are analyzing the wastewater to ensure it will meet their quality needs.

Per Capita Water Use

Cary and Apex each have low per capita water use when compared to other cities within North Carolina as shown in Table 2. Morrisville's per capita water use is higher than average, but this is because non-residential customers currently use 80% of Morrisville's water. Cary and Apex have 61% and 70% residential water use respectively. The average North Carolina per capita water use rate was obtained from the 1997 Water Supply Plan for cities with populations greater than 20,000.

Cary, Apex, and Morrisville have conservation goals to reduce per capita water demand by an additional 20 percent. These goals are considered very aggressive when compared to water savings achieved through water conservation by other utilities around the country, including the arid southwest U.S. Cary is implementing a Water Conservation Plan to meet the proposed 20 percent reduction by 2020.

TABLE 2
Per Capita Water Use Within the Triangle Region and North Carolina

Local government	Per Capita Water Use Rates (gpcd)
2000 Water Use	
Cary	108
Apex	120
Morrisville	232
Overall for Applicants (including RDU and RTP South)	116
2020 (Proposed) Overall for Applicants (including RDU and RTP South)	101
Other North Carolina Communities (1997)	
Orange Water and Sewer Authority	138
Durham	180
Raleigh	166
North Carolina (all water suppliers serving > 20,000 customers)	181

Estimated Costs of Proposed IBT Condition Reducing IBT to 16 MGD After 2010

SUBMITTED TO: NC Division of Water Resources
Environmental Management Commission Hearing Officers

PREPARED BY: Town of Apex
Town of Cary
Town of Morrisville
Wake County

DATE: February 27, 2001

Background

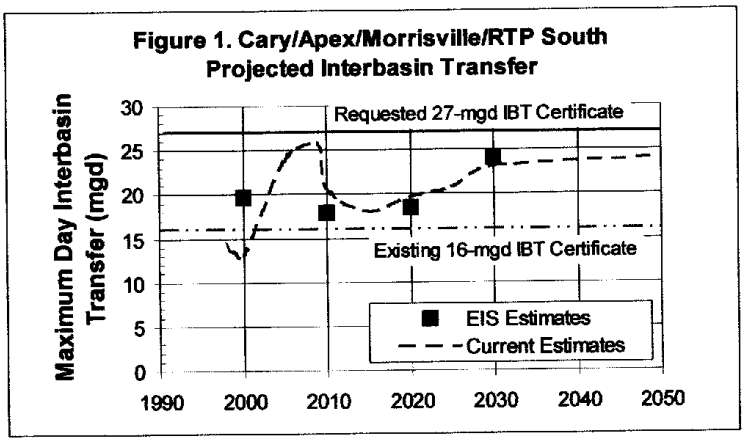
The purpose of this paper is to present a discussion of the measures that would be required for the applicants to limit their IBT to 16 mgd in the years beyond 2010, after a new discharge returning water to the Cape Fear River Basin has been implemented.

The Towns of Cary and Apex have requested an increase in their maximum Interbasin Transfer (IBT) from the Haw River subbasin to the Neuse River subbasin of 11 mgd, from the existing 16-mgd certificate to a maximum day amount of 27 mgd. In order to comply with the requested 27-mgd maximum day amount, the Towns, along with co-applicants Morrisville and the Wake County portion of Research Triangle Park, are committed to returning current and future wastewater flows from their Cape Fear Basin customers back to the Cape Fear River. In addition, the IBT request is based on water demand projections for the applicants which includes the assumption that overall per capita water use is reduced by a total of about 13% from current levels.

A possible condition has been proposed for the applicants' IBT certificate, and published for public comment, which would allow the applicants to temporarily transfer the requested amount of 27 mgd only until the year 2010. After 2010, when new wastewater facilities would begin returning water to the Cape Fear River basin, the allowed IBT would only be 16 mgd under the proposed condition – the same as the current IBT certificate held by Cary and Apex.

IBT Projections

In the long term, the proposed temporary increase in allowed IBT amount is equivalent to denying the requested IBT, since the request is based on plans for meeting water and wastewater needs in Apex, Cary, Morrisville and RTP South through 2030. Figure 1 shows the projected IBT for the applicants through 2030.



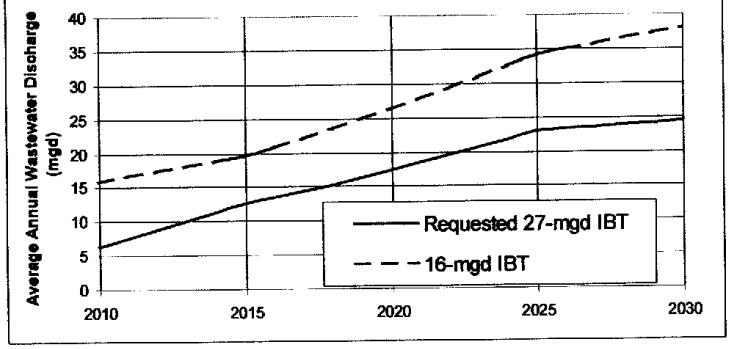
More recent estimates of the IBT for interim years between 2010 and 2030 differ somewhat from those presented in the EIS and the IBT petition based on detailed estimates of wastewater discharges for specific service areas, seasonal consumptive use estimates, and other factors affecting the IBT. The EIS impacts analysis is based on the projected buildout IBT amount of 24.1 mgd (which has not changed) and the requested amount of 27 mgd. The requested amount is slightly higher than projections to allow for uncertainties in the effectiveness of conservation and reuse measures on water use, predicted construction dates for the reuse system and wastewater facilities, and growth projections.

Facilities Necessary to Meet 16-mgd IBT Limit

General alternatives to the requested IBT were discussed in Section 5 of the EIS. The method that has been suggested for the applicants to meet the 16-mgd IBT limit after 2010 is to return additional water to the Cape Fear River basin – this was presented as Alternative 3 in the EIS. A more detailed analysis was performed to estimate the interim year impacts of the suggested temporary IBT increase. Figure 2 shows the portion of the applicants' wastewater that would need to be discharged to the Cape Fear basin after 2010 in two cases: with the proposed 27-mgd IBT and with the reduced 16-mgd IBT.

As Figure 2 illustrates, meeting the 16-mgd IBT limit from 2010 through 2030 would require pumping 7 to 14 mgd of wastewater discharge from sewer service areas in the Neuse River basin to the Cape Fear River Basin. The immediate impact would be in 2010, when, in addition to bringing the new WRF on-line, the applicants would need to transfer almost 4 mgd from the North Cary WRF service area (half the average annual flow) and all of the flow (about 10 mgd) from the South Cary WRF to the Cape Fear River basin.

Figure 2. Cary/Apex/Morrisville/RTP South Discharge to Cape Fear River Basin



In order to accomplish this, the applicants could either: 1) discharge treated effluent to the Cape Fear River, or 2) abandon existing treatment capacity and pump raw sewage from the Neuse River basin to the new Western Wake WRF. These two alternatives are described in more detail below.

1. **Discharge treated effluent to the Cape Fear River.** In order to do this, the applicants would need to build:
   - 3.3-mgd pump station and 11 miles of pipeline from NCWRF to SCWRF
   - 10-mgd pump station and 11 miles of pipeline from the SCWRF to the Cape Fear River

   This is essentially Alternative 3 in the EIS, and would cost the applicants about $55 million in capital expenditures. The environmental impacts of the 22 miles of pipeline could be significant, and possible mitigation requirements are not included in the cost. There would also be substantial operating and maintenance costs associated with maintaining the additional pump stations and piping.

2. **Transfer raw sewage to the new WRF.** This would require numerous smaller pump stations to transfer raw sewage from points in the existing Neuse River Basin collection system to the new WRF. The WRF would need to be built larger than currently planned in order to accommodate the higher flows. The estimated capital cost of conveyance and additional treatment capacity is approximately $90 million. There could be significant impacts from the additional construction needed, and the additional raw sewage conveyance would provide more opportunity for sewer overflows.

Summary

The proposed condition allowing an IBT of 27 mgd until 2010 and then reducing the IBT to the existing IBT certificate amount of 16 mgd has essentially been evaluated in the EIS as Alternative 3 – no increase in IBT. The costs of this alternative are substantial, ranging from $55 million in capital expenditures to $90 million. These options rely heavily on pumping and would also substantially increase operating costs.

In the evaluation in the EIS, it was determined that there was no detriment to increasing the IBT and the benefit was reduced capital costs. This conclusion is valid whether the IBT increase is denied or there is a temporary allowance for increasing the IBT until only 2010.

Interbasin Transfers in the Upper Cape Fear River Basin and the Neuse River Basin

SUBMITTED TO: NC Division of Water Resources
Environmental Management Commission Hearing Officers

PREPARED BY: Town of Apex
Town of Cary
Town of Morrisville
Wake County

DATE: February 27, 2001

Executive Summary

The most recent local water supply plans (1997) indicate that there is a net interbasin transfer (IBT) of about 10 million gallons per day (mgd) into the Upper Cape Fear River Basin (Haw and Deep subbasins) on an average day basis. There is an estimated 8 mgd transfer out of the Neuse River Basin. Future projections for water suppliers and dischargers in the Research Triangle Area indicate that IBTs will balance in the future if the Cary/Apex IBT request is granted and the City of Durham is granted an allocation from Jordan Lake. Even if the City of Durham continues to get its water supply from the Neuse River Basin and discharge to the Cape Fear River Basin, the effect of the requested Cary/Apex 27-mgd IBT will be to minimize the net transfer for both basins.

Introduction

The Towns of Cary, Apex, and Morrisville, as well as Wake County on behalf of Research Triangle Park South (RTP South), requested new or additional water supply allocations from Jordan Lake as part of the second round of allocations. In 1997, the Division of Water Resources (DWR) recommended an increase from the current Cary/Apex allocation of 16 mgd to an annual average of 21 mgd, in addition to separate allocations for Morrisville (2.5 mgd) and Wake County (1.5 mgd)[1]. Raw water withdrawn from Jordan Lake (Haw River subbasin) at the Cary/Apex intake is discharged into the Neuse River subbasin by the North Cary Water Reclamation Facility (WRF), the South Cary WRF, and the Apex Wastewater Treatment Plant (WWTP). Also, the service areas of Cary, Apex, and Morrisville lie on the ridgeline between the Haw River and Neuse River subbasins. Therefore, an IBT certificate from the North Carolina Environmental Management Commission (EMC) is required before the additional allocations can be granted.

The Towns of Cary, Apex, and Morrisville along with RTP South are jointly requesting an increase from the existing Cary/Apex Interbasin Transfer (IBT) certificate of 16 million gallons per day (mgd) to 27 mgd (maximum day basis). A Final Environmental Impact Statement (FEIS) was completed and submitted to the North Carolina Division of Water Resources (DWR) in August 2000. The FEIS presented results of hydrologic modeling using the Cape Fear River Basin Hydrologic Model. The results indicate that the proposed transfer will have no significant direct environmental impacts in either the source or receiving basins. However, the FEIS did conclude that there may be secondary impacts in both the source and receiving basins due to urban growth supported by the additional water supply, which will be mitigated by stream buffers and other local restrictions.

[1] While Jordan Lake allocations are actually for a percentage of the water supply pool storage volume, they are represented here according to DWR's estimate of average annual yield.

The purpose of this Technical Memorandum (TM) is to summarize the major IBTs in the Jordan Lake (Haw) subbasin and Upper Cape Fear River Basin. In addition, this TM documents the *net* IBT into or out of the Jordan Lake subbasin and the Neuse River Basin. Cary/Apex and Durham represent the major IBTs (IBTs greater than 2 mgd) in both river basins. High Point, and Asheboro are additional significant IBTs in the Upper Cape Fear River Basin. The Piedmont Triad Water Authority will have a significant IBT from the Deep River to the Haw subbasin in the future.

Interbasin Transfers in the Upper Cape Fear River Basin

The Upper Cape Fear River Basin is generally defined as the portion of the basin that includes the Haw River Subbasin, the Deep River Subbasins, and Jordan Lake. Based on the Cape Fear River Basinwide Water Quality Plan, there are 17 regular interbasin transfers (IBT) in the Upper Cape Fear River Basin, not including interbasin transfers resulting from emergency sales between water systems. These interbasin transfers are summarized in Table 1 and illustrated in Figure 1. The estimated net transfer into the Upper Cape Fear River Basin from other river basins is approximately 10 mgd based on average day transfers (Table 1). Many IBT amounts are unknown due to undocumented consumptive use; if consumptive use is assumed to be about 20 percent of water use in the receiving basin, these transfers would increase the net transfer into the Cape Fear River Basin by 1 mgd to 11 mgd. The major IBTs in the Upper Cape Fear River Basin are discussed below.

City of Asheboro

The City of Asheboro obtains raw water from four water supplies in the Uwharrie subbasin. The City discharges all of its treated wastewater into the Deep River subbasin. Also, a large portion of the City's service area lies in the Deep River subbasin. Based on information from the City's 1997 LWSP, the City's IBT from the Uwharrie River subbasin to the Deep River subbasin is estimated at 4.6 mgd on an average day basis. Future IBT amounts for Asheboro are not known although the IBT is expected to increase.

City of Durham

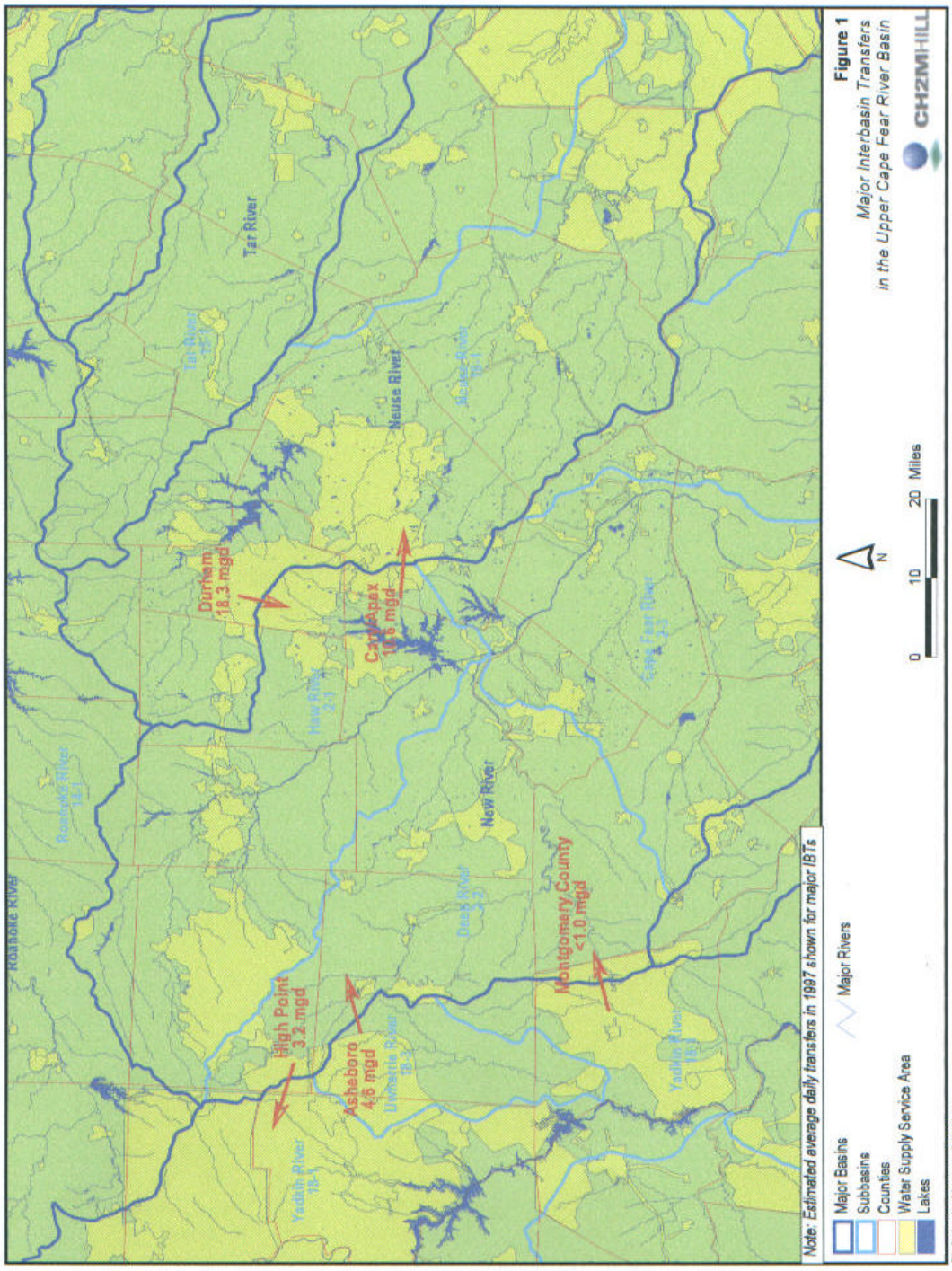
The City of Durham withdraws raw water from Lake Michie and Little River Reservoir in the Neuse River subbasin. Wastewater is discharged through three treatment plants. The South Durham Water Reclamation Facility and the Durham County Triangle Wastewater Treatment Plant (WWTP) discharge into the Haw River subbasin. The North Durham WRF discharges into the Neuse River subbasin. Also, the City of Durham service area lies on a ridge between the Neuse and Haw River subbasins. Therefore, an IBT exists from the Neuse River subbasin to the Haw River Basin.

In 1997, Durham's average day interbasin transfer amount was estimated at 18.3 mgd on an average day basis. Based on water demand forecasts presented in the City of Durham Jordan Lake Water Supply Allocation Application for Round 3, it is estimated that the average day IBT for Durham could increase to 31 mgd by 2030 if the City does not receive an allocation from the Jordan Lake water supply pool. If the City of Durham is granted an allocation for Jordan Lake, then the City's IBT is estimated at 14 mgd (average day) in 2030. This amount will depend upon the water supply allocation granted by the EMC and the City's strategy for meeting maximum day water demands using the City's water supplies in the Neuse River subbasin and Jordan Lake in the Haw River subbasin.

TABLE 1
Regular Average Day Interbasin Transfers in Upper Cape Fear River Basin[1,2]

System	Receiving System	Source Subbasin	Receiving Subbasin	1997 Average Day Water Use (mgd)	Percent of Service Area in Receiving Basin	Estimated 1997 Transfer[3] (mgd)
Cary/Apex	Cary/Apex	Haw	Neuse	12.95	56%	10.6
Piedmont Triad WA	Piedmont Triad WA	Deep	Yadkin	N/A	N/A	0[4]
Reidsville	Reidsville	Haw	Roanoke	3.36	44%	Unknown
High Point	High Point	Deep	Yadkin	13.80	25%	3.2
				Total Transfers Out of Upper Cape Fear (mgd)		13.8
Carthage	Carthage	Cape Fear	Deep	0.30	94%	Unknown
Sanford	Chatham County East	Cape Fear	Deep	0.07	15%	Unknown
Sanford	Sanford	Cape Fear	Deep	5.94	48%	Unknown
Sanford	Lee County – Tramway	Cape Fear	Deep	0.18	40%	Unknown
Durham	Durham	Neuse	Haw	28.40	39%	18.3
Orange-Alamance WS	Orange-Alamance WS	Neuse	Haw	1.09	75%	Unknown
Davidson	Archdale	Yadkin	Deep	0.56	94%	Unknown
Davidson	Davidson	Yadkin	Deep	9.21	2%	Unknown
Montgomery County	Montgomery County	Yadkin	Deep	2.63	10%	<1.0
Winston Salem	Kernersville	Yadkin	Haw		19%	Unknown
Winston Salem	Winston Salem	Yadkin	Haw	44.47	1%	Unknown
Winston Salem	Winston Salem	Yadkin	Deep	44.47	2%	Unknown
Asheboro	Asheboro	Uwharrie	Deep	4.80	81%	4.6
				Total Transfers Into Upper Cape Fear (mgd)		23.9
				Net Transfer Into the Upper Cape Fear Basin (mgd)		10.1

1. From the Cape Fear River Basinwide Water Quality Plan, NC Division of Water Quality, July 2000.
2. Regular average day IBT amounts were estimated based on (a) data in 1997 LWSP update, (b) assuming 22% consumptive use, and (c) percentage of service area in receiving basin provided by NC DWR. Does not include interbasin transfers resulting from emergency transfers or transfers between Haw River and Deep River subbasins.
3. "Unknown" amounts refer to undocumented consumptive use.
4. Piedmont Triad Water Authority holds an IBT certificate for 30.5 mgd. This IBT will not be effective until completion of Randleman Dam. Much of this permitted amount is for transfer from the Deep River to the Haw River subbasin.


Roanoke River
Tar River
Neuse River
New River
Durham 18.3 mgd
Cary/Apex 10.6 mgd
High Point 3.2 mgd
Asheboro 4.6 mgd
Montgomery County <1.0 mgd
Note: Estimated average daily transfers in 1997 shown for major IBTs
Major Basins
Subbasins
Counties
Water Supply Service Area
Lakes
Major Rivers
0
10
20 Miles
N
Figure 1
Major Interbasin Transfers
in the Upper Cape Fear River Basin
CH2MHILL

City of High Point

The City of High Point has two raw water supplies, City Lake and Oak Hollow Lake, in the Deep River subbasin. The majority of this water is returned to the Deep River subbasin through the City's Eastside WWTP. However, the smaller Westside WWTP discharges into the Yadkin River subbasin. Also, approximately 25 percent of the City's service area lies within the Yadkin River subbasin. The City's estimated 1997 IBT from the Deep River subbasin to the Yadkin River subbasin is 3.2 mgd (average day basis) based on information in the City's 1997 LWSP. The City's future IBT will depend on expansions of the two WWTPs and relative service area growth in the two subbasins. The transfer out of the Upper Cape Fear River Basin would be expected to increase if there is growth in the Yadkin River subbasin portion of the service area.

The City of High Point is a partner in the Piedmont Triad Water Authority, which is developing the Randleman Dam project. The Authority has a certificate for an IBT of 30.5 mgd from the Deep River subbasin. Much of the transfer will be to the Haw River subbasin, which is still within the Upper Cape Fear River Basin. However, an unknown portion of the transfer will be to the Yadkin River subbasin due to consumptive use by customers in that subbasin.

Towns of Apex and Cary

The Towns of Cary, Apex, and Morrisville along with Research Triangle Park South (RTP South) located in Wake County, North Carolina are jointly requesting an increase from the existing Cary/Apex Interbasin Transfer (IBT) certificate of 16 million gallons per day (mgd) to 27 mgd (maximum day basis). The transfer is from the Haw River subbasin to the Neuse River subbasin (out of the Cape Fear River Basin). In 1997, the average day IBT for Cary/Apex was 10.6 mgd. By 2030, the average day IBT is projected to increase to 16 mgd and the maximum day IBT is estimated to be 24 mgd by 2030. A contingency was included in the request for an IBT certificate for 27 mgd, mostly to allow for uncertainty in the effectiveness of conservation and reuse programs that are planned to reduce demands. Based on Round 3 Jordan Lake Water Supply Allocation applications, these water systems do not plan to apply for an additional IBT certificate in the future.

Interbasin Transfers in the Neuse River Basin

Interbasin transfers into and out of the Neuse River Basin have not been documented to the same extent as transfers for the Cape Fear River Basin. However, based on a review of 1997 Local Water Supply Plans, Durham and Cary/Apex appear to the only major transfers affecting the Neuse River Basin. Their combined transfers result in a current net transfer of approximately 8 mgd (average day) out of the Neuse River Basin. Without the proposed increase in the Cary/Apex transfer of about 16 mgd, the future average annual transfer could be between 5 and 22 mgd out of the Neuse River Basin, depending on whether Durham receives an allocation from Jordan Lake. If Durham receives their requested Jordan Lake allocation, then the proposed increase in the Cary/Apex IBT will approximately balance transfers for the Neuse River Basin, resulting in a net average annual transfer of about 2 mgd into the Neuse River Basin.

Summary

Based on the known transfers into and out of the Upper Cape Fear River Basin in Table 1, a net transfer into the Upper Cape Fear River Basin of approximately 10 mgd (average day) exists. There is currently an estimated net transfer of 8 mgd out of the Neuse River Basin.

Future amounts for many of the major IBTs in the Upper Cape Fear River basin are not known at this time. However, the net transfer into or out of the Upper Cape Fear River basin will be primarily

determined by the requested Cary/Apex IBT increase and the Round 3 Jordan Lake allocation process. The following municipalities in the Upper Cape Fear River Basin submitted a draft application for the Round 3 process:

- City of Durham
- City of Sanford
- Harnett County
- Orange County
- Orange Water and Sewer Authority
- Towns of Cary & Apex
- Town of Holly Springs
- Town of Morrisville
- Wake County - RTP

Durham and Cary/Apex (which includes Morrisville and Wake County-RTP) represent the major IBTs in both the Upper Cape Fear River Basin and the Neuse River Basin. Potential future net transfers for the two basins are summarized in Table 2.

Table 2 shows that, regardless of whether Durham obtains a Jordan Lake allocation, the effect of granting the requested Cary/Apex IBT of 27 mgd (maximum day) will be to minimize the net transfers for both the Upper Cape Fear River Basin and the Neuse River Basin. The decrease in expected net transfers as a result of the Cary/Apex increased transfer, for both basins, will range from about 30% to 100% depending on Jordan Lake allocations to Durham.

TABLE 2
Potential Future Average Day Net Transfers for the Upper Cape Fear River Basin and the Neuse River Basin

	Net Average Day Transfer Into The Basin (mgd)					
	Upper Cape Fear River Basin[2]			Neuse River Basin		
	Current	2030, Based on Durham Jordan Lake Allocation		Current	2030, Based on Durham Jordan Lake Allocation	
		With	**Without**		**With**	**Without**
Without Requested Cary/Apex IBT	10	7	24	-8	-5	-22
With Requested Cary/Apex IBT	NA	0	17	NA	2	-15
Decrease in Net Transfer Due to 27-mgd Cary/Apex IBT	NA	100%	29%	NA	60%	32%

[2] Assumes net transfer into Cape Fear from other than Cary/Apex and Durham continues at about 2 mgd.

TOWN MANAGER'S OFFICE

March 9, 2001

Mr. Tom Fransén
Division of Water Resources
DENR
1611 Mail Service Center
Raleigh, NC 27699-1611

Subject: **Public Hearing on Jordan Lake Water Supply and Interbasin Transfer**
Additional Comments of the Petitioners – Towns of Cary, Apex and Morrisville and Wake County

Dear Mr. Fransen:

I am submitting this letter and the attachments into the record for the subject proceedings on behalf of all of the Petitioners (Towns of Cary, Apex and Morrisville and Wake County). There are two documents attached:

1) *Comments in response to issues raised in letters from the Fayetteville Public Works Commission to Chrys Baggett dated January 29, 2001 and to Tom Fransen dated March 8, 2001*

2) *Additional Comments in Support of the Request by Cary/Apex for a Certificate to Increase their Interbasin Transfer (IBT)*

Thank you for considering our comments. If you have any questions, please do not hesitate to contact me at (919) 469-4002.

Sincerely,

William B. Coleman, Jr.

William B. Coleman, Jr.
Town Manager

Comment Transmittal.doc

c: E. Leo Greene, Jr./EMC Hearing Officer
Edwin S. Melvin/EMC Hearing Officer
David H. Moreau/EMC Hearing Officer
Bill Sutton/Town of Apex
David Hodgkins/Town of Morrisville
David Cooke/Wake County

TOWN *of* CARY
316 North Academy Street •Cary, NC 27513•PO Box 8005•Cary, NC 27512-8005
tel 919-469-4007 • fax 919-460-4929 • www.townofcary.org

COMMENTS IN SUPPORT OF THE REQUEST BY CARY AND APEX FOR A CERTIFICATE TO INCREASE THEIR INTERBASIN TRANSFER ("IBT") OF WATER FROM THE HAW RIVER SUBBASIN TO THE NEUSE RIVER SUBBASIN:

Comments prepared in Response to Issues Raised by
The Public Works Commission of the City of Fayetteville
In Letters dated January 29 and March 8, 2001

Submitted by

Cary, Apex, Morrisville
and the Wake County Portion of the Research Triangle Park

March 9, 2001

The Towns of Cary, Apex, Morrisville and Wake County on behalf of the Research Triangle Park ("Petitioners") have prepared the following comments related to issues presented in two letters from the Public Works Commission of the City of Fayetteville (PWC):

1. To Ms. Chrys Baggett of the State Clearinghouse dated January 29, 2001
2. To Tom Fransen/DWR dated March 8, 2001

From our perspective, PWC is attempting to broaden the issue of the approval of the interbasin transfer (IBT) to include all issues related to management of Jordan Lake. The comments focus on issues related to the water quality or flow augmentation pool and the ability of this pool to maintain downstream flows. While we agree that DWR needs to address PWC's concerns about how the low flow augmentation pool is managed, the letters unfairly characterize impacts due to management of that pool as attributable to the IBT. We have shown that this is not the case in the EIS and continue to show this in our response below. Most of their points are related to how the two pools in the lake are set up and operated, which was not the focus of evaluation in the EIS or this regulatory action.

The latest PWC letter repeats many of the same points that are in the January letter regarding the Petitioners' interbasin transfer of water from the Haw River Basin to the Neuse River Basin. While these issues have been addressed on numerous occasions by staff of the Division of Water Resources (DWR) and our consultants, we feel that our perspective also needs to be included in the official record for this action.

Our responses follow major headings used in the PWC letters.

The Proposed Action Should be Redefined (January 29); New Cape Fear River Wastewater Treatment Plant Should Be Required (March 8)

PWC has objected to the proposed alternative since there is no requirement for the applicants to construct a new wastewater treatment plant discharging to the Cape Fear River. PWC had requested that the Proposed Action be redefined as Alternative 5, which would result in an Interbasin Transfer (IBT) of 45 million gallons per day (mgd) in 2030.

By not requesting an IBT of 45 mgd, the Petitioners have committed to minimize the IBT by building a water reclamation facility (WRF) to return water to the Cape Fear River Basin. From a cost perspective, the Town of Cary and other applicants could save $142 million by requesting an IBT of 45 MGD. The EIS clearly shows that even at an IBT of 45 MGD, there are not significant direct impacts on the Cape Fear River and its users, but the Petitioners have voluntarily reduced our request to 27 mgd by building a WRF.

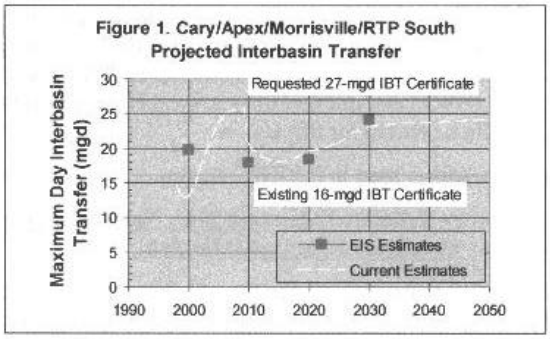
While our proposed alternative does not obligate us to build a WRF that discharges to the Cape Fear River, the IBT certificate will hold us to a transfer of 27 mgd. This certificate is enforceable and constitutes a permit for an IBT on a maximum day basis. If we do not pursue a WRF that discharges to the Cape Fear River or if the Division of Water Quality (DWQ) does not permit the facility, the applicants will be required to pursue other water and wastewater treatment alternatives which could limit our growth. Current projections show that we would need to pursue these other options by 2007.

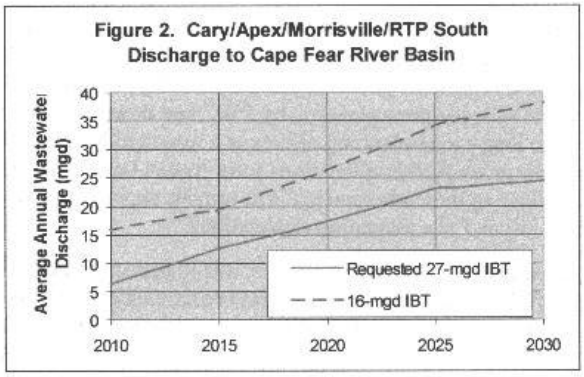
There is no rational basis for requesting that the proposed action be re-defined. There are many factors which influence our projected IBT such as water demand, conservation effectiveness, wastewater reclamation rates, wastewater flows and the location of facilities. All of these factors – not just the presence of a new wastewater treatment facility – need to be managed to meet the requested IBT. Despite these issues, the applicants are willing to accept a permit condition requiring the completion of a new water reclamation facility by 2010.

Completion of New Cape Fear WWTP Should Trigger Reversion of Maximum Allowable IBT Back Down to Existing Level (March 8)

There is no technical basis for reversion of the IBT to 16 mgd after completion of the new water reclamation facility. The applicants provided additional comments on February 27, 2001 including additional detailed technical information regarding the cost of this provision. This provision would require an additional expenditure of $55 to $90 million in capital costs. It might also force Cary into a solution that is less desirable as a regional wastewater solution for Western Wake County Communities.

The following graphs help to illustrate these points.





These graphs show how the anticipated IBT will change over time with the proposed action (including the new discharge) and the difference in the initial amount of wastewater for discharge after 2010 with and without reversion of the IBT from 27 to 16 mgd. When a new wastewater treatment facility is constructed, this provision would require it to have more than double its planned initial capacity at 27 mgd. It would also result in unusable capacity at the existing North and South Cary Water Reclamation facilities, and require transferring wastewater flows to the new treatment plant from service areas in the Neuse River basin currently going to those facilities.

If the IBT were limited to 16 mgd after 2010, it would force Cary to consider a solution for returning water to the Cape Fear that may be less desirable as a regional solution. This would be piping effluent from the South Cary WRF to the Cape Fear and using this facility for future treatment capacity expansions. This would necessitate extensive pumping of raw wastewater and treated effluent and may limit the feasibility of a regional wastewater treatment solution for Western Wake County.

The most important point related to consideration of this provision is that there are no impacts that will be mitigated by forcing reduction of the IBT after 2010. This provision will not significantly change low flows downstream in the Cape Fear River. Since this provision addresses no benefits or detriments of the IBT, it cannot be reasonably required under the requirements of General Statute 143-215.22I.

Completion of New Cape Fear WWTP Should be Required Before Any Possible Allocation for Cary/Apex and their Partners Beyond Round 2 (March 8)

There is no basis for conditioning future allocations to the Petitioners from Jordan Lake on completion of a Cape Fear WWTP. The Round 3 allocations have no relationship to the Round 2 allocations and IBT request. PWC indicates that the Petitioners, and Cary specifically, are examining water supply alternatives other than additional allocation from Jordan Lake. Efforts to look at Kerr Lake and a possible new reservoir on Middle Creek are long-range options that Cary is looking at with our neighboring communities. The purpose of

these efforts is to evaluate their feasibility and potential costs. We do not know whether these are viable alternatives at this time, but examination of the feasibility of these alternatives is important for the region and represents good long range planning practice. With all the criticism of the Petitioners' alleged poor planning by PWC and downstream entities, it seems inappropriate to use these long-range planning efforts as a reason to hold the Petitioners hostage and put a moratorium on further allocations form Jordan Lake. In fact, one reason the Petitioners are investigating these alternatives is to provide supporting documentation required in the Round 3 Jordan Lake allocation applications.

In regard to the Durham transfers that PWC mentions, it is important to examine interbasin transfers in the context of the basin – not just individual communities. Many communities in the Piedmont lie on the ridgeline and transfers of water are common. Durham's transfers are not wrong (as PWC implies) or right but they do represent historic water conditions. They will also not be reversed as PWC implies. The cost of stopping this transfer is tremendous and unjustified. Recent regulatory requirements the Neuse River (Total maximum daily loads for total nitrogen) will also effectively prevent these IBTs from being reversed by returning wastewater discharges to the Neuse River. The projection of transfers for the Haw Basin that was included in our February 27 submittal and mentioned at public hearings is factual and strongly supports the technical analysis - that there will be no negative impacts of the proposed IBT by the applicants. The only reason for ignoring these transfers is to maximize water in the Cape Fear Basin and not to balance naturally occurring flows. The fact remains that if the applicant's IBT is approved, the net transfer will continue to be into the Cape Fear River basin.

EIS Impact Analysis Critically Flawed Due to Narrow Focus (March 8)

First, we do not believe that the EIS is critically flawed or narrowly focussed. PWC implies that the EIS only examined impacts of the IBT on the water supply pool. Extensive analysis of the impact of the IBT on water quality storage was completed as part of the EIS (see attached Exhibit 1). This graph shows no impact of the IBT on the low flow augmentation pool. What does impact that low flow augmentation pool is any water usage - whether returned or not – from the water supply pool. When there is little or no use of the water supply pool and storage is at 100 percent, all inflow to Jordan Lake goes to the low flow augmentation pool. When the water supply pool is being used, the low flow augmentation pool receives two thirds of the inflow to the lake and the water supply pool receives one third. This is the primary difference between the Base Future and Base 98 cases evaluated on the graph and in the EIS. The IBT does not influence this issue.

PWC's focus appears to be that the 600 cfs target at Lillington should be maintained regardless of whether the water quality or flow augmentation pool is exhausted. Later in their letter they indicate that the intent of Congress was clearly that 600 cfs be met all the time. There are volumes of information in the Congressional record that can be interpreted in many ways. However, the clear intent stated in the COE their operating rules is to manage downstream flows so that water quality standards are maintained. It is also clear that Congress added the water supply pool to the projects in part to satisfy concerns of upstream communities impacted by the building of Jordan Lake. There is no evidence of a hierarchy in the importance of the pools or that it was the intent of Congress that downstream flows should be met from the water supply pool.

Low Flow Statistics for Cape Fear River at Lillington and Fayetteville

Modeling Scenario	Predicted 7Q10 Flows (cfs)	
	Lillington	Fayetteville
Base Future Case	183	446
Alternative 1A (No Action)	331	496
Proposed Alternative	357	511
Proposed Alternative with 20% increase in irrigation	326	490

Randleman Lake Effects Should be Described (January 29 and March 8)

PWC raises two issues related to the Randleman project. First, they discuss the potential impacts on flows during filling of the reservoir. This is a temporary impact that is not appropriate for a cumulative impact analysis. In addition, this issue was not identified by any agencies or commenters in any of the scoping or EIS process comments, and was only raised by PWC after the EIS comment period had been closed. Since the long-term ability of the low flow augmentation pool to meet target flows is not affected by the IBT, this temporary effect, while it may have some impact on low flows in the Cape Fear River, is not related to the IBT.

The second issue is related to the cumulative impacts analysis. The Petitioners support including Randleman Lake in the Cape Fear River model, but at the time the model was developed, by a consultant to DWR, there was not enough information available to include detailed operating rules for Randleman Lake in the model. This decision did not narrow the focus or flaw the analysis in the EIS and PWC provides no credible evidence for this allegation. The model is a comprehensive, full-basin hydrologic model that was developed with full stakeholder participation, using 60 years of data, and was calibrated based on data available between 1988 and 1998. Since Randleman Lake was not included in the model, information provided in the Randleman Lake final EIS was used to address PWC's concern. The data provided in the Randleman Lake EIS indicate that low flows will be augmented by lake releases while average flows will slightly decrease below the dam. The result is that by not including Randleman Lake in the EIS analysis, the predicted low flows are conservatively low.

A Realistic Low Flow Impact Assessment Should be Provided for Users Downstream of Jordan Lake (January 29); Accurate Historical Low Flow Impact Assessment Missing (March 8)

PWC's main issue is the adequacy of DWR's analysis of the lowest flows in the Cape Fear River. A comprehensive, full-basin hydrologic model was used to assess the impacts of the proposed IBT. This hydrologic model was developed with full stakeholder participation, using 60 years of data, and was calibrated based on data available between 1988 and 1998. The model we used has been scrutinized by the top levels of the Department and the various environmental divisions. PWC (and their consultants) and numerous other stakeholders have been involved with every step of the model development and application process.

We acknowledge that downstream low flows are not predicted well in 1998. The model was developed based on the Army Corps of Engineers rules and guidelines for releasing water. In 1998, the Corps did not follow these guidelines, and worked with DENR agencies to determine flow releases that would protect downstream water quality and preserve the low flow augmentation pool. We disagree with PWC on the goal of the low flow augmentation pool. The goal is not to maintain 600 cfs but rather to meet water quality standards – the 600 cfs target is an easy way to do this on average, but during a drought more precise management is needed. The active management of the pool in 1998 is an excellent example of an effective drought management plan that protected the resource values downstream in the Cape Fear River.

To determine whether the model was predicting flows well, an analysis was run by DWR in January 2001 and compared to USGS flow estimates. The model was run for 1982-1998 using the water year, and the USGS flow statistics were obtained from the annual *Water Resources Data, North Carolina* for Water Years 1983-1998. This analysis showed that the model predicts flow well on the Cape Fear River mainstem. A comparison of flows at Lillington is provided in the Table below:

	10% Exceedance Probability Flow (cfs)	50% Exceedance Probability Flow (cfs)	90% Exceedance Probability Flow (cfs)
Cape Fear River at Lillington (modeled)	8,824	1,321	619
Cape Fear River at Lillington (USGS)	10,700	1,310	619
Difference between Modeled and USGS	-18%	1%	0%

PWC noted in its letter that this analysis ignored the true low flows since it did not look at exceedance probabilities above 90%. To address this issue, Curtis Weaver of USGS was contacted. Mr. Weaver indicated that the 7Q10 flow at Lillington is at approximately the 95 percent exceedance flow. He indicated that the 95 percent exceedance flow is 526 cfs while the 98 percent exceedance flow is 461 cfs. The model predicts that flows do not fall below 600 cfs. This is because, since DWR's drought management plan for the low flow augmentation pool is not complete and is not modeled, the model is always perfect in meeting the 600 cfs target at Lillington. The COE cannot manage the reservoir nearly so

accurately, and as evidenced in 1998 it is not desirable to blindly meet the target during drought periods.

PWC's information related to the number of days the 600 cfs target has not been met is not really relevant – especially to IBT impacts. During the period analyzed by PWC in their exhibits (1990-2000), the only time that the reason for not meeting the 600 cfs flow target was because of insufficient storage in the low flow augmentation pool was in the fall of 1998. The actual flows in the river do not always meet the target because the gates at Jordan Lake are manually operated and are only manned 5 days a week during the day unless there are some extreme circumstances. The COE also does not have sophisticated equipment to aid in prediction of the actual releases from the reservoir needed to meet the target at Lillington. DWR has been working on these issues with the COE.

Finally, it is important to reiterate that the only relationship between the low flow augmentation pool and the water supply pool is in the division of water coming in to Jordan Lake. The low flow augmentation pool is used to meet downstream flows while the water supply pool is used by Cary and other communities to obtain their water.

The proposed IBT Should Not be Approved When Downstream Users Are Already Facing Critical Water Supply Uncertainties (January 29); Jordan Water Quality Pool Depletion Means Downstream Users Are Already Facing Critical Water Supply Uncertainties (March 8)

There are two separate issues that are implied in the PWC letter. First, downstream users are facing critical water supply needs, and second, that transferring water withdrawn from the water supply pool will impact downstream flows. When allocating water from Jordan Lake during Round 2, the Division of Water Resources (DWR) and the EMC reviewed the water supply needs of the communities as well as potential water sources. During Round 2 of the Jordan allocation process, DWR and the EMC determined that the Petitioners had critical needs for water from Jordan Lake. Our applications were reviewed in the same context that PWC's application was reviewed.

The second item is the proposed IBT's impact on downstream flows. The EIS clearly shows that flows downstream will not significantly be impacted by the proposed IBT. Again, downstream flows are impacted by the low flow augmentation pool which is not affected by withdrawals from the water supply pool.

Water Supply Available to Downstream Communities is Rapidly Dwindling (March 8)

We believe that PWC is over-dramatizing the critical needs of downstream communities. PWC has indicated on numerous occasions that they have little or no concerns about their adequate water supply in the short run. While there is some uncertainty over the long-term yield available from the Cape Fear for PWC, this yield is somewhere in the range of 60 to 90 mgd. No analysis has been done to indicate whether this is a maximum day, average month, or average annual yield, and DWQ and DWR have agreed that the water quality analysis leading to the 60-mgd estimate needs to be reviewed and the yield is probably higher than that. Similar yields are available to upstream communities. These are yields that are available due to releases from the low flow augmentation pool without allocation from the water supply pool. We fully understand PWC's concern over the uncertainty regarding this issue

and have embarked on a joint water quality modeling project that will address both their concerns and those of Cary for getting an NPDES permit to discharge to the Cape Fear River. We strongly contend that it is not relevant to the impacts of the IBT.

The information presented in the March 8 letter contends that there is only 56 mgd unallocated from the water supply pool, including the recommended Round 2 allocations. This needs to be put in the context of the water supply benefit that downstream communities already derive from the low flow augmentation pool.

The Proposed IBT Should Not be Approved When the Jordan Lake Safe Yield is Still Uncertain (January 29); Jordan Lake Safe Yield Not Confirmed (March 8)

The safe yield is important only for water supply planning purposes as storage volume is allocated to the various water users of Jordan Lake rather than a rate of withdrawal. Actual withdrawals are limited to the storage volume in individual storage accounts. If inflows for a given period are insufficient to maintain the average withdrawal rate, the allocation holder will have to reduce or curtail withdrawals. The use of allocation accounts insures that the low flow augmentation pool which is reserved for downstream releases is not affected by the water supply pool.

DWR is working with communities in the basin to develop individual drought management plans and will make this a condition of receiving a Jordan Lake Allocation, We believe that these plans coupled with using the hydrologic model to update the COE drought management plan for Jordan lake will also work to enhance available flows downstream on the Cape Fear River.

An Additional Scenario is Needed for Evaluation of Impacts from Proposed Allocation and Resulting IBT (January 29)

From the PWC comments, it appears that they would like a graph of the simulated water supply pool for the Proposed Incremental A alternative. A figure depicting the water supply pools will not illustrate anything other than changes in the Petitioners' water supply pools since the model tracks each water supply pool independently. The Petitioners are allocated individual storage volumes, and once one of those volumes is depleted, no further water can be withdrawn by the holder of the allocation. Therefore, the recommended Round 2 allocations will not impact the remaining water supply pool, and the model shows no impacts to the other water supply pools.

Impacts Should be Portrayed that are Attributable to Proposed Allocation and Resulting IBT (January 29)

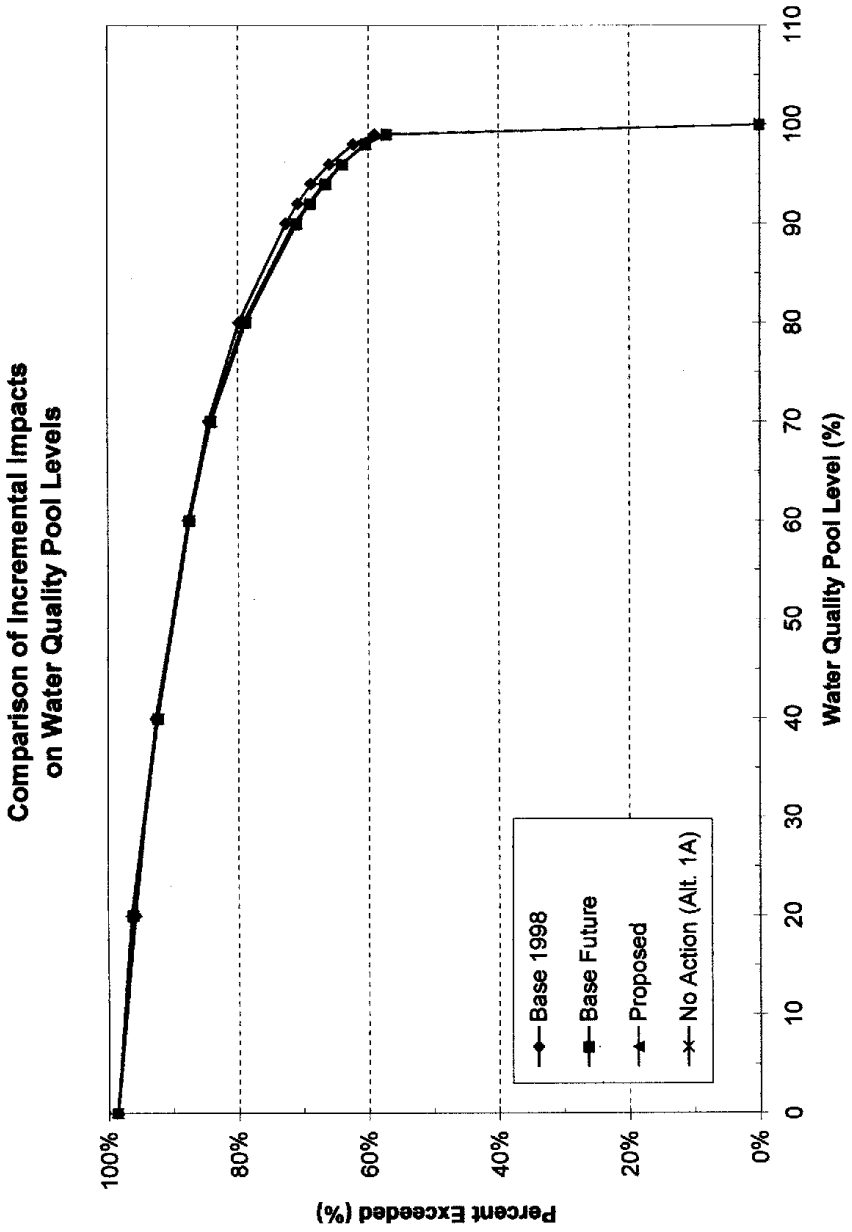
We have clearly defined impacts that are attributable to both the allocation and IBT. However, the focus of the EIS was on the impacts attributable to the IBT as required by the General Statutes and directed by DWR

An Objective Evaluation of the EIS is Needed Regardless of the Construction Already Underway to Make Use of the Proposed Allocation and IBT (January 29 and March 8)

While we understand PWC's issues with regard to the EIS and improvements that are underway, they are separate issues. When the allocation and interbasin transfer processes were started, DWR indicated that an EMC decision on the requests could be expected in late

1999, which was when construction was expected to begin on the plant expansion. In July 1999, with the regulatory schedule slowed considerably, the Petitioners decided to begin work on the water plant expansion only after the analysis of impacts was complete and it was clear that there were no significant direct impacts. Since the approval of the interbasin transfer is based on a comparison of the benefits and detriments of the transfer, and the analysis showed no direct negative impacts, the Petitioners moved forward with faith that the EMC would act based on the facts.

The Petitioners realized that there was some risk in beginning the plant expansion, but also knew there would be alternatives for use of the plant if the IBT were not granted – although they would be more expensive. If the petitioners did not begin work on the plant until after regulatory approval, it would have definitely cost our customers more to continue buying water through expensive short-term contracts with neighboring utilities for the additional 2 to 3 year period during construction. By beginning construction before approval, the WTP could be ready for use about the same time approval of the IBT could be granted. If approval is not granted, various alternatives will cost rate-payers more, but probably not more than the delay would have cost. The risk of early construction was considered less, in light of the analysis showing no impacts, than the certain cost of delayed expansion.


Comparison of Incremental Impacts
on Water Quality Pool Levels
Percent Exceeded (%)
100%
80%
60%
40%
20%
0%
Water Quality Pool Level (%)
0
10
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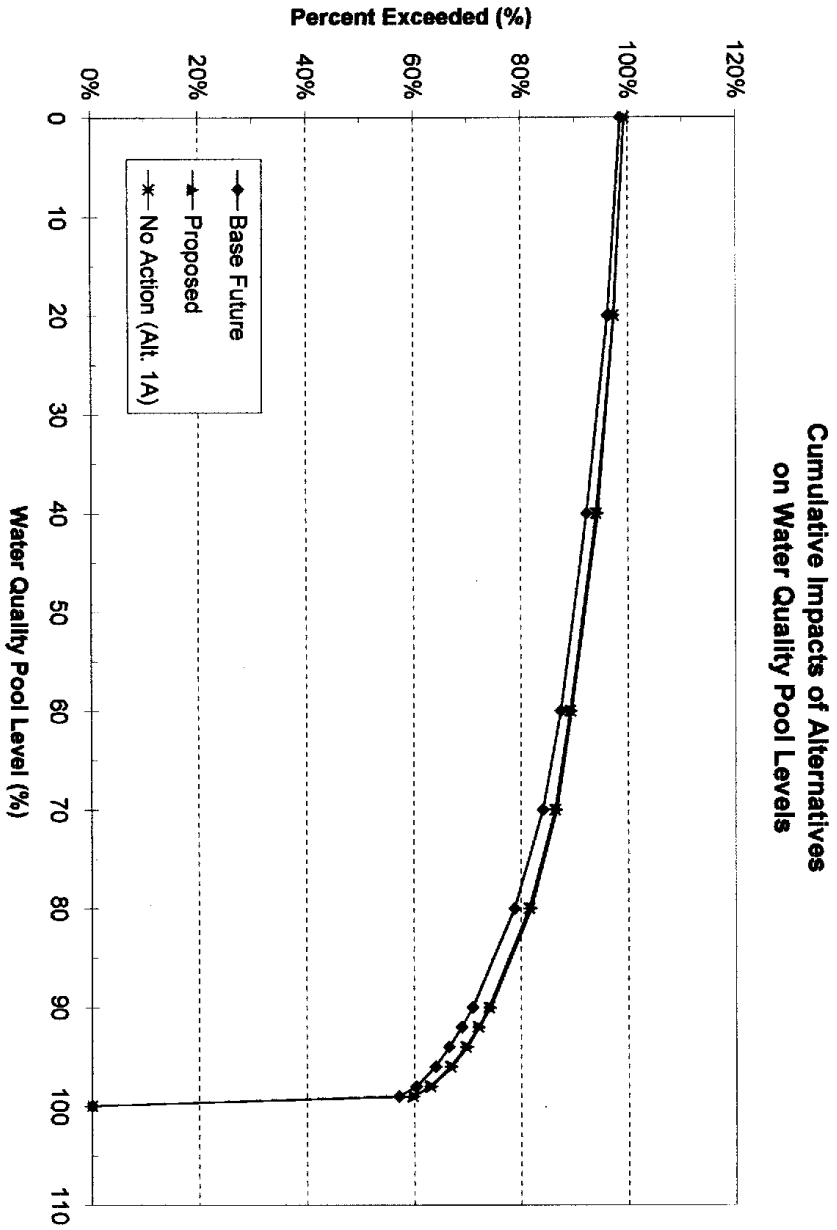
40
50
60
70
80
90
100
110
Base 1998
Base Future
Proposed
No Action (Alt. 1A)


Cumulative Impacts of Alternatives
on Water Quality Pool Levels
Percent Exceeded (%)
0%
20%
40%
60%
80%
100%
120%
Water Quality Pool Level (%)
0
10
20
30
40
50
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70
80
90
100
110
Base Future
Proposed
No Action (Alt. 1A)

Additional Comments in Support of the Request by Cary/Apex for a Certificate to Increase their Interbasin Transfer (IBT)

Submitted by

Cary, Apex, Morrisville, and Wake County on behalf of Research Triangle Park ("Petitioners")

March 9, 2001

The Petitioners have already submitted comments to the Environmental Management Commission (EMC) in support of their request for an additional IBT of 11 million gallons per day (mgd). However, after attending the public hearing in Fayetteville regarding this matter, the Petitioners believe it is necessary to submit further comments. The Petitioners are very aware of the concern by residents of the Cape Fear River Basin below Jordan Lake regarding that the proposed IBT may have detrimental effects on the Cape Fear downstream of Jordan Lake. The Petitioners had several representatives at the hearing to listen to and, to the extent possible, to address those concerns and, hopefully, to clear up some of the misconceptions. Many of the comments opposing the IBT appeared to be based on misinformation and many were not factual. However, there was little opportunity to enter comments into the record regarding such misinformation, since at the time most of the attendees who support the IBT were asked not to speak .

Although the public hearing process is designed to solicit all comments without requiring supporting documentation, the IBT decision must be based on factual information. G.S. 143-215.22I provides that the EMC shall grant the certificate if it finds, **based on a preponderance of the evidence**, that the benefits of the proposed transfer outweigh its detriments, and that the detriments have been or will be mitigated to a reasonable degree. The Environmental Management Commission's (EMC) decision must be based on evidence - something that furnishes proof. Proof, in turn, means the cogency of evidence that compels acceptance by the mind of a truth or a fact. While it may not be necessary for evidence considered by the Commission to be in the form of sworn testimony, it is clear that the General Assembly has required that only accurate facts and true statements be considered in making the decision. The following is the Petitioners' effort to correct or otherwise address some misinformation that was presented at the hearing.

1. Comment: A great number of the speakers referred to the Cape Fear as "our river."

   The Petitioners understand the sentiment behind this statement and respect the importance of the Cape Fear River to the City of Fayetteville and other downstream communities. However, upstream communities also have rights to water from the Cape Fear River. Furthermore, the fact is that the requested interbasin transfer, if granted, would come from a pool of water in Jordan Lake

designed to provide 100 mgd for water supply purposes. This capacity was added to the Lake specifically to store water for communities in proximity to the Lake, like Cary, Apex, Morrisville and RTP. This is the same as if the water were taken from the river during high flow periods and stored in a tank not connected to the river. The Lake also stores water to augment low flows in the Cape Fear – enough to supply 200 mgd – and this storage pool is not available for use by upstream users.

2. Comment: The Petitioners should have to pay for the water.

North Carolina regulations make no provision for payment for the use of water. However, Cary and Apex currently pay the state for the use of their allocated portion of the Jordan Lake water supply pool. The amount paid covers repayment of the capital costs related to construction of the dam, along with annual operation and maintenance costs. It should be noted that although the low flow augmentation pool provides releases for a target minimum flow of 388 mgd (at Lillington) to downstream users, those users do not have to repay the state for the benefits they receive from the low flow augmentation pool. Low flow releases from the dam have increased the potential yield in the Cape Fear River downstream of the dam about seven-fold compared to historic levels. Twenty percent of the 7-day, 10-year low flow is typically used as one guideline for potential water supply yield; that amount has increased from about 10 mgd to about 70 mgd at Lillington. Likewise, downstream users reap the benefits of the flood control pool at no cost.

3. Comment: The IBT is bound to diminish available water downstream and hurt Cumberland County's ability to build a countywide water and sewer system and other water-consumptive projects.

In fact, the exhaustive study of the proposed IBT, including the results of a model of the Cape Fear River developed by DWR primarily for this purpose, shows there will be no detrimental impacts on availability of water downstream. In short, downstream users will have just as much assurance of low flow augmentation if the IBT is granted. All the evidence supports this conclusion, and the Petitioners have seen no credible evidence to the contrary nor have they seen or heard any such evidence submitted to the Commission.

In addition, a key consideration in determining the amount of water that can be withdrawn from the Cape Fear River is the impact of withdrawals on water quality during low flow periods. Because of this, a major concern of downstream users is not that there will be less water to use, but that there will be less water *after* their use to assimilate pollutants in their wastewater discharges. As one speaker on March 6 indicated, the solution to pollution is not dilution. Before asking upstream users to spend millions to increase - not just maintain - the flows available to dilute their wastewater, downstream users should follow the Petitioners' leads and use conservation measures and reclaimed water to reduce both demands and wastewater discharges.

4. Comment: The Petitioners' consultants prepared the environmental impact statement, the model and other technical analysis and the results therefore must be biased toward Petitioners.

The model was developed by a consultant under the direction of DWR, not by the Petitioners' consultants. The Petitioners, along with the Cape Fear River Assembly, provided funding for this model. The model was developed under the guidance of DWR and a stakeholders committee that included representatives from downstream communities. The downstream communities and their consultants also participated extensively on a technical subcommittee that provided detailed input during model development. The Petitioners' consultant used the model to analyze the requested IBT and alternatives, and incorporated results into the Environmental Impact Statement. The EIS for the IBT was prepared with direction from and full review by the highest levels of DENR.

It is standard procedure for applicants and/or their consultants to prepare the environmental documentation related to water and sewer projects. DENR does not have enough funding or staff to perform complex modeling and prepare the documentation in a timely manner. In fact, similar projects undertaken by entities objecting to the IBT have also been approved by DENR based on environmental documentation prepared by their consultants or their own staff.

5. Comment: "...the Wildlife Resources Commission [WRC] is opposed to the project as currently proposed." Mr. John E. Pechmann cited impacts to species in the source and receiving basins due to the proposed interbasin transfer. [1]

Richard Hamilton, Assistant Director of the WRC, stated in a telephone conversation on March 7, 2001 that official WRC comments on the proposed IBT were submitted through the Clearinghouse during the EIS development, and that Mr. Pechmann's comments do not represent the WRC. The Petitioners, their consultants, and DWR staff attended numerous meetings with WRC staff in order to address comments received during scoping and draft EIS review. The final WRC comments submitted to the State Clearinghouse included the following summary:

" We concur that there is little direct impact associated with an interbasin transfer and that the significant impacts are related to secondary and cumulative development that is facilitated by the increase in water supply."[2]

Mr. Anderson made specific recommendations for mitigation of significant impacts due to growth, related mostly to open space planning/preservation and stormwater management. The EIS states that these impacts would be the same for all alternatives to the proposed action, other than the no action alternative. Extensive mitigation efforts have been developed and are being implemented to mitigate potential secondary effects of growth.

[1] *NCWRC Comments Regarding the Increase in Interbasin Transfer of Water From Jordan Reservoir*. Written comments submitted by Mr. John E. Pechmann, Chairman, Presenter, at the March 6, 2001 Public Hearing in Fayetteville, NC.

[2] Memorandum from Owen Anderson to Melba McGee dated February 17, 2000.

6. Comment: Petitioners have already begun work on the water plant in order to make it hard for the EMC to deny the IBT certificate. When the allocation and interbasin transfer processes were started, DWR indicated that an EMC decision on the requests could be expected in late 1999, which was when construction was expected to begin on the plant expansion. In July 1999, with the regulatory schedule slowed considerably, the Petitioners decided to begin work on the water plant expansion, only after the analysis of impacts was complete and it was clear that there were no significant direct impacts. Since the approval of the interbasin transfer is based on a comparison of the benefits and detriments of the transfer, and the analysis showed no direct negative impacts, the Petitioners moved forward with faith that the EMC would act based on the guidelines of G.S. 143-215.22I.

   Throughout the EIS scoping process, there were no objections to DWR's recommendation to grant the Petitioners' Jordan Lake allocations – commenters have objected only to the IBT. The WTP will be used whether or not the IBT is granted. If the petitioners did not begin work on the plant until a decision is made on the IBT, it would unavoidably have cost customers more to continue buying water through expensive short-term contracts with neighboring utilities for the additional 2 to 3 year period during construction. By beginning construction before approval of the IBT, the WTP could be ready for use about the same time approval of the IBT could be granted, thus avoiding those costs if the IBT is approved.

7. Comment: There are unanswered questions about whether Environmental Review of the Cary/Apex expansion was conducted in accordance with DENR's North Carolina Environmental Policy Act Rules.[3,4]

   In their letter to Secretary Ross, PWC references statements by the Wildlife Resources Commission that interbasin transfer issues should be addressed in environmental documentation for the water treatment plant expansion. First, it should be noted that the PWC did not submit any comments through the State Clearinghouse on the Environmental Assessment for the expansion. Second, as noted in Item 6, the expanded plant will be used even if the IBT increase is not approved, so it is appropriate for interbasin transfer impacts to be considered separately from the expansion impacts. At a meeting on November 6, 1997 that included representatives from Cary/Apex and their consultants, the WRC, Public Water Supply, and DWR, the relationship between the two NC EPA processes was discussed. The WRC agreed that potential interbasin transfer impacts would be addressed in the IBT EIS, and subsequent comments are discussed in Item 5 above.

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[3] *Statement by Fayetteville Public Works Commission.* Written comments submitted at the March 6, 2001 public hearing.

[4] Letter from M. J. Noland, Chief Operating Officer, Division of Water Resources, Fayetteville Public Works Commission to William G. Ross, Jr., Secretary, Department of Environment and Natural Resources, dated February 2, 2001.

8. Comment: Petitioners have avoided a commitment to construct a POTW in the Cape Fear River Basin to minimize the need for future IBTs and cannot be trusted to build it by 2010.

Petitioners have agreed to a condition in the certificate, if it is issued, requiring that the wastewater treatment plant be built in the Cape Fear River Basin by the year 2010. Petitioners assume this condition will be enforceable unless it cannot be accomplished due to conditions beyond the Petitioners' control. In fact, since the Petitioners requested an IBT of only 27 mgd, they will be required to build a new discharge to the Cape Fear River in order to use water from Jordan Lake at the higher rates supported by their recommended Round 2 Jordan Lake storage allocations.

9. Comment: Petitioners' bad planning has created the need for the IBT.

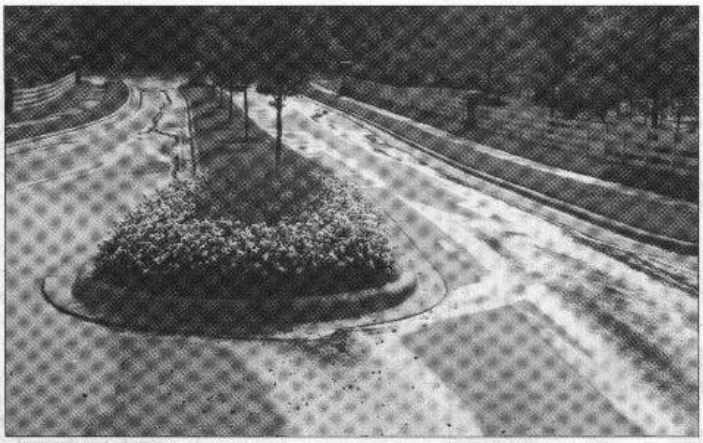
The need for the IBT is primarily based on the fact that the Petitioners' service areas straddle the basin boundary between the Cape Fear River Basin and the Neuse River Basin. The rules governing interbasin transfers recognize there will be cases like the Petitioners, where the benefits of an interbasin transfer outweigh the detriments, and therefore allow for interbasin transfers to occur. In this case, there are no significant detriments to the transfer.

10. Comment: The Petitioners should plan for longer than a 2015 planning period.

When the Petitioners requested Round 2 Jordan Lake allocations in 1996, those requests were based on a planning period through 2030. DWR made the decision to only recommend allocations based on 20-year needs, which at the time translated to the 2015 planning period. The Interbasin Transfer request is based on a planning period through 2030, and Cary has completed a Long-Range Water Supply Plan through 2050 showing that the 27-mgd IBT is adequate even with increased use of Jordan Lake for water supply, which is the Petitioners' preferred long-term water supply source. The Petitioners' have, along with other Cape Fear River Basin communities, urged DENR to use long-term planning periods to make regulatory decisions.

11. Comment: People follow water; water does not follow people.

There is certainly some truth in this statement as a generality, but it is untrue as it relates to this IBT request. The Research Triangle Park is the primary stimulus of growth in the Cary/Apex/Morrisville area. The state has encouraged growth in RTP which has led to growth in the surrounding areas, which include not only the Petitioners, but also areas such as Orange, Durham, Granville, Person, Chatham, Harnett and Johnston Counties. Some of these industries have indicated that they would not come to North Carolina at all if they could not locate in the RTP.



Conservation measures in Cary, N.C., were designed to reduce outdoor water use and thus had the potential for achieving the greatest savings in an average day of water consumption.

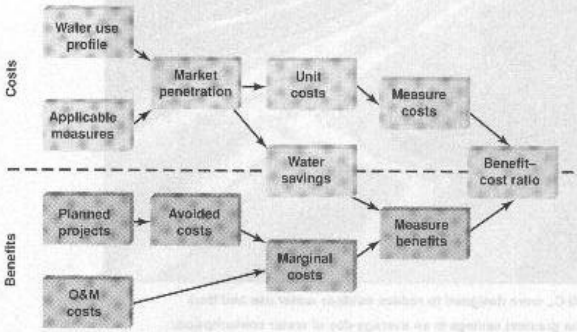
THE COST-EFFECTIVENESS OF WATER Conservation

BY JENNIFER L. PLATT AND MARIE CEFALO DELFORGE

IN CARY, N.C., A COMPREHENSIVE LONG-TERM WATER CONSERVATION PLAN IS ALREADY PAYING OFF IN REDUCED DEMAND ON EXISTING SUPPLIES AND DEFERMENT OF EXPANSION PROJECTS.

Water conservation is sometimes dismissed by the public as a "feel-good" endeavor providing few concrete benefits for municipalities implementing conservation programs. Municipal officials, too, may discount conservation efforts and express concerns that revenues will be reduced. The Town of Cary, N.C., however, has found that a carefully planned water conservation program can offer real solutions to real problems. By making the most of existing water supplies, Cary's conservation efforts have helped create a "new" source of water and enabled the town to delay two future plant expansions by a total of 10 years, at a cost of $138/mil gal ($37/ML) of water saved. This article offers an overview of Cary's long-term water conservation program and its associated costs and benefits.

FIGURE 1 Methodology of the benefit–cost analysis



O&M—operations and maintenance
Source: Maddaus et al, 2000

TOWN TRACKS WATER USE TO UNCOVER AREAS OF POTENTIAL CONSERVATION

Cary is an affluent suburban town located on the edge of Research Triangle Park, just west of Raleigh. Over the past 10 years, the town's population has more than doubled, growing from 43,858 in 1990 to 96,217 in 2000 (McNamara, 2000). In 1995, town officials, with an eye on the Triangle region's explosive growth rate, began planning for the expansion of Cary's two-year-old water plant. Recognizing that conservation would be a critical part of its approach to integrated water resources management, the town council also established a goal of 20% reduction in per-capita use by 2020.

Cary's early conservation measures addressed both the supply and demand sides of water conservation. The town decided to construct reclaimed water systems at both the North and South Water Reclamation Facilities to create a "new" source of supply. When completed in spring 2001, the facilities will produce up to 1.58 mil gal (6 ML) of reclaimed water per day. The system will provide nearby residential and commercial customers with reclaimed water for irrigation and other nonpotable uses. Reclaimed water will be offered free of charge to bulk purchase customers such as landscapers and construction companies. When complete, the system is expected to cut peak demand in the town by up to 8%.

To reduce demand on limited supplies, utility staff developed a multifaceted management approach that incorporated voluntary, incentive, and regulatory mechanisms. An innovative public education program was launched. A conservation rate structure was established, and unaccounted-for water was closely monitored. Several town ordinances were passed to discourage water waste and promote conservation.

Cary steps back to plan ahead. In 1999, Cary officials stepped back to assess the effectiveness, cost benefits, and long-term viability of the town's ongoing conservation efforts. The town hired consultants* to evaluate current programs and develop a long-term conservation management plan.

The consultants began by reviewing the town's current water supply and use, trends, and characteristics. Cary owns a 77% share of the Cary/Apex Water Treatment Facility (CAWTF). To supplement finished water from CAWTF, the town purchases water from the cities of Raleigh and Durham. With the three water sources, the Cary–Apex system supply capacity is 24 mgd (89 ML/d).

Data pinpoint existing and projected supply and demand. Cary's water distribution system experiences strong peaks during the summer's hottest, driest periods, primarily because of irrigation demand. This peak seasonal demand is driven largely by the community's high standards of appearance for residential and commercial properties and inefficient irrigation practices. In May 2000, the system experienced a record maximum day demand of 22 mgd (82 ML/d), more than double the previous winter's average daily water use of 10 mgd (38 ML/d).

On the basis of projected growth rates, it was estimated that without conservation Cary's 1998 average daily retail water demand would increase from 8.6 mgd (32.6 ML/d) to 26.7 mgd (101 ML/d) in 2028, which represented a 300% increase in demand over the 30-year forecast period. In addition to a current plant expansion to 40 mgd (151 ML/d), two additional expansions of 16 mgd (60.6 ML/d) were scheduled to occur during the 30-year planning horizon (CH2M Hill, 2000).

Residential users are largest customer group. An analysis of utility billing records showed that single-family and multifamily residential

*Raftelis Financial Consulting, which partnered with Maddaus Water Management and the Weber Group, Charlotte, N.C.

Cary's water conservation staff regularly visits area classrooms to demonstrate how each child's conservation efforts, when added to those of other children, can make a big difference overall.

customers accounted for 75% of the town's total water use (Raftelis Financial Consulting et al, 2000). Nationally, residential water use typically accounts for 50–60% of system water demand (Billings & Jones, 1996). Commercial customers constituted the next largest customer group, accounting for 21% of total usage. The remaining 4% of users included institutional (schools and local government), industrial, and irrigation-only accounts, such as homeowners associations (Raftelis Financial Consulting et al, 2000).

Potential areas of water conservation assessed. The town's overall per-capita water use (including all consumption groups) averaged 100 gpcd (379 L/d per capita), substantially lower than the national average of 182 gpcd (689 L/d per capita) (AWWA, 1991). Nearly 50% of the structures in Cary were built after implementation of the 1992 US Energy Policy Act and are equipped with efficient plumbing fixtures (Wake County Revenue Dept., 2000). Given that water-efficient fixtures were already in place in half of the town's buildings, officials felt that targeting indoor water would be less cost-effective and less successful than other measures at achieving their conservation goals.

Because peak day demand is the factor determining size of water treatment plants and timing of plant expansions, it was clear that a primary objective would be reduction of peak day water use during the high-volume summer months. Most of the town's retail water sales (97.5%) was attributable to four groups—residential single-family (RSF), 63.1%; commercial, 20.5%; residential multifamily (RMF), 11.8%; and irrigation-only, 2.1%. Furthermore, these four groups consumed more than 95% of outside water usage. Conservation measures directed toward these groups and efforts to reduce their outdoor water use had the potential for achieving the greatest savings in average day water consumption.

LONG-TERM CONSERVATION MANAGEMENT PROPOSED

Model assesses conservation costs and benefits. The 10-year Water Conservation and Peak Demand Management Plan proposed by the consultants was based on extensive analysis by the demand management least-cost planning decision support system (DSS). The DSS model estimated water savings and costs for an array of potential measures or programs. A benefit–cost methodology

(Figure 1) compared each program's costs and benefits in a formal present-worth analysis. (Additional background on benefit–cost methodology is available in JOURNAL AWWA [Maddaus et al, 1996] and the 1993 AWWA publication *Evaluating Urban Water Conservation Programs: A Procedures Manual.*)

Cost categories used in the DSS model included labor, expenses, incentives, and setup costs. Benefits from conservation included current savings in operations and maintenance and savings from the deferral or elimination of capital projects that would have been necessary in the absence of conservation.

Project consultants estimated capital savings by comparing existing treatment capacity with the capacity that would be required through the year 2028. Water demand projections were adjusted to reflect expected demand reductions achieved by long-term implementation of existing plumbing code requirements for water-efficient toilets, urinals, faucets, and showerheads. The consultants also projected the need for additional plant capacity by two 16.0 mgd (60.6 ML/d) increments over the 30-year forecast period. From each 16.0 mgd (60.6 ML/d) increment of expansion, Cary would receive 12.3 mgd (46.6 ML/d), representing its 77% ownership stake in the plant (Raftelis Financial Consulting et al, 2000).

Long-term plan had to meet criteria. After reviewing the benefit–cost analysis, project consultants and town staff decided any conservation measures should meet the following criteria:

- a benefit–cost ratio greater than 1.0 (i.e., the program must save more than it costs);
- reasonable cost (i.e., affordability);
- significant water savings; and
- nonquantifiable but positive effects (e.g., community acceptance).

From the menu of new and existing conservation measures analyzed during the assessment process, the consultants and town staff selected the most cost-effective water saving programs. The final Water Conservation Plan (WCP) recommended seven programs targeted mainly at residential (RSF and RMF), commercial, and irrigation accounts. Table 1 lists the individual measures, water savings, and total costs over the first five years for each program included in the WCP. Table 2 provides a short description of each measure.

Plan promises numerous benefits. The programs outlined by the plan should result in reduced retail water production of 4.6 mgd (17.4 ML/d) by the end of the forecast period in 2028. This represents a savings in retail water production of approximately 16%. Figure 2 shows the distribution of the savings associated with each component of the plan as a percentage of the sum of the savings for all of the individual plan elements over the entire planning horizon (Raftelis Financial Consulting et al, 2000).

One of the most significant benefits of the WCP was the deferral of considerable capital expenditures and associated operating costs and the monetary savings achieved by reducing annual operating costs. In the absence of a conservation plan, Cary's projected share of the total CAWTF capacity needed by 2028 would be approximately 30 mgd (115 ML/d), even with projected water savings from enforcement of plumbing code provisions. As shown in Figure 3, this represents an increase of 2.5 times the current town share of 12.3 mgd (46.6 ML/d) of the existing 16 mgd (60 ML/d) capacity. Although two additional expansions of the CAWTF will still be required by 2028, the WCP should provide sufficient water savings to defer each expansion by several years. It is expected that the projected 2009 expansion can be deferred to 2013 and a second expansion, projected for 2018, can be delayed six years to 2024 (Raftelis Financial Consulting et al, 2000).

Extending the timing of the capital costs associated with these expansions reduces their present worth. As shown in Table 1 and Figure 3, the projected 10-year savings from conservation will be 1 mgd (4 ML/d) as water use drops from the current rate of 17 mgd (64 ML/d) to 16 mgd (60 ML/d) in 2009. By 2019, water use should be down slightly more than 2 mgd (8 ML/d), from a projected 24 mgd (91 ML/d) without conservation measures to a projected 22 mgd (84 ML/d) with WCP programs in place.

PLAN INCORPORATES AN ARRAY OF CONSERVATION MEASURES AND TACTICS

Cary's water conservation and management program is built on seven key components: public education, landscape and irrigation ordinances, a toilet flapper rebate program, residential water audits, a conservation rate structure, ongoing development of new conservation measures, and careful monitoring of town water use.

Public education includes outreach to many groups. The WCP strongly emphasizes the necessity of a continuous and effective public information and education program. During the spring and summer months, educational materials and announcements target outdoor water use. In the fall and winter months, the edu-

The town distributed a series of information flyers titled "Landscape Cary Style" that featured information on waterwise landscaping techniques, soil preparation, warm-season grasses, irrigation tools, and drought-tolerant plants.

cational focus shifts to indoor water use. The town's education program features several different kinds of outreach and information efforts.

Beat the Peak. Because of especially high demand during summer months, an important element of Cary's education program is the comprehensive summer campaign known as "Beat the Peak." Each year, water conservation staff work with the town's public information officer to develop new themes to help achieve campaign goals of decreasing peak water demand, shifting peak use times to early morning, and reducing overall water consumption. The 1998 Beat the Peak campaign, nicknamed "The Tuna Can Plan," used tuna cans as a tool to demonstrate the concept of irrigating 1 in. (25 mm) a week. Town sanitation crews distributed 25,000 packets containing a steel can and a brochure. By setting the 1 in. (25 mm) deep can within their sprinklers' trajectory and noting the time, residents were able to determine how long it took their sprinklers to apply 1 in. (25 mm) of water. This information helped customers track the amount of water and time needed to irrigate their lawns in accordance with the "1 in. (25 mm) per week, including rainfall" recommendation.

Beat the Peak turns to both conventional and innovative information vehicles to spotlight the issue of water conservation within the community. Past campaigns have used television, print, and radio advertising, the town's website, local media interviews, direct mail, cable television public service announcements, pizza toppers, fast-food restaurant tray toppers, and presentations to area clubs and civic organizations. The US Environmental Protection Agency honored the 1998 Beat the Peak campaign with a Region IV award for the most innovative and effective educational program.

Block Leaders. Initiated in 1998 as part of Beat the Peak, the Block Leader program expands a grassroots outreach effort from the early 1990s that Cary and other communities used to introduce citizens to curbside recycling. Cary revived the program, making water conservation its primary focus.

Each spring and early summer, both new and experienced block leaders attend a training session to become familiar with the town's summer water conservation campaign. They learn about the status of utility projects and their effect on water supply and demand. They are also given materials for distribution to neighbors on their block. To further educate themselves, volunteers can attend optional workshops on such topics as water and wastewater treatment processes, landscaping with drought-tolerant plants, and repair of leaking toilets.

The Block Leader program represents a network of residents dedicated to environmental education. Although they have no enforcement responsibilities, they have had a positive effect within the community. Since the program's introduction in 1998, the percentage of customers reached by block leaders has grown to 19%.

Elementary school programming. As part of the town's educational efforts, water conservation staff regularly interact with elementary school students. The Save Lots of Water (SLOW) game was developed by staff as a cost-effective way to take the water conservation message directly into homes. During the school year, Cary second-grade students play the SLOW game to learn about important water-saving habits and the way each child's individual conservation efforts make a big difference collectively. Over the course of a week, students perform water-saving activities (such as turning off the faucet while brushing

TABLE 1 Costs, benefits, and savings yielded by the Cary WCP*

Program Element	Water Savings Projected in 2009 *mgd (ML/d)*	Water Savings Projected in 2019 *mgd (ML/d)*	Unit Cost of Water Saved *$/mgd ($/ML)*	First Five Years of Costs	Benefit-Cost Ratio
Residential water audits	0.053 (0.2)	0.077 (0.29)	546.85 (144.50)	$71,335	1.13
Public education	0.3 (1.14)	0.41 (1.57)	400.59 (105.80)	$314,280	1.53
Toilet flapper rebate	0.005 (0.02)	0	828.04 (218.80)	$11,762	1.03
Water reclamation facility (water reuse)	0.27 (1.02)	0.3 (1.13)	01	$11	NA‡
Landscape Water Budgets	0.013 (0.05)	0.023 (0.09)	754.33 (199.30)	$64,175	0.88
New Home Points Program	0.5 (1.9)	0.77 (2.90)	36.18 (9.60)	$100,000	16.2
Landscape/irrigation codes	0.02 (0.07)	0.04 (0.15)	276.07 (72.90)	$128,350	2.6
Inverted block rate structure	0.14 (0.54)	0.42 (1.60)	49.40 (13.10)	$54,000	14.26
Combined results§	1.17 (4.4)	2.0 (7.60)	137.50 (36.30)	$655,552	4.44

*Source: Refelis Financial Consulting et al, 2000; WCP—Water Conservation Plan
†The decision to construct a water reclamation facility was made independent of this study. Although the water savings and benefits of the facility are included in the WCP, capital costs associated with this project have not been factored into the benefit-cost analysis because the costs would have been incurred regardless of the analysis. In order to include the water reclamation facility as a measure in the decision support system model, a $1 cost had to be included.
‡NA—not applicable.
§Water savings estimated for the WCP do not equal the total water savings associated with the sum of each plan element because of the "shared water savings" produced by conservation measures that focus on similar end uses.

teeth) and record how much water they saved according to a provided chart. Each class then calculates the amount of water saved each day and tracks savings on a picture of a large water drop calibrated to 1,000 gal (3,785 L). Every classroom that fills in the entire water drop wins an ice cream party. Approximately 20 classes play SLOW on an annual basis. This school year, in another innovative effort to involve elementary school students in saving water, Cary fifth-graders will be taking part in a water conservation scavenger hunt on the Internet.

Workshops. Another public education measure targets adults interested in landscaping and gardening. Throughout the year, town staff and master gardeners offer workshops on water-efficient techniques for landscaping and irrigation. Classes tackle such topics as sprinkler scheduling and maintenance, installation of rain sensors, soil management techniques, water-efficient landscape design, use of drought-tolerant plant material (e.g., warm-season grasses), and efficient water use in the landscape. In addition, staff members work regularly with the Carolinas Irrigation Association to promote and sponsor irrigation workshops for the local irrigation industry.

Printed material. The town produces three brochures to inform citizens about water, the water conser-

TABLE 2 Selected conservation plan measures

Plan Element	Short Description
Residential audits	The top residential single-family and residential multifamily accounts are offered a water audit.
New Home Points Program	The town rates proposed development projects on a point scale that provides points for subdivisions using selected water-efficient measures.
Public education program	The town will expand existing public education efforts to continue the focus on the importance of water conservation.
Landscape water budget	All public and private irrigators of landscapes of significant size will receive monthly water budgets that identify the appropriate watering needs for their landscapes.
Landscape/irrigation codes	These codes prohibit water waste and require the use of drought-tolerant plant material, rain sensors, and efficient irrigation systems.
Inverted block rate structure (increased differential)	This is an increase in the levels between the current "tiered" rates to provide additional incentive to reduce peak water demand.
Toilet flapper rebate	These are rebates for customers replacing existing flappers with early closure flappers.
Water reclamation facility (water reuse)	A water reclamation facility will provide reuse water for irrigation systems to reduce the amount of potable water used for irrigation.

vation program, and irrigation-related ordinances. "Let's Be Water Conscious!" primarily lists indoor and outdoor water conservation tips. "Avoiding Water Waste" summarizes the town's ordinance restricting water waste while watering and gives suggestions on avoiding water runoff. "Why Install a Rain Sensor" describes Cary's rain sensor ordinance and answers common questions about rain sensors. The town mails these brochures directly to homeowners and also communicates this information through weekly tips in the municipal section of the local newspaper and the monthly utility bill insert. Display ads in the local and regional papers also play a part in keeping residents informed. In addition, a series of informational flyers titled "Landscape Cary Style" is distributed to nurseries, hardware stores, and other businesses. The flyers feature information on waterwise landscaping techniques, soil preparation, warm-season grasses, irrigation tools, and drought-tolerant plants.

Landscape and irrigation ordinances restrict water use and misuse. The WCP includes and expands on the town's existing regulations addressing water use. The Cary Code of Ordinances Section 19-45 (Water Shortage Measures) provides legal authority for the town manager to implement water conservation measures whenever a water emergency has been determined or the potential for a water emergency exists. Section 19-45 also defines essential and nonessential classes of water use and provides for water restriction measures instituted in official phases such as voluntary, mandatory, water shortage emergency, and rationing.

Peak demand management. Cary actively addresses peak demand by implementing water use restrictions as needed during critical situations. In 1999, the town implemented restrictions based on the lack of availability of supplemental water sources during the summer's hot, dry spells. The three consecutive stages of restrictions were (1) odd/even day outdoor watering, (2) a total ban on turf watering, and (3) limited odd/even day watering.

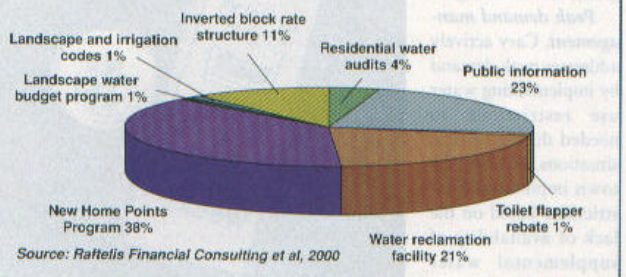
To evaluate the effectiveness of 1999 water use restrictions, project consultants examined four data sets: forecasting and tracking models, monthly peaking analysis, daily water use analysis, and bill frequency analysis (consumption by blocks). Review of the restrictions implemented during summer 1999 yielded the following findings:

- From June 4 through June 8, during odd/even water restrictions, irrigation use decreased by almost 10%. This result is based on a comparison of water use in Cary and the neighboring town of Apex rather than actual customer consumption. Total consumption increased for both Cary and Apex, primarily because of weather factors, but the increase, both in millions of gallons and per account, was approximately 10% less for Cary than for Apex.
- From June 9 through July 27, when only hand watering was permitted and no turf irrigation was allowed, Cary customers achieved an absolute or "raw" savings of nearly 14.5%. A comparison of the two towns' water use during this period indicated an average "real" savings of approximately 22%; daily savings ranged as high as 30%. On extremely hot days, the expected savings exceeded 4.0 mgd (15 ML/d).
- From July 28 to September 28, when restrictions eased to allow residents to water only during certain hours within the odd/even schedule, water use rose, showing a slight increase above weather-normalized projections. This was probably a rebound effect resulting from the prior

The town used "The Tuna Can Plan" to help residents lower irrigation levels of lawns and gardens. Steel cans 1 in. (25 mm) deep were distributed, and residents placed them under sprinklers—helping them judge when 1 in. (25 mm) of water had been applied.

Benefits from conservation included current savings in operations and maintenance and savings from the deferral or elimination of capital projects that would have been necessary in the absence of conservation.

FIGURE 2 Distribution of water savings by program element



Source: Raftelis Financial Consulting et al, 2000

harsh restrictions. Although overall water use did not decrease, peak day demands stayed within manageable limits (Raftelis Financial Consulting et al, 2000).

Because of the town's critical need to manage peak demand, the town council in 2000 adopted Ordinance 19-44, Alternate Day Watering, which established a year-round watering schedule. Odd-numbered addresses can water landscapes Tuesday, Thursday, and/or Saturday; even-numbered addresses can water Wednesday, Friday, and/or Sunday. Watering is banned on Mondays to allow system maintenance and replenishment as necessary.

There has long been some question within the water conservation community regarding the effectiveness of the odd/even approach to reduce water use. The town of Cary uses odd/even watering primarily as a peak-demand management tool. Over the next several years, staff will closely monitor the ability of the odd/even approach to meet both long-term peak-demand reduction and water use reduction goals.

Water waste. Ordinance 19-47, Controlling Wasteful Uses of Water, enables staff to regulate and control irrigation and reduce both the watering of hardscapes (e.g., pavement and structures) and the runoff associated with overwatering. Ordinance 19-48, Rain Sensors on Automatic Irrigation Systems, requires a rain sensor on all automatic irrigation systems. This ordinance went into effect immediately for new systems but gave customers nine months to bring existing systems into compliance.

Enforcement. Public education is used in conjunction with these ordinances to enhance awareness of the importance of water conservation and the possible ramifications of noncompliance. Between one and six field technicians are available to enforce the ordinances, depending on the status of restrictions.

Active enforcement of watering restrictions increased compliance rates with town ordinances. In 1999, staff issued more than 250 notices of violations to residential and commercial utility customers; only a handful of violators were cited more than once. Customers received formal notice before citations were issued. In 2000, the staff field presence was expanded from one technician to five temporary staff, which allowed nearly continuous 24-hour-a-day coverage throughout the summer. In 2000, staff issued more than 500 notices of alternate day watering violation, but the number of violations decreased each month.

Enforcement of the town's irrigation-related ordinances occurs throughout the year. In 1998, staff inspected every system with a dedicated irrigation meter to check for compliance with the rain sensor ordinance. Regular enforcement, in addition to a highly visible field presence, achieved the following positive results:

- All irrigation-metered customers were in compliance or aware of the rain sensor ordinance. (Actual compliance rates were 80% for residential customers and 99.9% for commercial customers.)
- Awareness of the WCP was raised through personal contact by staff and word-of-mouth.
- Commercial accounts and irrigation professionals recognized that Cary is serious about enforcement of water regulations.
- Staff personally assisted customers with numerous questions and problems related to irrigation.
- Customers received information about other town programs.
- Staff was able to maintain accurate records on irrigation systems throughout Cary.
- Numerous leaks and dead meters were discovered and repaired, decreasing water loss and increasing revenues.

Cary's town ordinances are helping impel the area's irrigation industry to improve installation and maintenance services. Unfortunately, many issues such as poor irrigation system design, installation, and calibration continue to thwart conservation efforts. Town staff members work extensively with local irrigation companies and the Carolinas

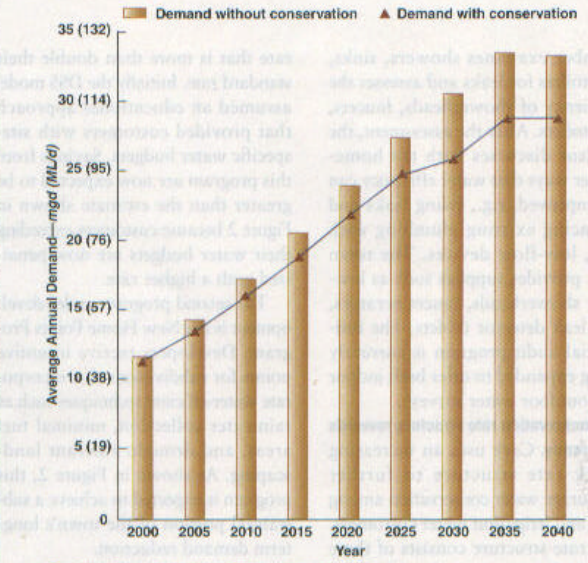
Irrigation Association in order to foster an increased focus on proper training and irrigation system maintenance so that more systems operate efficiently. An effort is currently under way to incorporate irrigation system design standards and specifications into the town's appearance ordinance. Cary now requires all utility customers to obtain a separate meter for irrigation systems, which has enhanced the town's ability to track irrigation demand.

Commercial landscaping regulations. Criteria in the town's Standard Appearance Specifications Manual require that all commercial landscaping use drought-tolerant plant material, as defined and listed by the North Carolina Cooperative Extension Service and local experts. Use of drought-tolerant plants is only one of the water-efficient landscaping principles that Cary has embraced; others include proper soil management and site preparation, selection and grouping of plants according to water needs, and appropriate maintenance.

Studies from western states suggest that a 20–50% savings in irrigation is achieved through use of drought-tolerant plant material and efficient irrigation systems in RSF settings. Little research exists, however, on savings that eastern states have achieved through landscaping regulations. The landscape ordinance changes proposed in Cary's WCP mirror a California ordinance for water-efficient landscaping, which assumed the regulation would result in a 20% reduction in outdoor use for new development (Raftelis Financial Consulting et al, 2000). Cary will use this value until the town staff can develop local data.

The Standard Appearance and Specifications Manual is currently undergoing a comprehensive revision. Consultants for this project may include additional water efficiency measures ranging from irrigation specifications to limits on the amount of irrigated turf.

FIGURE 3 Projected water demand for Cary, N.C.



Source: Raftelis Financial Consulting et al, 2000

Toilet flapper rebate provides incentive. Cary officials recognized that one of the most effective conservation measures for pre-1994 homes would be reduction of indoor water use. The town instituted a rebate program that offered utility customers a financial incentive to purchase early-closing toilet flappers, which can save up to 1.3 gal (4.9 L) per flush. Retrofitting toilets with these flappers not only improves efficiency but can also remedy leaks, providing the opportunity for further water savings. Another benefit is that the early-closing flapper is made of a siliconized rubber, which is more durable than standard rubber.

To date, customers have redeemed nearly 500 rebates and have purchased more than 1,000 flappers from area hardware stores. During the first year of the program, each participating customer saved 1,202 gal (4,550 L), a savings equal to $3.88 for the average utility customer (more than the flapper's post-rebate cost). Total documented savings to date are 0.750 mil gal (2.8 ML), at a program cost of $0.005/gal ($0.001/L) saved.

Residential audits help pinpoint wasted water. As part of the WCP, town personnel conduct indoor water surveys for residential customers. During the one-hour audit, a staff

An effort is currently under way to incorporate irrigation system design standards and specifications into the town's appearance ordinance.

member examines showers, sinks, and toilets for leaks and assesses the efficiency of showerheads, faucets, and toilets. After the assessment, the auditor discusses with the homeowner ways that water efficiency can be improved, e.g., fixing leaks and replacing existing plumbing with new, low-flow devices. The town even provides supplies such as low-flow showerheads, faucet aerators, and leak detector tablets. The residential audit program is currently being expanded to offer both indoor and outdoor water surveys.

Conservation rate structure rewards efficiency. Cary uses an increasing block rate structure to further encourage water conservation among RSF and irrigation meter customers. The rate structure consists of three tiers: a low-use tier of < 4,000 gal (15,100 L) per month; an average-use tier of 4,000–8,000 gal (15,100–30,300 L) per month; and a high-use tier of > 8,000 gal (30,300 L) per month. The third tier penalizes high water users by charging them a substantially higher rate, whereas the first tier charges a reduced rate to reward water use efficiency. The town bills all water used by separate irrigation meters at the third-tier rate; all nonresidential users are billed at the second-tier rate.

Program development seeks new ways to encourage conservation. The WCP includes ongoing program development to create new avenues to achieve water efficiency in Cary. Staff is currently developing site-specific Landscape Water Budgets for the town's highest volume commercial irrigation users. Customers who exceed their budget pay a penalty rate that is more than double their standard rate. Initially the DSS model assumed an educational approach that provided customers with site-specific water budgets. Savings from this program are now expected to be greater than the estimate shown in Figure 2 because customers exceeding their water budgets are now penalized with a higher rate.

The second program under development is the New Home Points Program. Developers receive incentive points for subdivisions that incorporate water-efficient techniques such as rainwater collection, minimal turf areas, and drought-tolerant landscaping. As shown in Figure 2, this program is expected to achieve a substantial portion of the town's long-term demand reduction.

Cary strives for efficiency in town water use. Although not formally included in the WCP, improving the efficiency of water use in day-to-day town operations is an ongoing objective for Cary personnel. The interdepartmental Water Conservation Workteam includes representatives from planning, inspections, utility billing, grounds maintenance, customer service, and utility operations and meets regularly to discuss possible ways to increase town water efficiency. Thanks to their efforts, Cary has already achieved significant savings in the following areas.

Water plant efficiency. During the water treatment process, filter backwashing constitutes the greatest source of water loss. CAWTF staff installed state-of-the-art equipment to maximize particle removal during treatment. As a result, filter run times are minimized, and less total water is required for the backwashing process. Staff also enhanced monitoring of the solids removal process by intricate analysis of the electrochemical reactions through zeta potential and streaming-current measurement to maximize solids removal efficiency of the clarifiers. These procedural changes improved the operation of the clarifiers so that excessive amounts of solids do not carry over to the filters. The result is increased filter run times and decreased frequency of filter backwashes.

Annual system disinfection. The state of North Carolina requires all chloramination disinfection water systems to switch over to chlorine treatment during a three-week period each year. By using a fluoride tracer technique, Cary operations staff were able to determine precisely when the distribution system had completely turned over. Implementation of this process in 1997 saved the town $67,000 in personnel and water treatment costs and conserved 34 mil gal (129 ML) of water, compared with the previous year's switchover (Platt et al, 1997). In 1999, staff merged the town's hydrant maintenance program with the annual switchover to further reduce total water used for system flushing.

Unaccounted-for water. Although the amount of water lost in a system ranges from 4 to 30%, the most common rate of loss averages 10–15% (AWWA, 1989). To maximize water efficiency in the distribution system, the town's operations division uses sophisticated leak detection equipment, replaces meters regularly, closely monitors bulk water purchases, and issues strict fines for

water theft. As a result, Cary's losses from unaccounted-for water are now in the 5–8% range.

Landscape maintenance. The buildings and grounds division uses drought-tolerant plant materials and reduces turf wherever feasible, as in the new median plantings along one of the town's major roadways. Town baseball fields are only irrigated enough to ensure a safe playing surface. Maintenance crews follow the one-inch-per-week recommendation by monitoring rainfall and irrigating only when necessary. In addition, irrigation systems on all new ballfields use either onsite water sources or reclaimed water instead of potable water.

CONCLUSION

The town of Cary has made a significant commitment to manage peak demand and reduce water consumption over the next 20 years. In addition to the programs included in the WCP, the town continuously monitors and evaluates its overall water conservation efforts in relation to its water supply and water and wastewater capacity needs. Cary may expand current programs or implement additional water conservation measures as circumstances warrant. Proper timing of future investments by the town for water conservation is essential to maximize the benefits of such programs to the utility and its ratepayers (Raftelis Financial Consulting et al, 2000).

As the population of the state of North Carolina and the southeastern United States continues to burgeon, the use of water conservation to provide "new" sources of water will become more critical. In eastern North Carolina, groundwater withdrawals exceed the natural rate of recharge to the aquifers. Water levels in some aquifers are dropping below the top of the aquifer. This dewatering will permanently reduce the potential yield of the aquifer system in the region (NCDENR DWR, 1999).

Whether they obtain water from surface water or groundwater sources, municipalities must examine the cost-effectiveness of implementing water conservation measures. Through its comprehensive conservation program, Cary will achieve the benefits of delaying two future plant expansions by a total of 10 years, at a cost of $138/mil gal ($37/ML) of water saved and reducing per-capita consumption by 2020. Each component of Cary's multifaceted program provides a layer of savings from different customer groups. By 2010, Cary's water conservation program is projected to yield savings of 1.17 mgd (4.4 ML/d). By 2020, the program is projected to save 2.0 mgd (7.6 ML/d). For municipalities weighing the cost and benefits of water conservation, the Town of Cary demonstrates that a comprehensive and aggressive water conservation program can balance cost-effectiveness and long-term water savings.

ABOUT THE AUTHOR:

Jennifer L. Platt is water conservation coordinator for the Cary, N.C., Department of Public Works and Utilities, 400 James Jackson Ave., Cary, NC 27511, <jplatt@ci.cary.nc.us>. She has a bachelor's degree from Hendrix College, Conway, Ark., and a master's degree in public health from the University of North Carolina at Chapel Hill. A member of the North Carolina Water Resources Association and the Carolinas Irrigation Association, Platt has also worked for the North Carolina Department of Environmental, Health, and Natural Resources and as an intern at the US Environmental Protection Agency, Region III. Marie Cefalo DelForge is a conservation assistant at the Cary Department of Public Works and Utilities.

If you have a comment about this article, please contact us at <journal@awwa.org>.

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BY JEANINE JONES, J. SCOTT MATYAC, AND MORTEZA ORANG

USES OF A LONG-TERM WATER PRODUCTION DATABASE

DATABASE INFORMATION CAN BE USED TO EVALUATE THE SENSITIVITY OF WATER PRODUCTION RELATIVE TO FACTORS SUCH AS CLIMATE, WATER SUPPLY, WATER PRICE, AND SOCIOECONOMIC CONDITIONS.

Water suppliers must plan ways to meet expected future urban water needs associated with population increases. Examining historical urban water use data is one way to help evaluate the future. This article reviews long-term data on urban water production throughout California and illustrates how different factors affect water production. California is the nation's most populous state and currently is home to one of every eight US residents. It also provides a varied cross-section of water use conditions. The US Census Bureau forecasts that the nation's population will reach 325 million in 2020, some 46 million of whom are expected to live in California. California has exhibited a consistent trend in population growth over time, and the California Department of Finance expects this trend to continue in the future (Figure 1).

Historically, the nation's population growth has been accompanied by demographic trends resulting in greater urbanization of the population. Over the past century, for example, major demographic trends have included a shift in population from the eastern United States to the western United States. This trend has resulted in a net depopulation of areas such as the northern Great Plains states and a reduction in on-farm populations. Populations have been increasingly concentrated in large metropolitan areas, their suburbs, and exurban rings around the suburbs. In turn, public water systems serve increasingly larger segments of the total population (Case & Alward, 1997). The US Geological Survey (USGS) estimates that public water suppliers served about 84% of the total US population in 1995, up 7% from 1990 levels (Solley et al, 1998).

STATEWIDE PROGRAM BEGINS TO COLLECT DATA

In the 1940s, when California began experiencing a postwar population boom, a predecessor of the California Department of Water Resources

Subject: Cape Fear river Basin
Date: Tue, 13 Mar 2001 16:20:53 -0800
From: Skipper Crow <land4u@pinehurst.net>
To: Tom.Fransen@ncmail.net

I would like to comment about the proposal to remove an additional 17 million gallons a day from Jordan Lake for use by Cary and Apex. I live in Southern Pines/Pinehurst area but I do believe that Cary & Apex have generated their own problems by not adequately planning for the growth over the past decade. Everyone saw it including you and the officials of Cary and Apex. North Carolina is growing very rapidly (almost all areas) therefore all areas will require more water in this decade. I believe that Cary & Apex should bear the cost for putting the water back into the Cape Fear Water Basin. If they are going to grow, they simply have to pay the price in dollars or restrict growth in their area. With the recent slowdown at the Research Triangle Park both communities have time to change their plans. Please make my feelings known when your committee decides our future down stream. This reminds me of Virginia Beach taking water out of Lake Gaston and the uproar your agency went through. Remember it is all about fairness.

Skipper Crow
114 Duncan Court
Southern Pines, NC 28387
Phone 800-378-9342 ext 227

State of North Carolina
County of Cumberland
Joint Planning Board

Resolution

Whereas, the Towns of Cary, Apex and Morrisville and Wake County (acting for RTP South) have requested an increase in interbasin transfer of water from the Haw River Basin to the Neuse River Basin; and

Whereas, the requested transfer is associated with increased water withdrawals from Jordan Lake; and

Whereas, the ten communities have requested new or additional allocations from Jordan Lake, several of which involve interbasin transfers of water between the Cape Fear River and Neuse River basins; and

Whereas, the proposed transfers will reduce the average annual flow of the Cape Fear River downstream and impact downstream water quality and supplies under low flow conditions; and

Whereas, the proposed transfers will have secondary impacts on loss of wildlife habitat, increased stormwater runoff and increased sedimentation;

Now, Therefore be it Unanimously Resolved that the Cumberland County Joint Planning Board is opposed to any additional allocation resulting in the interbasin transfer of water from the Haw and Cape Fear River Basins; and

Be it Further Resolved that in the event the interbasin transfer of water is approved, that the Cumberland County Joint Planning Board supports the following conditions:

- Set the maximum daily interbasin transfer of 27 mgd until the year 2010, reduced to 16 mgd after the year 2010;
- Require Cary and Apex to have a wastewater treatment plant discharging into the Cape Fear River functioning and on line by the year 2010;
- Require the Towns of Apex and Morrisville and Wake County to enact ordinances similar to the Neuse Buffer Rules for the parts of their jurisdictions that are within the Jordan Lake watershed;
- Require the ten communities to develop a compliance and monitoring plan for reporting maximum daily transfer amounts, compliance with certificate conditions, progress on mitigation measures and drought management activities.

John M. Tyson, Chairman
County of Cumberland

Joe W. Mullinax, Vice-Chairman
Town of Spring Lake

John M. Tyson, Chairman
County of Cumberland

Joe W. Mullinax, Vice-Chairman
Town of Spring Lake

Dallas T. Byrd
Town of Stedman

Clifton McNeill, Jr.
County of Cumberland

John M. Gillis
County of Cumberland

Gerald Olsen
Towns of Falcon/Godwin/Wade

Jeffrey Reitzel
County of Cumberland

C.S. "Pete" Connell
Town of Linden

Subject: Water
Date: Thu, 8 Mar 2001 10:04:13 -0500
From: "JLDanker" <JLDanker@prodigy.net>
Organization: Prodigy Internet
To: <Tom.Fransen@ncmail.net>

Dear Mr. Fransen -- I would urge you to remember that you and your Department are there for the good of ALL the people of North Carolina, not just those of the Triangle area. Taking the water from the Cape Fear Basin and then NOT RETURNING it will not be fair for future growth of Fayetteville and its environs. I strongly urge you to deny the request from Cary and Apex until they have in place and working a plant to return our water to the Cape Fear Basin. I think it's significant that the people of this area are not completely refusing the loan of the water -- just asking that it be returned. So why should Cary et al be so intransigent? Thank you for reconsidering this matter.

Jackie L. Danker, Fayetteville, North Carolina
28303

Subject: Inter Basin Transfer from The Cape Fear to the Neuse
Date: Sat, 10 Mar 2001 20:48:43 -0500
From: Willie Dorman <williedorman@earthlink.net>
To: Tom.Fransen@ncmail.net

Mr. Fransen,

I am a concerned citizen residing in Erwin, N.C.. It appears to me that our up river neighbors of Cary and Apex are trying to both bake and eat the cake without pay for the batter. If we dance then someone has to pay the fiddler. Cary and Apex expect others to pay while they play. The study Consultants we both know are bias. I myself was a Consultant in the Communication Industry and am well aware of how the game is played.

Tom with all due respect you should deny the 27 million gallon-per-day transfer request. They should not get the water until the facilities to return the water to the basin from whence it came are in tack.

Yours truly

Willie J. Dorman

Subject: Comment on Interbasin Water Transfer - Hazard to Navigation
Date: Thu, 8 Mar 2001 20:17:07 EST
From: ReidGantt@aol.com
To: Tom.Fransen@ncmail.net
CC: ReidGantt@aol.com

I signed up to speak at the public hearing in Fayetteville, but time ran out before I was able to present my comments.

I am a member of a nonprofit organization committed to promoting boating safety on the water. The Cape Fear River is a popular river for boating and fishing. Currently, the Cape Fear River is navigable from Wilmington to Fayetteville. There are three locks that facilitate this navigation. The interbasin transfer of water from the Cape Fear to the Neuse would result in less volume of water flowing down the Cape Fear. That would mean that the water level would be lowered. Lower water could expose hazards to navigation not currently seen, causing damage to water craft and possible personal injury. This aspect of the interbasin water transfer should be taken into consideration when the EMC makes their decision. Strongly recommend that Apex, Cary and other towns wanting to take water from the Cape Fear be required to return the treated water back to the Cape Fear River basin.

Sincerely,

Reid Gantt
6866 Towbridge Road
Fayetteville, NC 28306
910-425-2985

Tom Fransen
Director of Water Resources
DENR 1611
Mail Service Center
Raleigh, North Carolina 27699

Re: Cape Fear River Basin Water Transfer

Dear Sir,

I am a 34 year old resident of Cumberland County and currently a housewife and retail sales manager. I was unable to attend Tuesday's evening meeting referencing the proposed increase of water removal from the Cape Fear River Basin by our neighboring towns. I wanted an opportunity to express my opinion on this matter. I can support the request to increase the amount of water supply that Raleigh, Cary, Apex and surrounding towns are proposing to remove from our river, time brings change and growth, which increases the demand for basic needs, such as water, however, I adamantly oppose the logic that these town officials are presenting that there will be sufficient water supply for our counties' needs in the next twenty to thirty years to warant this increase not to be redeposited back into the basin. Their position of high financial costs to build a water treatment plant outside their area cannot hold any ground if you compare the cost that we will have to incur in the future to repeat this process once our water supply is in danger of being depleted. If you asses the growth in population in Cumberland County and surrounding counties that currently rely on the Cape Fear River Basin for their main water supply you will agree that we are growing by at an accelerated rate as well. Please justify for me how we can afford to literally give away an increase in our water supply wihtout any replacement, or are you under the assumption that we have access to a

[redacted]

never ending supply of water? I am not. I understand that approximately three hundred residents from Cumberland County attended Tuesday evenings meeting, most did not have the opportunity to express their views due to time restraints, however, it is my understanding that a majority of those people hold similar views to mine. Noone should deprive our neighbors of help in supplying a basic need that at this time we are able to adequetly provide, however, we cannot agree to our water supply being sucked dry and not replaced. Please consider the people's positions on this one, because it is us that it will affect in the long run. Thank you for your attention to my opinion. And God Bless you in your attempt to resolve this matter to the best of your ability and for the betterment of our communities futures.

Sincerely,

Robin Hayes Garcia

Subject: Interbasin water transfer
Date: Wed, 7 Mar 2001 21:05:48 -0500
From: "robert garrison" <rgarrison@nc.rr.com>
To: <Tom.Fransen@ncmail.net>

On the matter of the proposed interbasin water transfer, I want my comments to be part of the record of the public hearing held 3/6/01 in Fayetteville.

DO NOT PERMIT ANY ADDITIONAL TRANSFER OF WATER FROM JORDAN LAKE TO CARY, APEX AND RALEIGH UNLESS THEY WILL RETURN THAT WATER TO THE CAPE FEAR RIVER BASIN. DO NOT GRANT ANY ADDITIONAL WATER TO THEM FROM JORDAN LAKE UNTIL THEY ARE PREPARED TO DO THAT.

Sincerely,
Barbara J Garrison
2919 Merlin Ct
Fayetteville NC 28306

Subject: Interbasin water transfer
Date: Wed, 7 Mar 2001 20:48:55 -0500
From: "robert garrison" <rgarrison@nc.rr.com>
To: <Tom.Fransen@ncmail.net>

On the matter of the proposed interbasin water transfer, I want my comments to be part of the record of the public hearing held 3/6/01 in Fayetteville.

DO NOT PERMIT ANY ADDITIONAL TRANSFER OF WATER FROM JORDAN LAKE TO CARY, APEX AND RALEIGH UNLESS THEY WILL RETURN THAT WATER TO THE CAPE FEAR RIVER BASIN. DO NOT GRANT ANY ADDITIONAL WATER TO THEM FROM JORDAN LAKE UNTIL THEY ARE PREPARED TO DO THAT.

Sincerely,
Robert D Garrison
2919 Merlin Ct
Fayetteville NC 28306

Subject: Fayetteville and Our Need for Water
Date: Thu, 8 Mar 2001 13:32:13 EST
From: WMGrannis@aol.com
To: Tom.Fransen@ncmail.net

Dear Mr. Fransen,

My name is Winnie Grannis, and I am a native of Fayetteville and still live here with my husband. My husband and I have two boys who are students at Wake Forest University but who plan to return to Fayetteville once they are finished with their education. As you can see, I have a great love for our community and also a great hope for the future of our community because of the prospect of our "communities native sons" returning to make a life here. Fayetteville is a wonderful place to live and raise a family.

I was unable to attend the meeting earlier this week concerning the water problem with the Cape Fear River, but I wanted to email you my concerns.

I am greatly concerned about the prospect of a water shortage here one day. Our community needs cleaner water flowing our way. I believe it is only fair that those communities up stream who take water from the Cape Fear River should be required to treat and return the water to the Cape Fear River. This needs to be required now and not later.

I hope that you will be fair to those of us who live in Fayetteville and those who will be moving here in the future. We need to maintain the level of water in the Cape Fear River and it needs to be clean as possible.

Thank you for your time and consideration.

Winifred McBryde Grannis

Subject: (no subject)
Date: Wed, 07 Mar 2001 10:50:40 -0500
From: Lenox Harrelson <ldharrelson@bladen.k12.nc.us>
To: "Tom.Fransen" <Tom.Fransen@ncmail.net>

Dear Mr. Fransen:

I have lived, worked, hunted, and fished in the lower Cape Fear River valley all of my 53 years. The Cape Fear has its problems but we have always been able to eat the fish from it, unlike the Neuse.

The taking of any water from our basin should be outlawed. If any agency is allowed to use water from any river or lake it should be put back with no exceptions.

I have seen many figures on the average monthly flow of the Cape Fear. These numbers must be the ones used for the estimates of how much water the Cape Fear can stand to lose. However, these figures do not take into consideration the fact that the river bearly flows for four months a year. If you visit the three Lock and Dams in Bladen County during the driest time of the year from July thru October, you will see only a trickle of water coming over the dams. During these months, the river becomes three shallow lakes with little or no flow.

Therefore, we cannot afford to lose the water being taken from the river now much less any more. All the water must be returned at the earliest time and the flow from Jordan Lake increased during the dry time of the year in order to keep the Cape Fear River healthy.

Signed: Lenox D. Harrelson, East Arcadia School, Bladen County

P.O. Box 3729
Sanford, NC 27331-3729

City of Sanford

DIVISION OF
WATER RESOURCES

(919) 775-8202
FAX: (919) 775-8207

Leonard O. Barefoot
City Manager

RECEIVED
MAR 9 2001

March 7, 2001

NC Environmental Management Commission

Re: Jordan Lake Water Supply Storage Allocations - Round 2
and
Proposed Increase in Interbasin Transfer
Towns of Cary, Apex, Morrisville, and Wake County (for RTP South)

Dear Commission Members:

Members of the Sanford City Council wish to express our concerns regarding the Jordan Lake water supply storage allocation requests and the proposed interbasin transfer issue. We recognize that the Triangle Area communities are experiencing explosive growth and are earnest in their need to secure an alternative water supply; however, we have serious concerns about their apparent lack of interest in returning the water they withdraw to the source basin. We are willing to share the water in our basin so long as they are willing to return it. We feel this is a very reasonable request.

Areas downstream from the Triangle are also experiencing growth. It is our belief that the availability of a safe water supply will be a major issue in the near future. There will be a point in time when the Cape Fear River will no longer be able to meet the water supply needs of this region, and that time will be upon us more quickly than we might think. It is, therefore, imperative that we protect this water supply. We believe that a requirement to return all withdrawn water to the source basin will extend the time that the Cape Fear River will be able to meet the demands of the citizens residing within the basin.

We feel that the maximum interbasin transfer should not be increased above its present level of 16 mgd. However, a "temporary" increase in interbasin transfer could be allowed to accommodate the existing emergency situation. The Triangle Area communities must be required to build wastewater facilities to ensure that the interbasin transfer will be maintained at a level no greater than the current 16 mgd maximum. Any temporary increase in the existing interbasin transfer should only be allowed until the year 2010, or before, if the wastewater

treatment plant construction is completed earlier than 2010. It should then be reduced to 16 mgd.

It is also our position that a study needs to be conducted to determine future water demand created by urban growth, agricultural need, and flows necessary to maintain the health of the river environment. The study should address both water needs and water availability in the basin, including the water storage in Jordan Lake.

We would like to thank the Commission for the opportunity to present our concerns. We feel this position is a reasonable compromise that will best address all the needs of the communities in the basin. We urge your diligent consideration of our request as you make your decision.

Respectfully submitted,
On behalf of the Sanford City Council

Winston C. Hester

Winston C. Hester
Mayor

WCH:bw

Subject: Jordan Lake allocation and interbasin transfer issue
Date: Fri, 9 Mar 2001 12:58:26 -0500
From: "Lee County Economic Development" <info@lcedc.com>
To: <Tom.Fransen@ncmail.net>
CC: <sanpworks@wave-net.net>

Tom Fransen:

Attached is a letter for the Environmental Management Commission regarding the Jordan Lake allocation and interbasin transfer issue.

Thank you for hearing our concerns.

Bob Heuts
Director

Lee County EDC
130 Wicker Street, Sanford
919/774-8439 fax: 775-5410
info@lcedc.com
www.lcedc.com

May 4, 2001

NC Environmental Management Commission

Re: Comments from the Lee County Economic Development Corporation concerning Round 2 Jordan Lake water supply storage allocations and proposed increase in interbasin transfer by the towns of Cary, Apex, Morrisville, and Wake County (for RTP South)

Dear Commission Members:

The Lee County Economic Development Corporation supports the City of Sanford's position on the Jordan Lake water supply storage allocations and the proposed interbasin transfer issue. An adequate supply of quality water is essential for our organization to be able to continue to recruit industry to this area and accomplish our purpose in Lee County.

It is our position that the following items should be addressed concerning the request for interbasin transfer:

1. A study analyzing the entire basin should be conducted to determine future water demand from urban growth, agricultural need, and the flow necessary to maintain a healthy river environment. This study should address all water needs and all water available in the basin, including the water storage in Jordan Lake.

2. The maximum interbasin transfer should not be increased above its present level of 16 mgd. A "temporary" interbasin transfer could be allowed if Cary and Apex are required to build a wastewater treatment plant that discharges back to the Jordan Lake watershed. The plant should be built and online by the year 2010, and the interbasin transfer should be reduced to the original 16 mgd.

We would like to thank the Commission for the opportunity to present our concerns. We feel this position is a reasonable compromise that will address all the needs of the communities in the area.
Sincerely,

Bob Heuts

Robert P. Heuts
Director

Subject: Proposed Interbasin Transfer
Date: Fri, 9 Mar 2001 13:55:27 -0500
From: Arjay_Hinek@markivauto.com
To: Tom.Fransen@ncmail.net

Mr. Fransen,

Please find attached my essay concerning the proposed Cape Fear River/Neuse River Interbasin Transfer. I would like it forwarded to and put on record With the North Carolina Environmental Management Commission.

(See attached file: What Model Should We Use.doc)

Please let me know if you have any questions by contacting me at (910) 223-7874 or by return email.

Thank You,

Arjay Hinek

What Model Should We Use?
By Arjay Hinek

I grew up in a state that put its residents on water restrictions on a regular basis. "Drought" and "water conservation" were as much a part of my elementary school vocabulary as "dodge ball" and "cooties." But even in my young mind, I sensed that there was something missing from the argument. We, in the central and southern regions of California, were living in an area that should have been arid and uninhabitable. We were, in essence, where we should not have been. On the other hand, Northern California, in the watersheds of Mount Shasta and Mount Lassen, was rich with clean, cold water and was relatively sparsely populated. Simply put, the poorer, less influential Northern California had plenty of water. So we stole it. Even to a fourth grader it seemed pretty obvious. It always surprised me that the Northern Californians didn't seem to mind. Little did I know that I was living on a model of hydrological engineering built on arrogance, ignorance, and economic shortsightedness. Later, my family moved to the north part of the state, and it was then that I realized the extent of the hatred northernershad for the rest of the state's "water robbers" and "river rapers." Words can't convey it. The hatred runs deeper than any of the rivers flowed—deeper than the rivers even before they were channeled to the southern part of the state. Why? Because money and power had destroyed the landscape and its sustainable resources while sharply dividing its population.

It is a battle that rages even today. Many feel that it is at the core of California's financial instability and even its energy crisis. California is a model of the arrogant wealthy and influential running roughshod over responsible environmental resource conservation.

So what does this have to do with North Carolina's Cape Fear/Neuse River Interbasin transfer? Everything. It is a living reenactment of the ecological tragedy that struck California so many years ago. The North Carolina model differs only in that the gluttons are upstream. Like southern California did in the 1920's, Cary, Apex and the Research Triangle Park continue growing where their resources indicate they should not. They are demanding water with the same hubris of manifest destiny that was so destructive to the West. And like the power centers of Los Angles, the Bay Area, and Silicon Valley, Cary managers are arrogantly reasoning that their economic windfalls will justify any environmental pitfalls. This same optimism has been foisted upon representatives of the Division of Water Resources, blinding them to the broader issue of intelligent, sustainable resource management.

Downstream, residents, business people, and farmers have all kept a weary eye on the Cape Fear River. It is already a stressed watershed, and we have been making strides towards repairing the damage done in years past. Cary managers, it seems, have reasoned that because downstream residents do not actively exploit the river with newstreamside construction or high profile recreation areas, we do not value the river. Nothing could be further from the truth. The Cape Fear River is widely viewed as the main artery of at least a third of the state of North Carolina. And we plan to keep it that way. Reducing the blood flow in the main artery is hardly a step in the right direction. Those who believe in stewardship of the river do not see the removal of 11 million gallons per day affecting only the river channel. The transfer will affect multiple systems and the living organisms within those systems. These negative effects will exponentially increase with each growing season. All of these will in turn impact the quality of life within the Cape Fear River Basin—humans included. And the transfer will alienate a third of the state's population.

There is more to a river than its channel, and that is a hard idea to get across to many policy makers, and managers. The watershed ecosystem consists of many different structures including the side creeks and channels, the riparian buffer zones along these riverine systems' banks, the agricultural, municipal, and wild lands flowing towards the center of the basin, and even the animal life within the watershed area—again, including humans. We are all part of the same system, and though that may be a bit too "touchy feely" for many, keeping the entire ecosystem in mind is the only way policy makers can make sound decisions towards proper sustainable resource management.

Draining 11 million gallons per day from the aquatic/riverine channel of the Cape Fear and transferring it to a different river basin does not take the watershed ecosystem into account. It is merely looking at the river channel as a water conveyance structure with a certain economic value. I once read that "economists can tell you the price ofeverything but know the value of nothing." Cary management knows the price of the water from the Cape Fear but doesn't understand the value of the river itself. And how can we debate that? A river's value is intangible. Cary residents make more money than residents downstream and are part of the intellectual and cultural center of the state. They need more water to loosen restrictions on washing their cars and watering their lawns. The town has to grow, and this growth will benefit the rest of the state's residents. All of these have a price tag, and they have perceived value to the town of Cary as well. But is their value higher than that of the health of a river basin? I wonder what would happen if Cary residents were asked to restrict their breathing by 10 %. I imagine the value of air would somehow become more tangible. It is no different with river water, but it is easier to take water from the river than to ask the residents to modify their behavior. The river does not have a voice. The residents do. To exacerbate the situation, Cary

managers have gone so far as to authorize a $64 million expansion of their water treatment facility to accommodate the transfer, even before public hearings have been held. How can we argue with what's being crammed down our throats? We can't. All we can do is try to hang on and protect what we can and be the river's voice.

Cary managers have promised that they are committed to building a water treatment facility so that they will be at least returning the water they use—but not until 2010. If city managers upstream are serious about their concern for the Cape Fear River and its basin's health, they will build the treatment facility on the Cape Fear side before they take a gallon over the 16 million they are already transferring. It should have been their first priority. What about the $64 million already spent? Cary residents need to take a close look at their city manager's arrogance. He and his colleagues made a financial blunder, hoping that no one would notice. If it wasn't arrogance, it was criminal, backdoor politics between the Division of Water Resources and City management. Strong words, I know, but it wouldn't be the first time that a State government and city government colluded in an effort to steal water. Take a close look at California history. I grew up out there, and moved to North Carolina to get away from what I thought was a particular case of environmental mismanagement and water rights theft. What happened in California was a tragedy that had been initiated decades before I was born, and I witnessed its aftermath as I grew up. The rivers of Northern California are wondrous threads across the landscape, but as they wind towards the south, they are cut off at the knees. They become concrete channels flowing straight through the sand and brush, evaporating into the thin, dry air. They are monuments to engineering, and colossi of environmental stupidity. Is this what is being proposed by Cary? No, not yet anyway. These channels of California, however, were not part of the original plan either.

The State's Division of Water Resources has recommended the approval of the Cape Fear River to Neuse River transfer based on hydrological models and environmental studies, applying statistics and figures to prove a point about abstract ideas such as sustainability, and sound river stewardship. California policy makers also used models and studies to prove that there would be no damage. Their model was wrong. Specifically, their model was too narrow-minded and grounded in economics. The three tenets of sustainability are efficiency, equity and ecological integrity. The Interbasin transfer proposed here in North Carolina is not equitable; it benefits only the Towns of Cary, Apex and the Research Triangle Park. Its studies were far too narrow to look at ecological integrity, and the models most certainly did not take into account the political alienation that might result. How could it? No environmental model takes political opinion into account. It most certainly did not in California. The Interbasin Transfer is efficient, however--devastatingly efficient. The wealthy and the powerful have exactly what they want and when they want it. How? By taking it from those with less power and influence.

My father once told me something about statisticians who used allegedly objective models to support a decision they had already made: "Figures don't lie, but liars figure." It would seem that this is what we are dealing with here. Further, objective research must be done. Influence and power are playing too much a role in this issue. It is not too late to reverse the decision to allow the transfer of 11 million gallons of water from the Cape Fear Basin into the Neuse River Basin. Please view the Cape Fear River basin as a watershed ecosystem. Do not fall victim to the same shortsightedness as California planners did. Please consider the bigger model.

Arjay Hinek
207 Highland Ave.
Fayetteville, NC 28305
(910) 223-7874

MEMORANDUM

TO: DENR Division Directors

FROM: Bill Holman

RE: Smart Growth/Cumulative and Secondary Impacts

DATE: January 5, 2001

Increasingly, DENR staff must consider the secondary and cumulative effects of proposed projects in issuing permits and in reviewing environmental documents under the North Carolina Environmental Policy Act and the National Environmental Policy Act (NEPA). Some of the statutes governing our permitting programs, such as the Coastal Area Management Act, direct the Department to consider those indirect impacts in making a permit decision. Many secondary and cumulative effects have to do with increased growth and development that may result from the project under review – whether it is a proposed wastewater treatment plant, a highway or a major industrial facility. As DENR programs have been directed to address cumulative and secondary impacts in decision-making, the State has also begun to focus more attention generally on smart growth and sustainability. Protecting, maintaining, and restoring North Carolina's high quality of life is essential to both North Carolina's environmental and economic health.

To assist both DENR staff and project planners, DENR has summarized in this document some of the goals of the Department with respect to use of open space, regionalization and other planning tools. These principles also reflect the mitigation measures most often recommended by our natural resource agencies as necessary to protect fish and wildlife habitat and rare, threatened and endangered species. Many of these recommendations are consistent with the draft recommendations of the Legislative Commission To Address Smart Growth, Growth Management And Development Issues. To the extent allowed under existing statutes and rules, I encourage DENR staff to consider these guiding principles and resource conservation recommendations when reviewing and commenting on environmental documents. Following these principles is a resource list identifying other materials that provide useful guidelines for planning.

DENR WORKING PRINCIPLES TO ENCOURAGE SMART GROWTH, TO AVOID, MINIMIZE AND MITIGATE DIRECT, SECONDARY AND CUMULATIVE IMPACTS, AND TO PROTECT AIR, WATER AND NATURAL RESOURCES

Open Space

- DENR supports the statutory goal of preserving one million acres of open space over the next ten years as provided in GS 113A-240.
- DENR supports expanding and connecting the system of state parks, state forests, state gamelands, state trails, state natural areas, local parks, local trails, local greenways, national parks, national seashores, national forests, and national wildlife refuges.
- DENR encourages local governments and project planners to maintain connected wildlife corridors linking existing parks, refuges and buffers and make protection of rare, threatened and endangered species a consideration in acquisition of open space.
- DENR supports private stewardship and conservation of farmland and forestland.
- DENR encourages the maintenance of at least 20% of the land in new residential and commercial developments as open space consistent with the Division of Community Assistance guidelines for redevelopment of areas affected by Hurricane Floyd. (Under Resources, see Subdivision Design Standards for State Crisis Housing Infrastructure Funds.)
- DENR supports local acquisition of conservation easements for greenways in conjunction with acquisition of easements for sewer lines along streams.

Brownfields

- DENR supports remediation and redevelopment of previously contaminated sites (or "brownfields") in urban areas to encourage compact development in cities and towns and to discourage sprawl.

Floodplains, buffers and wetlands

- DENR supports state and local policies to discourage inappropriate industrial, commercial, and residential development in 100-year floodplains. Facilities that use or store hazardous materials and wastes should not be located in the 100-year floodplain. See the Flood Hazard Prevention Act of 2000, GS 143-215.51.
- Filling in floodplains should be mitigated to prevent increased risk of flooding.
- DENR supports protection and restoration of forested riparian buffers on all intermittent and perennial streams. DENR recommends the 50-foot buffer rules adopted by the Environmental Management Commission in the Neuse and Tar-Pamlico River Basins as a model for buffers designed to protect and restore water quality. Destruction of riparian buffers should be mitigated.
- DENR supports conservation and restoration of wetlands in order to protect and restore water quality, to provide wildlife habitat, and to store flood waters. Destruction of wetlands should be mitigated.

Water Supply Infrastructure

- DENR supports local, regional and state policies to prevent and reduce contamination of surface and underground drinking water supplies.
- DENR discourages inappropriate industrial, commercial, and residential development in water supply watersheds and in wellhead protection areas.
- DENR encourages the incorporation of water reuse (or industrial and other non-drinking water purposes) into the development of new water supply infrastructure projects.

Regionalism

- DENR supports consolidation and regionalization of public services such as drinking water treatment, distribution, and conservation; wastewater collection, treatment and reuse; stormwater collection and treatment; and reduction, reuse, recycling and disposal of solid waste.
- DENR supports integration of transportation, air quality, and land use planning at the regional level.
- DENR supports local and regional open space planning; the Yadkin/Peedee Lake plan is an example of that kind of regional planning for open space and recreational use.
- DENR supports giving priority for funding to planning and infrastructure projects designed to address regional needs.

Public Access

- DENR supports public access to public beaches, waters, parks, forests, gamelands, and trails.

Transportation

- DENR supports transportation projects and plans that reduce air pollution and vehicle miles traveled. Planning for public transit and the incorporation of sidewalks and bicycle lanes into street and highway projects offer other ways to reduce pollution and make our transportation system more efficient. DENR also supports incorporation of access controls into the planning of new highway projects as another approach that is consistent with smart growth principles.
- DENR encourages subdivision design that limits use of cul de sacs and encourages use of connector streets. DENR supports the Department of Transportation's Traditional Neighborhood Development Guidelines adopted in August, 2000.
- DENR encourages mixed use development to decrease vehicle miles traveled.

Land Use Planning

- DENR encourages the use of local land use plans and watershed plans to guide development away from important natural resources, critical habitat, and hazard areas.

- DENR recommends development of local land use plans that are consistent with the Environmental Management Commission's river basin plans.
- DENR supports in-fill development to make the best use of existing infrastructure.
- DENR supports clustering of new development to avoid unnecessary fragmentation of open space and wildlife habitat.
- DENR supports a dedicated source of funding for wastewater, drinking water, stormwater and other infrastructure projects. DENR also supports linking the state funding of infrastructure projects to development of and compliance with local land use plans.

Smart Growth Resources

Land Use Planning

Subdivision Design Standards for State Crisis Housing Infrastructure Funds
(from: http://www.nccommerce.com/recovery/programs/sub.asp)
City Subdivisions:

Minimum:

Subdivisions must be located in or near an existing community, and must be served by public water and sewer. Streets must provide interconnections within the subdivision, connect to a public street and meet NCDOT or municipal standards. Cul de sacs serve fewer than 16 lots. Subdivisions must provide open space which protects sensitive portions of the site and provides areas for common use or natural features. The open space may be deeded to the public if feasible, owned and managed by a home owners' association or preserved by perpetual easement. Clustering of lots is encouraged to provide open space. Undisturbed buffers of 30 feet must be maintained on perennial streams.

Preferred:

Preference shall be given to infrastructure projects that meet the following higher design standards:

subdivisions with greater than 5 acres shall dedicate a minimum of 20% of the gross land area in the subdivision as open space;
undisturbed buffers of 50 feet are maintained on perennial and intermittent streams except as required by the construction of utilities and roads;
water and waste water lines extend less than 2500 feet from existing lines;
subdivision provides an interconnecting pattern of streets with constructed connection to adjoining properties;

cul de sacs serve fewer than 8 lots;
sidewalks four feet wide are provided on one side of all streets except for cul de sacs.

Rural Subdivisions:

For subdivisions located in areas which are designated to remain rural and are not located in municipal planning jurisdictions, planned sewer service areas and municipal growth boundaries, the following rural subdivision criteria shall apply. Streets shall be public and constructed to NCDOT standards, provide interconnectivity and connection to developable adjoining properties. Cul de sacs shall serve fewer than 16 lots. Public water shall serve all lots. Fifty foot undisturbed buffers shall be maintained along perennial streams except as required by the construction of utilities and roads.

Open Space and Public Access

- Draft recommendations of the Farmland and Open Space Work Group of the Legislative Commission To Address Smart Growth, Growth Management And Development Issues.

Brownfields

- Draft recommendations of the Community and Downtown Vitality Work Group of the Legislative Commission To Address Smart Growth, Growth Management And Development Issues.

Transportation

- Draft recommendations of the Transportation Work Group of the Legislative Commission To Address Smart Growth, Growth Management And Development Issues.
- Department of Transportation Traditional Neighborhood Development Guidelines adopted in August, 2000. Guidelines can be accessed at: http://www.doh.dot.state.nc.us/operations/tnd.pdf .

March 7, 2001

Attention Tom Fransen
Division of Water Resources

RECEIVED
MAR 9 2001
DIVISION OF
WATER RESOURCES

Subject: Transfer of Water from Cape Fear River to the Neuse River to Serve Cary!

No! Reference attached Newspaper article — The Triangle area Must find another means to Solve a problem they have Created without using their political clout and Wealth of their Communities to Steal Water from Towns, Cities, and Communities "down stream"! This is Outrageous! The future of these areas will definitely be effected! Please reconsider a decision to take this action!

A Concerned resident of Harnett County (Bunnlevel)
Mrs Floy Holt
910-897-6685

what many people said throughout the evening: "The Cape Fear River is the heart blood of Cumberland County ... All we ask is that you do the reasonable thing and have the water put back in the Cape Fear River."

Cary and Apex, two communities that have grown rapidly in recent years, want the state to let them draw 11 million additional gallons a day from Jordan Lake.

Jordan Lake feeds the Cape Fear River.

The towns, which also supply water to Morrisville and a portion of Research Triangle Park, transfer 16 million gallons a day now from the lake. That water is discharged into the Neuse basin. This is referred to as an interbasin transfer.

The state's Division of Water Resources has recommended that the commission approve the transfer request. Representatives of the division told the crowd that environmental studies and models have shown there will be no negative effects downstream if the additional water is withdrawn.

Dave Moreau, a member of the commission from Chapel Hill, said the full 17-member commission will likely decide the issue as early as next month. Any decisions may be challenged.

Mick Noland, the chief operating officer of the water resources division of Fayetteville's Public Works Commission, said it is up to the commission to make an objective decision.

He said people in the Cape Fear region are skeptical that this decision will be an objective one. Many said the decision has already been "fixed."

Cary began a $64 million expansion of its treatment facility in 1999 to handle the extra water, Noland said. The state's Division of Environmental Health had approved plans and specifications for the project even earlier.

All of that "doesn't pass the smell test," said Bladen County Commissioner Greg Taylor.

Several speakers said the political clout and the wealth of the communities that are asking for the transfer will play into the commission's decision.

"We have always been somewhat suspicious about our more wealthy brethren upriver," said state Sen. Tony Rand of Fayetteville.

The commission members will consider the comments in deciding whether to approve the request, deny the request or approve it with conditions.

Many of the speakers said they would agree to the request if a water treatment plant were built that would discharge the water back into the Cape Fear basin. Bill Coleman, Cary's manager, has said that would cost between $53 million and $90 million. He said Tuesday that his town is committed to building the treatment plant by 2010.

Linda Lee Allan, chairwoman of the Fayetteville Area Economic Development Corp., said a decrease in the amount of water flowing in the Cape Fear River would seriously affect this area's efforts to bring industry here.

"The Triangle area has the means to solve this problem themselves," Allan told the commission members. After years of reaping the rewards of growth, "it is time they spend a little money to solve their own problems, and not look to this poorer community downstream to find relief. ... You are holding the future of Fayetteville and Cumberland County in your hands."

Written comments on the interbasin transfer will be accepted by the state's Environmental Management Commission through 5 p.m. on Friday.

Send comments to Tom Fransen, Division of Water Resources, DENR, 1611 Mail Service Center, Raleigh, NC 27699-1611. Comments may also be sent via e-mail to Tom.Fransen@ncmail.net.

Staff writer Nomee Landis can be reached at 486-3595 or at landisn@fayettevillenc.com

Cape Fear residents don't mind sharing the water, but they want it returned.

By Nomee Landis
Staff writer

Residents and leaders of the Cape Fear region told members of the state's Environmental Management Commission on Tuesday night they are happy to share their water with upstream neighbors — as long as those neighbors put the water back into the Cape Fear River basin.

About 300 people crowded Shaw Auditorium at Fayetteville State University for the second of two public hearings on whether several Wake County communities should be allowed to use additional water from the Cape Fear River basin and dump it in the Neuse River basin.

No, they should not, said Cumberland County Commissioner Tal Baggett.

"I simply ask you, which is more important, a green lawn in Cary or a thirsty child in Cumberland County?" Baggett told the three commission members at the hearing.

About 60 people signed up to speak. The meeting, which was to have lasted from 5 to 7 p.m., stretched on until 8:10 p.m. At least 40 people spoke. Speakers were limited to three minutes each.

Speaking against the transfer were mayors, state legislators, county commissioners from Cumberland and Bladen counties, Fayetteville City Council members, area business owners and business leaders, environmentalists and "simple citizens."

Cumberland County Commissioner Lee Warren summed up

See River, Page 4A

Town of Stedman

March 6, 2001

Mr. Tom Fransen
Division of Water Resources, DENR
1611 Mail Service Center
Raleigh, North Carolina 27699-1611

RE: Proposed Increase in Interbasin Transfer

Dear Mr. Fransen:

The Town of Stedman will soon be receiving water from the Cape Fear River furnished by Public Works Commission. We oppose the interbasin transfer of 11 million gallons of water by Cary, Apex, Morrisville, and Wake County without a plan to return it to the Cape Fear River Basin.

We believe that this type of interbasin transfer would eventually reduce drinking-water supplies, hurt our farmers and hinder economic development for our towns and counties that depend on the Cape Fear River.

It is my understanding that water system improvements for the permit applicant have already been approved to accommodate the additional transfer. Although this has already been done, it is crucial that at a minimum, certain conditions be imposed regarding the requested increase. Please take action to guarantee that this additional interbasin transfer, if approved, does not occur for any longer than necessary. Also, we ask that you require construction of a new operational wastewater treatment plant located within the Cape Fear River basin for total return of this increase in transfer precede any future allocations of water to the applicants.

Before you make a final decision, I ask that the Environmental Management Commission consider the following:

1. **Jordan water quality pool depletion means that downstream users are already facing critical water supply uncertainties.**
2. **Accurate historical low flow impact assessment missing.**
3. **Water supply available to downstream communities is rapidly dwindling.**

PO Box 220 ❖ Stedman, NC 28391 ❖ Phone (910) 323-1892 ❖ Fax (910) 323-4255

4. **Irrigation withdrawals have not been objectively evaluated.**
5. **Jordan Lake safe yield not confirmed.**

I am certain that the Commission will make every effort to achieve fairness for all in your final decision.

Sincerely,

Billy D. Horne

Billy D. Horne
Mayor

BDH:cs

Subject: Ron Singleton Comments at recent IBT Public Hearing
Date: Thu, 15 Mar 2001 09:20:57 -0500
From: "Charlie Horne" <chatmgr@emji.net>
To: "Tom Fransen" <Tom.Fransen@ncmail.net>
CC: "'Bill Coleman'" <bcoleman@ci.cary.nc.us>

Tom,

I've tried to call a couple of times without successful conclusion. I write this to make sure DWR understands Chatham's position regarding Cary's IBT request. I believe you already have a letter from our Board noting that it has no objections to the IBT and that continues to be the Board's position. Ron maked comments at the PH that may be construed as a *Quid pro Quo regarding Chatham water agreement with Cary*. The comments were intended to bring to focus the collaboration we've had (Cary and Chatham) toward Chatham gaining access to its allocation at the Cary/Apex facility. We are pleased that we're working together and we are very hopeful that the agreement will be signed in the next few weeks.

If there is a quid pro quo perception within DWR please make note my comments.

If you have questions please do call.

thanks,

crh

March 7, 2001

MAR 12 2001

DIVISION OF WATER RESOURCES

N.C. Division of Water Resources
Water Allocation Section
512 North Salisbury Street
Raleigh, NC 27604
Attn: Tom Fransen

Re: Cary/Apex/Morrisville/Wake Interbasin Transfer Request

Dear Sir:

The City of Wilmington appreciates the opportunity to comment on the Cary/Apex/Morrisville/Wake County interbasin transfer (IBT) request from Jordan Lake. Although the City of Wilmington is located well downstream from Jordan Lake, we do have some concerns regarding potential impacts to the water quality pool at Jordan Lake, low flow augmentation from Jordan Lake and impacts on the assimilative capacity of the Lower Cape Fear Basin. We are also concerned about beginning a trend of negative IBT's in the Cape Fear Basin.

Jordan Lake was designed to provide flow augmentation to maintain downstream Cape Fear River water quality during natural low flow periods. Even with the designated augmentation pool, there have been incidents when the target flow at Lillington has not been met, potentially impacting downstream water quality and assimilative capacity. The Draft EIS prepared by the applicants did not address the water quality impacts of the IBT on the Lower Cape Fear Basin where some stream segments have been placed on the 303d list due to low dissolved oxygen quantities. The conclusions in the EIS assume the construction of a future water reclamation facility discharging to the Cape Fear Basin but there are no specific plans for the facility.

Durham has also applied for an allocation from Jordan Lake, which will not result in an IBT, but will result in a net loss to the Cape Fear Basin by correcting an existing IBT from the Neuse to the Cape Fear basin. The Draft EIS did not consider the effects of this loss to the Cape Fear Basin.

We urge the Division of Water Resources and the Environmental Management Commission to fully consider the needs of the downstream stakeholders when reviewing allocation and IBT requests. Water supply, assimilative capacity and water quality for downstream stakeholders should be protected.

Respectfully,

David L. Jones
Mayor

cc: Mary M. Gornto, City Manager
Hugh T. Caldwell, P.E., Director of Public Utilities
Kenneth L. Vogt, Superintendent of Wastewater Treatment

City of Wilmington
City Hall
Post Office Box 1810
Wilmington, North Carolina
28402
910 341-7815

WELDON H. JORDAN, M. D.
~~114 BROADFOOT AVENUE~~ / Lilly Dr.
FAYETTEVILLE, NORTH CAROLINA 28305
TELEPHONE ~~484-3261~~ 910 - 484 8313

3/8/2001

Mr. Tom Fransen
Division of Water Resources DENR
Raleigh, N.C.

Dear Mr. Fransen:

My wife and I attended the public hearing held here Tuesday P.M.

We want you to know that we are strongly opposed to any interbasin transfer of water from the Cape Fear River. As most seemed to feel, we are willing to share, but the water absolutely must be returned to the Cape Fear River basin. Now! No some vague time in the future.

Thank you for listening.

Sincerely,
Weldon H. Jordan and
Mary Lynn H. Jordan

Subject: Interbasin Transfer
Date: Wed, 7 Mar 2001 19:54:47 -0500
From: "Kassel" <anton_2@email.msn.com>
Organization: Microsoft Corporation
To: <Tom.Fransen@ncmail.net>

On the matter of the proposed inter basin transfer, I want my comments to be part of the record of the public hearing held 3/6/01 in Fayetteville. Do not permit any additional transfer of water from Jordan Lake to Cary, Apex and Raleigh unless they will return that water to the Cape Fear River Basin. Do not grant any additional water to them from Jordan Lake until they Have the treatment plant on line do that.

Burton A. Kassel
Democrat Fayetteville

3/7/01

Tom Fransen
Div. of Water Resources
DENR 1611 Mail Serv. Center
Raleigh, N.C. 27699-1611

Sir.

I attended the meeting here last night + would like to officially add my two cents to what was said over + over and make sense to everyone. I do not understand all the graphs etc that you presented But I do understand that + we ALL need sufficient water to live + grow - Please deny the petition unless they return the water to the C.F.R. basin

Betty Kelly
Citizen, Business owner, Taxpayer + Sr. Citizen

Betty H. Kelly
110 Ellington St
Fayetteville, N.C. 28301

Tom Fransen
Div. of Water Resources
DENR 1611 Mail Ser. Center
Raleigh, N.C. 27699

7600/9993

Subject: Jordan Lake Water Supply Public Meeting
Date: Tue, 30 Jan 2001 16:56:05 -0500
From: "Joan Landry" <jlandry@nc.rr.com>
To: "John Hartsell" <j4mzh0@hotmail>,
"Tom fransen" <tom.fransen@ncmail.net>,
<mark.broadwell@ncmail.net>,
<ncwf_lisaw@mindspring.com>

I will not be able to attend the public hearing on the Jordan Lake Water Supply Storage Allocation. I have the following concern:

The Town of Cary adopted a new buffer ordinance to ensure that the water Supply is protected. The ordinance mandates 100 foot buffer zones around perennial streams. However, The Town of Cary exempted itself from this requirement and is in the process of planning 10 foot paved greenway paths along perennial streams. Specifically they are planning a 10 foot paved roadway within 20 feet of the Batchelor Branch stream. Culverts will be required which will dump storm water run-off directly into the stream. Batchelor Branch is a water supply source for Jordan Lake.

I am concerned that allowing paved paths along perennial streams will have a negative impact on Jordan Lake's water quality. I urge the The North Carolina Environmental Management Commission to ensure that this vital resource is protected.

Thank you,

Joan Landry
919-319-3162

Subject: Jordan Lake
Date: Thu, 15 Mar 2001 17:02:41 -0500
From: Bobby Long <BobbyL@ultimate-products.com>
To: "'Tom.Fransen@ncmail.net'" <Tom.Fransen@ncmail.net>

Mr. Fransen,

I am writing concerning the article in the N&O dated March 6, 2001. I am speaking as a resident of Apex and an avid fisherman. This article concerns me very much. First this article sets up a conflict between the company Cisco (or any other company for that matter)and concerns of a lot of residents who enjoy the North Carolina experience. Many of us enjoy the small town hospitality and the countryside, which is fast dwindling away. To put it in economic terms, which is more important to North Carolina, the money that RTP can bring to the area with 9,000 new jobs or the money a lot of us spend on fishing, camping, hunting and other natural endeavors?(Note: Nationally we spend 213 Billion dollars annually on the sport of fishing) I bet you we spend more on these recreations. If they pull Jordan and Falls down to levels that deteriorate fishing and recreation for "development and progress", what will be left? And after all the allure of this area (hospitality, countryside, outdoorsmanship) has been eliminated, do you think this will be such a popular place to live. I assure you not! Then the State and area we truly love will be nothing but an extension of the meglamania that is urbanizing all of the eastern seaboard. I pulled a long stay in Northern Virginia for family reasons. I ran from that place because of the attitude, lack of trees or space, and unbridled chaos. I came back to the Raleigh area and have watched it boom into what I am afraid will be a little NV. I do not want to see that happen. Please consider carefully with North Carolina (not the greed of money or "progress") in mind this plan to pull 9MGD out of the Cape Fear and Neuse River basins.

One bright spot to this article is the consideration to widen buffers between development and the watersheds. When we go out to hike or fish, the

last thing we want to see is civilization. Please keep these areas as God
left them.

Respectfully,

Bobby Long MCP, MCSE
Systems Engineer
Ultimate Products, Inc.
bobbyl@ultimate-products.com
919 836-1627 ext. 123

APEX CHAMBER OF COMMERCE
COMMENTS FOR PUBLIC HEARING
PROPOSED INCREASE IN INTERBASIN WATER TRANSFER
March 5, 2001

Good afternoon, I am Susan LoPresti, Executive Director of the Apex Chamber of Commerce and I am here representing the membership of the Apex Chamber, many of whom not only own or operate businesses in Apex, but also reside in Apex. As a group of citizens with multiple vested interests in our Town, we strongly support the petition by the Towns of Apex, Cary, and Morrisville and Wake County acting for Research Triangle Park south, to increase their interbasin transfer from the Haw River Basin to the Neuse River Basin by 11 million gallons per day.

The residential population of Apex has dramatically increased in the last 10 years from 4,500 in 1990 to approximately 22,000 in the year 2000. No one predicted this growth. However, Research Triangle Park was developing and providing unique employment opportunities in the rapid growing fields of pharmaceutical research and development, computers, software, Internet access and other areas. Employment opportunities brought the people and the need for housing and services. Apex's growth was not due to extensive promotion of our quality of life or outstanding schools. Apex's proximity to RTP, combined with these attributes, brought development to our Town.

Residential growth brings the inevitable need for services and retail. Apex's business community is just beginning to catch up with this need, but our Board of Commissioners has recognized the additional requirement to protect the wetlands and wildlife in the area during this period of growth. The Board has established buffers and other measures, which protect and preserve the environment. The natural resources of our area, including Jordan Lake, are another reason people have chosen to live in Apex, and no one wants to jeopardize our environment or our sources of water.

The Apex Chamber of Commerce supports the construction of a regional wastewater treatment facility with our neighboring towns and will work with the leadership of the Town of Apex in moving towards this goal. Although Research Triangle Park is not a town in itself, its development has had major impact on surrounding towns, essentially creating a regional area requiring cooperation.

The Apex Chamber of Commerce strongly urges approval of the petition to grant interbasin transfer of 11 million gallons of additional water to the Towns of Apex, Cary, Morrisville and the area of Research Triangle Park south. The Apex Chamber is standing by, ready to join with the chambers of these neighboring towns, to promote regional cooperation and prudent conservation of one of our most valuable resources, water.

Thank You
Susan LoPresti
Executive Director

Subject: Water Basin Diversion- NO
Date: Thu, 8 Mar 2001 12:50:22 -0500
From: "Ranger Dave" <stryder2@earthlink.net>
To: <Tom.Fransen@ncmail.net>

Dear Sir,

A horrible idea with future unkind impacts. The minimal responsible action is to allow use BUT mandate discharge to the same tidal basin.

With our present direction, all to soon, a new local saying will be moonshine is for drinking and water is for FIGHTING!

Hopefully you will exert the leadership to prevent future conflict and curtail the arrogance of local communities who implement programs with the assumption that they can buy decisions from our State officials.

The downstream communities watch, wait, and pray for responsible actions.

Sincerely,

D. MacDonald

Subject: Comment to Env Mgmt Comm re: Cape Fear/Neuse transfer
Date: Sat, 10 Mar 2001 04:32:24 -0500
From: <jesl@carolina.net>
To: "Tom Fransen" Tom.Fransen@ncmail.net

CITIZENS FOR RESPONSIBLE WATER MANAGEMENT
The GreenBelt Committee
2793 Hwy 20 E
910/865-2333
St Pauls NC 28384
jesl@carolina.net

Tom

The following comments are summaries of opinions from a variety of professionals in various disciplines relating to water resources management. I condensed considerably but will expand as you see fit. Please excuse clumsy wording and repetition. Time ran out for including all comments I solicited from experts in the various disciplines involved so I just cobbled them together as you see with details, adequate explanation of premises or sources for information.

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COMMENTS RE DIVERSION OF CAPE FEAR WATERS TO NEUSE BASIN 3/9/01
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1. Proposals to reallocate water resources must be accompanied with a full description of alternatives. NEPA law requires this and it ultimately is the determinant if aggrieved citizens become offended enough to contest this planning for its failure to address reasonable alternatives and to fully inform affected citizens.

2.These alternatives must be identified by impartial experts and presented publicly for open discussion if the expressed will of federal and State legislators is to be complied with. The US Water Resources Council has a clearly defined obligation to ensure that planning takes place within the framework of a Comprehensive Watershed Management Plan. Officials who disregard this obligation fail to observe their oath to put public funds to best use and protect public resources to the best of their ability. (Unless these officials choose to claim diminished ability.)

3. It seems appropriate that the EMC factor in federal responsibility for the pollution of Waters of the US. This plan to increase withdrawals of water involves exporting wastewater that could carry 5,000 to 10,000 tons of minerals and complex chemical compounds into the Neuse River. The USEPA cannot fail to accept responsibility for acting to prevent this if a Less Environmentally Damaging Project Alternative has been defined as contained in these comments.

4. Experience with other projects of the private firm that cooperated in creating hydrologic models for the Cape Fear River leads Professional Engineers of the CRWM to disregard that

effort in its entirety since they have both observed and participated in similar efforts intended to mislead. To the extent that EMC members depended upon these models their judgment is in question.

5. Urban runoff has been identified in the National Water Quality Inventory as a leading source of impairments to public waters. For this reason it is sensible to intercept these flows and guide them through filtering soils, as is standard procedure in the Fresno and Phoenix metropolitan areas and in the entire State of Florida, among others.

With potential for contamination in mind plus the fact that the upper Cape Fear watershed receives about four feet of rain yearly, it is obvious that halting water body pollution by intercepting polluted runoff and guiding it to aquifers would be an appropriate action. If the roughly 90% of rainfall that runs off urban areas is guided to groundwater or surface storage through cleansing soils then the four-foot rainfall of this region will provide more than enough water to meet all water supply needs.

With these considerations in mind it seems appropriate to ask whether State officials have fully assessed this potential for supplying all water needs without withdrawing additional water from the Cape Fear River. It is obvious that by intelligently managing the rainwater falling on as little as one-tenth of their area Cary and Apex planners could provide far more than enough water for all needs with a positive impact on flows to downstream areas. For this reason it would make sense for downstream residents to aid upstream ones in the immediate formulation of a Comprehensive Watershed Management Plan that would maximize retention of rainfallto ensure adequate supplies of pure water for all with minimal contamination of receiving bodies. Continued piecemeal planning will only exacerbate inequitable water management now in progress and planned.

Have EMC members seen illustrations of the onsite retention planning advocated by USDA FS/NRCS and USEPA technicians? Are they aware of the entire range of costs and benefits associated with this planning and design?

6. It appears that State officials have accepted the false assumption that increased urbanization will necessarily force increased transfer of water supplies and will cause greater contamination of public waters. In fact, when new developments apply the simple, site improvement cost-cutting methodologies advocated by federal agencies, new development incrementally increase available water while decreasing pollution. State and local officials who don't recognize this simple truth would do well to revisit the information supplied to them by bureau managers and professional planners/engineers to see whether Detention/Retention/Infiltration (DRI) strategies were pointed out properly.

Professional engineers who have not pointed this out have failed in their duty to fully inform clients of all reasonable planning options. There can be no valid excuse for failure to discuss every aspect of DRI techniques that treat rainwater as a resource rather than as a nuisance and, in so doing, eliminate the damage and hazard of flooding while recharging aquifers so that surface reservoirs stay full year-round and may provide significant amounts of hydropower. Such failure

would indicate either incompetence or excessive self-interest by persons who feared job loss from doing their work properly. (A properly designed and managed watershed needs far less engineering and planning than one where piecemeal planning rules.) An examination of the recommendations of professionals involved in water resources management should be carried out so that those who cannot or will not provide appropriate testimony to public officials, the news media and the public can be weeded out and able persons put in their places. Every public official is obliged to verify information received from staff and hired consultants so none can escape responsibility for not realizing the falsity of conventional wisdoms that tell us growth automatically means degradation of the environment. Degrading effects only occur when unqualified or dishonest professionals are given free rein to manage public resources. Ordinarily competent professionals will give elected officials a choice between levels of improvement resulting from the use of best available technologies, not between the least damaging of these. While the ACOE is required to approve only the least environmentally damaging alternative in granting 404 permits, local and State officials must hew to a higher authority, that of the people they serve directly without federal interference.

Members of the EMC, County Commissioners, City Council members, Soil & Water Conservation District Directors and State agency officials share the responsiblity to using public dollars to best advantage in reversing the negarive impacts of land development. The responsibility dictates finding and understanding every planning alternative so that they may contribute meaningfully to deliberations regarding management of soils, water, air and energy resources.

The many advantages that spring from catching and storing rainwater include generation and storage of electrical power, a major component of a comprehensive watershed management plan. If these officials have not been provided with a model CWM Plan that includes electricity generation and storage along with flood elimination, water supply maximization, pollution control, recreation enhancement and overall economic benefit production then they have not been fully and fairly informed by their staffs and advisors.

7. NC officials have failed to make conveniently available to all residents critical information relating to management of water resources in the Cape Fear Basin and have consistently failed to work with local officials to formulate Comprehensive Plans for the Cape Fear and Neuse basins. In the absence of complete, reliable data in a form readily understood by the general public, the proposed planning is an arbitrary and capricious adjudication of the rights of every resident of this basin to equitable allocation of available water.

No reasonable person evaluating the efforts of State and local officials can come to the conclusion that due diligence was expended in identifying and exploring alternatives to the proposed action. No fair-minded person can accept that it is proper for upstream residents to deprive those downstream of low-flow volume while increasing the concentration of contaminants in these flows, solely because they have failed to put latest and best technologies to use. No ordinarily capable person who reviews the simple, economical, readily implemented technologies advocated by federal agencies to halt flooding and pollution while maximizing water supply availability can deny that this planning could provide enough additional water to mitigate impacts of the proposed additional withdrawals.

It is not unreasonable, then, to propose that the EMC condition its approval of the proposed interbasin transfer upon adoption of rainwater management planning and design techniques that augment Cape Fear River flows with at least as much as is being transferred by beneficiaries of the proposed transfer scheme.

8. The volume of rainwater involved in this planning falls on approximately five square miles of land in the Upper Cape Fear Basin. Has the applicant shown Environmental Management Commission members the total cost and all benefits deriving from guiding the 90% of rainwater that runs off roofs and pavement in this area to storage? Have these members heard testimony from NRCS tecnicians about the $100 cost of storing five million gallons of water yearly in the immense natural underground reservoirs of this region? Have they seen presentations by the USEPA showing how this storage would intercept and treat contaminants so that river waters became cleaners with every new land usage?

While this basic cost may be much larger depending upon the conditions and appurtenant benefits desired, the basic figure of $100,000 for storing four billion gallons of water so that it reaches the Cape Fear River as a stable, year-round inflow is certainly small enough to cause sensible people to think it worthwhile to investigate the potential of this planning using NRCS rainwater retention methods throughout undeveloped land of the upper basin.

9. It is probable all EMC members are fully aware of the unequalled expertise of NRCS technicians in managing rainwater. It is also probable they are aware of the budgetary and political constraints that cause local planners and engineers to not fully and fairly assess alternatives to present rainwater management modes. In consideration of the knowledge of EMC members that neither downstream nor upstream officials and their staffs are capable of putting all parts of a Basin Plan together, it is incumbent upon these members to require that this be done using impartial experts such as the public servants who perform research, education and public service activities in State colleges. These officials have an obligation to ensure that every stakeholder in this watershed has an opportunity to sit at a table upon which is arrayed every critical bit of information relating to the management of water resources. They have an obligation to fulfill the spirit of the laws passed by State and federal government for the purposes of putting Waters of the US and Waters of the State to fullest beneficial use. They are obligated by oath to protect and put to best use the public's economic and natural resources by instructing public servants to diligently explore and illustrate every planning alternative relating to the proposed reallocation of public waters.

10. Every public official within the Cape Fear basin is sworn to cooperate in providing adequate and accurate information to the public regarding rainwater management methods that would halt flooding by recharging groundwaters. Every agency official has a duty to ensure that their staffs and consultants provide full and accurate testimony regarding use of the "Best Management Practices" advocated by federal and State agencies for managing public waters.

The ordinary precaution of requesting "second opinions" on critical elements of water resource planning has not been observed in the past, leaving the public and most officials I've contacted unaware of the astounding savings in public funds that derive from maximizing upstream

retention of rainwater through construction of USA BMPs. (Urban - Silvicultural - Agricultural Best Management Practices.) Without complete and properly illustrated presentations by these bureau managers, elected officials and the Press have perpetuated a broad range of false conventional wisdoms that nurture conflict by providing flawed premises upon which to build plans. State and local officials have been negligent in not inviting unbiased Professional Engineers from universities of this and other states to compose a model comprehensive watershed management plan which would allow rapid compilation of such plans for each river basin. Such planning cannot properly come from private firms and individuals since these are vulnerable to pressure from the many persons that profit from maintaining the status quo in rainwater management.

In summary: The public has not had adequate opportunity to examine the facts relating to alternatives to the interbasin transfer of water and so cannot be expected to provide the fullest measure of meaningful comment to the EMC. The testimonials of concerned citizens at hearings and in writing should be made available for convenient inspection by any person. The need for traveling to the Capitol to examine information was too great a hardship for most downstream residents, effectively depriving them of their right to be fully informed.

Prominent newpaper displays should have been presented to inform the public of the availability of all relevant information and solicit additional comment.

The comment period should be extended at least another month to allow every concerned citizen to find and digest all data and opinions and forward their own opinions and ideas to the EMC. To do any less raises the specter of willful mismanagement of public affairs by irresponsible or unduly influenced trusted representatives.

James Marple
for CRWM and GBC

Subject: Water Transfer
Date: Thu, 8 Mar 2001 09:37:39 -0500
From: "David McDuffee" <dmolive@earthlink.net>
To: <Tom.Fransen@ncmail.net>

On the matter of the proposed interbasin transfer, I want my comments to be part of the record of the public hearing held 3/6/01 in Fayetteville.

DO NOT PERMIT ANY ADDITIONAL TRANFER OF WATER FROM JORDAN LAKE TO CARY, APEX AND RALEIGH UNLESS THEY WILL RETURN THAT WATER TO THE CAPE FEAR RIVER BASIN. DO NOT GRANT ANY ADDITIONAL WATER TO THEM FROM JORDAN LAKE UNTIL THEY ARE PREPARED TO DO THAT.

THANK YOU
DAVID MCDUFFEE
118 OLIVE ROAD
FAYETTEVILLE, N C

LOWER CAPE FEAR RIVER PROGRAM
CENTER FOR MARINE SCIENCE
THE UNIVERSITY OF NORTH CAROLINA AT WILMINGTON
ONE MARVIN K. MOSS LANE • WILMINGTON, NORTH CAROLINA 28409 • 910-962-3100 • FAX 910-962-2410

March 5, 2001

Mr. Tom Fransen
Division of Water Resources
DENR
1611 Mail Service Center
Raleigh, NC 27699-1611

RECEIVED
MAR 12 2001
DIVISION OF WATER RESOURCES

Re: Comments for Public Hearing on Jordan Lake Round 2 Water Supply Storage Allocations and IBT's

Dear Mr. Fransen:

On behalf of the Lower Cape Fear River Program, I have been asked to make comments on the the Jordan Lake Round 2 Water Supply Storage Allocations and IBT's. As you may know, the Lower Cape Fear River Program is a research and monitoring program supported by local industry and local and state government funding. The LCFRP has produced five annual reports. It is located at the Center for Marine Science. Samples are taken from 35 instream monitoring sites in the Lower Cape Fear River Basin on a monthly basis and tests for a number of parameters including metals and biological factors in order to assess water quality in the river and estuary. The instream monitoring program exists as a result of a Memorandum of Agreement between nineteen municipal and industrial dischargers and the NC Department of Environment and Natural Resources. These dischargers are allowed to cease their individual instream monitoring when they join the Lower Cape Fear River Program. In addition, the comprehensive research program has been expanded to include fisheries, pfiesteria, storm events, and benthic populations. This successful association of the stakeholders in the river in supporting scientific research to assess the health of the river is unique and considered a prototype for other watershed groups. The importance of the research is magnified as a result of the recent storm events. The efforts of this Program to understand the processes of the river and and its tributaries and to share that information with the public are contributing to the sustainable development of these valuable natural resources.

In Southeastern North Carolina we are particularly concerned about decisions made that can directly or indirectly further affect the degradation of the water quality in the Cape Fear River. To our region, water quantity and quality issues are especially considered synonymous and inseparable. Any transfer reduces the flow of water to downstream stakeholders that otherwise would have been available for assimilative capacity requirements.

UNCW

The Division of Water Quality's (DWQ) Cape Fear River Basin Management Plan sets out that there is little to no assimilative capacity in the Lower Cape Fear River. The Lower Cape Fear River Basin has also been placed on the 303d list due to low dissolved oxygen. We have been working with DWQ staff in the development of a water quality model estimated to cost $1,500,000 to establish TMDLs for oxygen consuming substances causing DO deficit. The EIS for Round 2 did not address the water quality impacts of the IBT on the Lower Cape Fear River Basin, and the EIS sets out no requirements that a new wastewater treatment plant be built discharging to the Cape Fear River.

This allocation certification should be made on a temporary and not permanent basis unless future facts prove convincingly otherwise. It is also recommended that a Cape Fear Wastewater Treatment Plant be on line before the Round 2 applicants are considered for a future allocation beyond Round 2. The EMC has previously stated that the interbasin transfer would not be approved without the assurance that a wastewater treatment plant would be constructed to discharge the water to the Cape Fear River Basin. Since the applicants forecast greater water needs by submitting draft applications for Round 3, the EMC should consider imposing a deadline together with specified penalties for non-attainment. Another reasonable condition of the Round 2 applicants should be that they show that they are making a serious effort to find other regional water supply solutions than dependence on Jordan Lake for their water. Thank you again for the opportunity to express the views of the LCFRP. We respectfully ask that our comments and concerns be seriously considered by the EMC in its deliberation of this important and paramount matter to all of us downstream from Jordan Lake.

Sincerely,

Marian T. McPhaul,Executive Director

Mr. Tom Fransen
Division of Water Resources, DENR
1611 Mail Service Center
Raleigh, N.C. 27699-1611

Dear Sir;

On the matter of the proposed interbasin transfer, I want my comments to be part of the record of the public hearing held 3/6/01 in Fayetteville. DO NOT PERMIT ANY ADDITIONAL TERANSFER OF WATER FROM JORDAN LAKE TO CARY, APEX, RALEIGH AND ANYOTHER TOWN IN THAT AREA UNLESS THEY WILL RETURN THAT WATER TO THE CAPE FEAR RIVER BASIN. DO NOT GRANT ANY ADDITIONAL WATER TO THEM FROM JORDAN LAKE UNTIL THEY ARE PREPARED TO DO THAT.

Concerned Tax Payer,
Jean M. Merritt

Ben O. Merritt, JR
3122 Gray Cir
Fayetteville, N.C

Mr. Tom Fransen
Division of Water Resources, DENR
1611 Mail Service Center
Raleigh, N.C. 27699-1611

Dear Sir;

On the matter of the proposed interbasin transfer, I want my comments to be part of the record of the public hearing held 3/6/01 in Fayetteville. DO NOT PERMIT ANY ADDITIONAL TERANSFER OF WATER FROM JORDAN LAKE TO CARY, APEX, RALEIGH AND ANYOTHER TOWN IN THAT AREA UNLESS THEY WILL RETURN THAT WATER TO THE CAPE FEAR RIVER BASIN. DO NOT GRANT ANY ADDITIONAL WATER TO THEM FROM JORDAN LAKE UNTIL THEY ARE PREPARED TO DO THAT.

Concerned Tax Payer,
Ben O. Merritt Jr.

Ben Merritt, JR
3122 Gray Cir
Fayetteville, NC

Subject: Cape Fear River Basis Water Diversion Issue
Date: Wed, 7 Mar 2001 09:04:28 -0800
From: "James L. Messer" <jmesser@btg.com>
To: <tom.fransen@ncmail.net>
CC: <milomfaync@aol.com>, <mfogle@co.cumberland.nc.us>

Mr. Fransen,

I did not get a chance to speak to the commission last night at Fayetteville State University. I just want to make one point. The basin of the Cape Fear River is a system. As a system, the water component of this ecosystem is a major component of the system's inputs and outputs. As engineers know changes in these inputs and outputs can have a major impact on the system's processes, resulting in perturbations that are not seen for years. One potential, unmeasured perturbation is hydrology, in particular the availability of water needed by the Cape Fear region's agricultural industry, and its growing metropolitan areas. Since the beginning of time water has been an essential element to economic growth.

What is proposed by the wealthy, suburban communities of metropolitan Raleigh is grossly inconsiderate, and unfair to the less prosperous Cape Fear region. The State of North Carolina should have interceded long before now, demanding a 100% recycling of the water taken from the Cape Fear River Basin up to this point. The State should demand that Cary and Apex initiate a program to correct the existing shortfall; not permitting any additional drawing until all water drawings are replaced to a state of equilibrium; and finally, the State should levy a fine (or tax) against Cary and Apex communities as a means of compelling these municipalities to remedy the current (and future) water equilibrium shortfalls.

I would also like to add an example of what can happen when water is removed and not returned to its natural source. That example is the Colorado River. For over 50 years the State of California has drawn from it, moving it across California, and using it to water the fertile fields of the Imperial Valley and provide the drinking water for Los Angeles. Arizona, Nevada and Utah also use it heavily too, but these states return the water to the basin. In the case of Arizona, that same water is used and reused multiple times because Arizona's legislature mandates the use of treated sewer water in pools, lawns, golf courses, power generation operations, etc. California does not. Because it is to costly to move it back to the Colorado River Basin, the California's share of the Colorado River (after evaporation) is returned not to the Colorado or the Bay of California, but to the Pacific Ocean. The poor Mexicans and Indians on the terminal end of the Colorado River cannot use the water without distillation because of the waters salinity. This too could happen here with further unregulated encroachments on the Cape Fear River Basin.

James L. Messer
1686 Banbury Drive
Fayetteville, NC 28304-2506
(910) 223-7650

My name is Hampton Moore and I am a member of Pack 747, Den Two. In scouts, we have learned a lot about our environment and protecting our natural resources. We are careful to take care of what is ours.

We have also learned about being a good citizen and taking care of your community and the people in it. We have learned about standing up for what is right and fighting against what is not.

I am here today to ask you not to let the communities north of us take our water and put it back into another river. The environment and the citizens of Fayetteville will suffer if you do.

My family has been in this city for [redacted] 9 generations. When I grow up, I would like for my family to live here. Please think about my generation and my children's generation when you make your decision.

Subject: Cape Fear IBT
Date: Wed, 7 Mar 2001 13:43:02 EST
From: MooreExposure@aol.com
To: tom.fransen@ncmail.net

We appreciate your coming to Fayetteville last night to hear our concerns about water. The Huske Lock and Dam was named after my grandfather, William O. Huske, who was a strong and passionate advocate for our river. I guess you could say that a love of the river and the region it supports is in my blood and in the blood of my children.

Last night my 11-year-old son and his Cub Scout troop came to the hearing to learn more about civic involvement and environmental issues. My son agreed to be the Den spokesman and he signed himself up to speak. Unfortunately, we had to leave at 7:10 and I understand his name was called shortly after we left. We left his notes with someone but I wanted to make sure that his concerns made it to the proper authority. To that end, I have pasted a copy of those notes on the bottom of this e-mail.

Thank you,
Jean Moore

My name is Hampton Moore and I am a member of Pack 747, Den Two.Â In scouts, we have learned a lot about our environment and protecting our natural resources.Â We are careful to take care of what is ours.
Â Â Â Â Â Â Â Â We have also learned about being a good citizen and taking care of your community and the people in it.Â We have learned about standing up for what is right and fighting against what is not.
Â Â Â Â Â Â Â Â I am here today to ask you not to let the communities north of us take our water and put it back into another river.Â The environment and the citizens of Fayetteville will suffer if you do.
Â Â Â Â Â Â Â Â My family has been in this city for nine generations.Â When I grow up, I would like for my family to live here.Â Â Please think about my generation and my childrenâ ™s generation when you make your decision.
Thank you.

Subject: Cape Fear River Basin water transfer
Date: Wed, 7 Mar 2001 21:41:53 EST
From: NazCycle@aol.com
To: Tom.Fransen@ncmail.net

Mr. Fransen:

My knowledge of this subject is limited to what I have read in the paper and/or discussed with our local county and city officials. What I have read and heard leave me with many questions regarding the proposed taking of water from the Cape Fear and discharging into the Neuse. I cannot agree that taking that amount of water from the Cape Fear (Jordan Lake) will not have negative impact on Fayetteville/Cumberland County and other cities and counties which depend on it for water. And, as many others have questioned, I cannot place faith in a study which was initiated and paid for by the very people it will benefit.

So, place my support of this measure in the "negative" column. Leave the water alone if you cannot put it back where it came from.

C. Kim Nazarchyk
2108 Rock Hill Road
Fayetteville, N.C. 28301
910-486-5252 HM
910-487-7554 WK

PUBLIC WORKS COMMISSION
OF THE CITY OF FAYETTEVILLE

ELECTRIC & WATER UTILITIES

955 OLD WILMINGTON RD
P.O. BOX 1089
FAYETTEVILLE, NORTH CAROLINA 28302-1089
TELEPHONE (AREA CODE 910) 483-1401
FAX (AREA CODE 910) 483-1429

March 8, 2001

Mr. Thomas C. Fransen, P.E.
Chief, Hydrology & Management Section
Division of Water Resources
Department of Environment and Natural Resources
1611 Mail Service Center
Raleigh, North Carolina 27699-1611

Re: JORDAN LAKE WATER SUPPLY STORAGE ALLOCATIONS ROUND 2 AND PROPOSED INCREASE IN INTERBASIN TRANSFER TOWNS OF CARY, APEX, AND MORRISVILLE AND WAKE COUNTY (FOR RTP SOUTH)

Dear Mr. Fransen:

The City of Fayetteville Public Works Commission (PWC) wishes to thank the Division of Water Resources (DWR) and Environmental Management Commission (EMC) for this opportunity to provide comments on DWR's recommendations for Round 2 of Jordan Lake water supply storage allocations and the associated proposed increase in interbasin transfer (IBT).

The technical evaluation of potential impacts from the proposed IBT increase is contained in DWR's August 2000 Final Environmental Impact Statement (EIS) for the proposed increase in interbasin transfer (IBT) for RTP South and the Towns of Cary, Apex, and Morrisville. We provided detailed written comments to DWR throughout the EIS process. To our knowledge, the last DWR response to our comments was a November 2, 2000 letter from DWR to the State Clearinghouse. As you are no doubt aware, PWC respectfully disagrees that the EIS and DWR's responses to our comments satisfactorily address our concerns. We believe that significant unresolved issues remain that should have been resolved prior to the EMC making the Round 2 decisions it is now being asked to make. The following detailed comments include our recommendations as well as what we believe to be among the most significant unresolved issues.

We first offer three specific recommendations on conditions of the proposed IBT increase as summarized below.

1. New Cape Fear River Wastewater Treatment Plant Should Be Required

Unless the applicants are required to have a new wastewater treatment plant (WWTP) discharging to the Cape Fear River, the proposed action in the EIS is misrepresented. Absent such a requirement, it would be more accurate to define the proposed action as Alternative 5, which assumes that no regional WWTP is constructed in the Cape Fear

Basin. The applicants are under no obligation with respect to developing a new WWTP unless the EMC so conditions the IBT certificate. Even Alternative 6, which was added in the Final EIS, is not representative of the proposed action because it includes a 27 mgd IBT that is far less than the 45 mgd maximum IBT that the applicants say would occur without the new Cape Fear River WWTP. We hope that this helps demonstrate why it is imperative that the EMC condition the IBT certificate to require a new Cape Fear River WWTP rather than considering it optional.

2. Completion of New Cape Fear WWTP Should Trigger Reversion of Maximum Allowable IBT Back Down to Existing Level

We cannot condone the proposed allocations and IBT unless the Triangle Area communities are required to build wastewater facilities to ensure that the IBT will be maintained at a level no greater than the current 16 mgd maximum. It would not make sense to invest tens of millions of dollars in new wastewater facilities if the already tremendous IBT is allowed to grow even larger. Any temporary increase in the existing IBT should be allowed only until 2010, or earlier if Cape Fear River WWTP construction can be accomplished sooner.

3. Completion of New Cape Fear WWTP Should be Required Before Any Possible Allocation for Cary/Apex and their Partners Beyond Round 2

Our understanding is that Cary and Apex have already jointly submitted a draft Round 3 application to DWR requesting a total allocation of 48 mgd. Given this development, it would be in keeping with the very optimistic assumptions made in the EIS to require that a new Cape Fear WWTP be operational prior to any possible allocation for these communities beyond Round 2.

With respect to these three recommended IBT conditions, and in particular about reverting back to the current 16 mgd maximum IBT, project advocates spoke at this week's Public Hearing about the costs of pumping improvements and underutilizing wastewater plants in the Neuse Basin. However, no one is forcing the IBT applicants to use Jordan Lake as a water supply. In fact, Cary is currently participating with Raleigh, Durham, and Granville County in a feasibility study of using Kerr Lake as a water supply. Cary's long-range water supply plan also includes possible development of a Neuse Basin reservoir on Middle Creek in western Johnston County. Existing wastewater facilities in the Neuse Basin can still be fully utilized if sources besides Jordan Lake are used to supply the future needs of these communities that are not met by this allocation round.

Project advocates also spoke at this week's Public Hearing about how approving the IBT increase is somehow justified because it would offset some of the IBT that occurs into the Cape Fear Basin, most notably from Durham. We strongly disagree. Durham's IBT from the Neuse to the Cape Fear Basin is from large South Durham WWTP and Durham County Triangle WWTP discharges into New Hope Creek and Northeast Creek, which are both tributaries of Jordan Lake. Durham's discharges thus reach Jordan Lake from where recent history shows they may or may not be released to meet minimum Cape Fear River flow requirements below Jordan Lake. Two wrongs still do not make a right.

Beyond our recommendations for IBT conditions, we believe that several significant unresolved issues remain as summarized below. These are extremely important issues because, unless resolved, they undermine the technical rationale being used by project advocates to justify the proposed allocations and associated IBT.

EIS Impact Analysis Critically Flawed Due to Narrow Focus

To a large degree, the narrow focus of the EIS is what allows the applicants to claim that there will be no direct impacts downstream of Jordan Lake. Likewise, DWR's statement in the Public Notice that "*... the proposed transfer will have no significant direct environmental impacts in either the source or receiving basins*" is unfounded unless one accepts the shortcomings of the EIS.

For example, the EIS brushes aside the issue of water quality pool exhaustion, by saying that withdrawals only deplete the water supply pool. But at the same time, the EIS scenarios simulate that with the 600 cfs minimum flow target at Lillington, water quality storage is fully depleted many times. The DWR and Division of Environmental Management February 1988 report entitled ***Jordan Lake Hydrology and Downstream Water Quality Considerations*** recognized that storage from the water supply and/or sediment pools would have to be used to ensure continued maintenance of the 600 cfs minimum Lillington flow if the water quality pool was exhausted. This recognition is absent from the current EIS. In other words, the narrowly framed EIS misses the vital point that the water supply and water quality pools are inexorably linked. Project advocates made this same argument at this week's Public Hearing that we can just ignore the water quality pool in making this decision. However, in doing so, the State would be ignoring that there is already a major problem with the water quality pool being able to maintain an adequate downstream low flow regime.

Irrigation Withdrawals Not Objectively Evaluated

Another example of the narrow focus of the EIS can be seen in how irrigation withdrawals were handled. The critical assumption was made in the EIS that agricultural withdrawals will not increase over time. This assumption was made despite projections of rapidly expanding population and municipal water use. If there is evidence that agricultural acreage will decrease in the future, then it was not provided through the EIS process. This is important since Dr. Ronald Snead, the irrigation specialist consulted by DWR, indicated that crops raised in the future could require more irrigation water.

It must recognized that irrigation withdrawals are much like IBTs. That is, there are typically very little, if any, associated return flows back to the source. In contrast, the majority of non-IBT municipal and industrial withdrawals are typically returned to the source as wastewater effluent. Therefore, even moderate increases in irrigation withdrawals can significantly reduce instream flows. This is especially problematic because irrigation withdrawals are usually greatest under persistent dry conditions when streamflow levels are already depressed. DWR's November 2, 2000 modeling analysis of a 20 percent increase in irrigation confirmed the sensitivity of low flow results to irrigation withdrawals, including a 31 cfs reduction in the predicted 7Q10 flow at Lillington. A true cumulative impact analysis incorporating future irrigation increases

would have resulted in a larger change from baseline conditions than was modeled for the EIS.

Randleman Lake Effects Not Evaluated

Still another example of the narrowly focused and critically flawed EIS can be seen in its failure to evaluate cumulative effects with Randleman Lake in place. In December 2000 the U.S. Army Corps of Engineers (USACE) issued a Final EIS for the Randleman Lake Project, and we understand that the State views final approval of the project as likely. Nevertheless, Randleman Lake was excluded from the analysis in the Triangle Area's IBT EIS. Specific data were not provided on how the Cape Fear River low flow regime would be affected by Randleman Lake operations. Although minimum releases will be required from Randleman Lake, these releases are quite small relative to the average flow of 163 cfs which currently passes near the dam site. The minimum release schedule would effectively truncate flows passing the dam at either 30, 20 or 10 cfs during a drought period reservoir drawdown and refill cycle. In contrast, without the dam there would be flows higher than these releases that would occur during portions of droughts and especially during the reservoir refill periods.

We reviewed the USACE's Final EIS to determine the magnitude of hydrologic effects from Randleman Lake. Exhibit 1 is a table taken directly from the USACE's EIS and shows that average flow reductions in the Deep River would be tremendous during the period in which the reservoir is filled, with an 82 percent reduction in average flow at the dam site. The USACE's EIS also states that the estimated average time requirement for Randleman Lake filling using a constant 30 cfs release rate would be 8 months.

We also wanted to see whether there would be significant periods of flow reduction downstream of Randleman Lake after its initial filling. In order to make this evaluation, we extracted simulated Randleman Lake operating records from the output for the "Cape Fear River Basin Model: 2015 Scenario" described in DWR's September 2000 ***Jordan Lake Water Supply Storage Allocation & Interbasin Transfer Recommendations – Round Two***. Exhibit 2 shows monthly inflows to Randleman Lake during several simulated historical periods in which the reservoir was drawn down and total outflows would have been limited to a minimum release (i.e., no Randleman spills). We note that DWR simulated a 10 cfs release even though storage never dropped to 60 percent. (A minimum release of 10 cfs would only be allowed when Randleman Lake storage declines to a level of 30 percent or less.) Thus, the actual drawdowns would have been more severe and prolonged with the required 30 cfs release.

Exhibit 2 compares the monthly inflows to the required 30 cfs minimum release and shows that significant and prolonged Deep River flow reductions can be expected even after Randleman Lake is initially filled. These flow reductions will substantially reduce flows in the Cape Fear River, especially during dry periods such as those represented by the historical periods in Exhibit 2 when flow levels would already have been depressed. For example, on several days in November 1993, actual Cape Fear River flows at Lillington declined to levels in the 450 to 500 cfs range. In DWR's 2015 Scenario, a 58.5 cfs average reduction of Randleman Lake inflows was simulated for this month based on

average reservoir inflows of 88.5 cfs and reservoir outflows limited to a 30 cfs minimum release. This means that the already depressed Lillington flows would have been further reduced to a significant degree with Randleman Lake in place. We hope that this helps demonstrate another reason why we believe that cumulative impacts were not fully evaluated in the Triangle Area's IBT EIS due to the narrow focus of the EIS.

Accurate Historical Low Flow Impact Assessment Missing

The Base 1998 scenario in the EIS does not represent existing conditions since it does not accurately portray historical low flow conditions. Contravention of the Lillington minimum target flow has unfortunately become a regular occurrence. In fact, Lillington flows have dropped below the 600 cfs minimum flow target every year between 1982 and 2000, often far below 600 cfs, and to levels as low as 300 cfs. Exhibit 3 is based on daily streamflow records measured at Lillington between Water Years 1990 and 2000. These data show the extreme regularity with which daily flows have contravened the 600 cfs minimum flow target as well as a 550 cfs flow level if one assumes a +/-50 cfs tolerance in the target.

PWC participated throughout the stakeholder input process during development of the Cape Fear River Basin Model. During that process, we suggested that an additional model validation procedure be conducted to compare actual versus simulated Jordan Lake operating levels, releases, and downstream flows during low flow periods. To our knowledge, this validation step was never performed. Exhibit 4 contains a table taken directly from DWR's January 11, 2001 ***Comparison of Cape Fear River Basin Model Results and US Geological Survey Flow Statistics***. Unfortunately, DWR's comparison of actual versus simulated flow levels does not consider the lowest 10 percent of daily streamflows which are the true low flows of concern to Fayetteville and other downstream communities. DWR lists a 90 percent exceedance flow of 619 cfs at Lillington (i.e., 90 percent of flows are above 619 cfs, 10 percent of flows are less than 619 cfs) (see Exhibit 4). However, as shown in Exhibit 3, the lowest 10 percent of daily flows are critical because these include all of the many days when actual streamflow levels at Lillington have dropped below 600 cfs. Exhibit 5 shows just how low Lillington flows have been during each of the last 11 Water Years.

Jordan Water Quality Pool Depletion Means Downstream Users Are Already Facing Critical Water Supply Uncertainties

EIS scenarios demonstrate that the Jordan Lake water quality pool is already insufficient for downstream needs. Exhibit 6, which is a figure taken directly from DWR's September 2000 ***Jordan Lake Water Supply Storage Allocation & Interbasin Transfer Recommendations – Round Two***, shows that the water quality pool is fully depleted in 11 of 69 simulated years, for up to nearly 80 days in a single August to February period. Exhibit 7 shows that, in the Base 1998 scenario in the EIS, Lillington flows drop down to about 100 cfs or less during one out of seven years on average. Flows of 100 cfs or less at Lillington would spell catastrophe for downstream water and wastewater facilities. We maintain that nothing but the briefest required temporary increase in IBT should be allowed if communities within the Cape Fear Basin already face the risk of periodic system shutdown.

DWR is currently working with the USACE to evaluate drought management options for Jordan Lake that would attempt to avoid exhaustion of the water quality pool, in part, through temporary reductions of the Lillington minimum flow target below 600 cfs. This contradicts the State's previous recognition that use of the water supply and/or sediment pools would be needed to continuously maintain the 600 cfs flow. The USACE's February 1991 ***Drought Contingency Plan*** for Jordan Lake specifies that flexibility within the conservation pool between water supply and water quality would have to be initiated by the State. For example, the State could purchase surplus water supply storage for the duration of a drought to supplement water quality storage. Another option to augment water quality storage would be for the USACE to make an emergency reallocation of any water that may remain within the sediment storage pool.

Clearly, water quality storage depletion and Lillington minimum flow target reduction, even if only temporary, are of utmost concern to PWC from both water supply and wastewater treatment perspectives. In addition, everyone needs to recognize that any reduction of the minimum flow target violates the original intent for Jordan Lake. Historical documents clearly show that the original intent for Jordan Lake as authorized by Congress was for a 600 cfs minimum flow at Lillington to be met at all times. The State should take steps to ensure that adequate Jordan Lake storage will be available to maintain the 600 cfs minimum flow before allocating more water supply and increasing IBT. Action must be taken now to preserve the opportunity to use surplus water supply storage to augment the water quality pool. At a minimum, we ask that the State determine how much water supply storage should be reserved for such purpose before considering further water supply allocation as part of Round 3.

Water Supply Available to Downstream Communities is Rapidly Dwindling

The Public Notice emphasizes that if Round 2 allocations are made as recommended by DWR, "*... 56 million gallons per day (mgd) of the total estimated yield of 100 mgd will remain available for future allocations to local governments*". There may be a general misconception that plenty of water is left for future allocation. The reality, however, is that watershed diversion figures in DWR's September 2000 ***Jordan Lake Water Supply Storage Allocation & Interbasin Transfer Recommendations – Round Two*** show that only 22 mgd will remain for use outside of the Jordan Lake watershed. This finding is based on: (1) current rules which limit allocations that will result in diversions out of Jordan Lake's watershed to 50 percent of the total water supply yield (or 50 mgd) and (2) DWR's 2015 projection that 28 mgd of the allocated supply will be diverted out of the lake's watershed.

Exhibit 8 includes DWR's estimated 2015 watershed diversions and shows that the supply remaining for diversion out of the Jordan Lake watershed would only be a small piece of the water supply pool. Less than half of the storage available for use outside the lake's watershed would remain without a single gallon yet being allocated to users farther downstream such as Fayetteville, Sanford or Harnett County who are well outside the lake's watershed. This is especially troubling considering the Cary/Apex Round 3 request for a total Jordan Lake allocation of 48 mgd. Furthermore, Wake County/RTP

and the Towns of Morrisville and Holly Springs have submitted separate draft Round 3 allocation requests. We hope this helps demonstrate why we are so concerned about the rapidly dwindling water supply available for downstream communities.

Jordan Lake Safe Yield Not Confirmed

It seems premature to move forward with final approval of Round 2 allocations when the basic assumption of Jordan Lake water supply safe yield is not yet confirmed. Decision-makers are missing this critical data which with to make allocation and IBT decisions. The safe yield is even more critical given DWR's forecast that, by 2015, the recommended Round 2 allocations would result in diversion of more than half of the total supply that can be diverted out of Jordan Lake's watershed.

The scenarios in the EIS demonstrate that the current Jordan Lake safe yield estimate is questionable. The Proposed Incremental scenario assumes that total Jordan Lake withdrawals equal 100 mgd. Exhibits 9 and 10 show that, for this scenario, simulated water supply storage is fully depleted in 1933, 1934, 1953 and 1954. Likewise, simulated water supply storage is nearly depleted in 1986. The 100 mgd safe yield estimate would appear to be optimistically high since the EIS results show water supply storage being fully depleted in multiple droughts and fully depleted or at less than 5 percent for over three consecutive months in one drought (see Exhibit 9). Moreover, if existing rules are modified as part of Round 3 to allow a greater than 50 percent diversion of the water supply pool out of Jordan Lake's watershed, then the safe yield will be even less.

Acceptability of Cumulative Impacts Must Still be Assessed

As DWR pointed out in its November 2, 2000 letter to the State Clearinghouse, the EMC must still determine if the benefits of the Proposed Action would outweigh the cumulative detrimental impacts. As the EMC makes this determination, we hope that our point is taken into account that the supporting EIS did not include a complete evaluation of cumulative impacts.

An Objective Allocation and IBT Decision Must Still be Made

Cary/Apex water supply system improvements are already well underway to allow withdrawal and treatment of an expanded Jordan Lake allocation. These improvements include expansion of the water treatment plant, expansion of the raw water pump station, and construction of a raw water transmission line. Millions of dollars have already been spent on this construction which began in October 1999. Even before these construction expenditures, and even before the IBT EIS was initiated, DENR's Division of Environmental Health approved plans and specifications for the Cary/Apex water treatment facility expansion. We find it difficult to understand how a truly objective evaluation of the IBT EIS could have been made when DENR had already approved the facilities to make use of the IBT.

Furthermore, there are unanswered questions about whether Environmental Review of the Cary/Apex water treatment facility expansion was conducted in accordance with DENR's North Carolina Environmental Policy Act (NCEPA) Rules. We submitted these questions along with supporting background information to DENR Secretary Ross in the

attached February 2, 2001 letter to which we have yet to receive a response. We hereby resubmit this letter and request that DENR address our questions on the NCEPA process that was followed with respect to the Cary/Apex expansion. These concerns are directly related to the Round 2 decision now before the EMC. We therefore request that these questions be addressed prior to a final Round 2 decision on requested allocations and associated IBT.

Now the EMC is faced with making an objective decision on the recommended Round 2 allocations and proposed IBT despite the tremendous financial commitments and construction approvals which the applicants and State have already made. Clearly there is much inertia to approve the Triangle communities' allocations and IBT despite the many unanswered questions that weigh heavily on the downstream communities. Nevertheless, the EMC still has the opportunity to inject some equity in the process. The EMC can help do so by conditioning IBT approval to ensure that:

(1) The already large 16 mgd maximum IBT will not permanently increase,

(2) Any temporary increase above the current 16 mgd maximum IBT will occur no longer than absolutely necessary and, in no case, beyond 2010, and

(3) Any possible allocation for the IBT applicants beyond Round 2 will be preceded by completion of a new operational WWTP discharging to the Cape Fear River.

Thank you for the opportunity to express the views of the City of Fayetteville Public Works Commission. We do not believe that the IBT EIS process adequately addressed the legitimate and important concerns that we raised. Nevertheless, we believe that the EMC now has opportunities to ensure that our concerns are addressed by conditioning Round 2 IBT approval and by providing specific direction and oversight to the Round 3 allocation process already underway.

Very truly yours,

PUBLIC WORKS COMMISSION

M. J. Noland, P.E.
Chief Operating Officer
Water Resources Division

Attachments (11)
cc: EMC Members
Bill Ross
Interested Parties

Acrobat Reader - [Randleman FEIS Part 1.pdf]

Exhibit 1

Table 23
Predicted Impact of 30 cfs Release Rate on Downstream Flows During Filling

Location on the Deep River(1)	Average Flow (cfs) Without Project	Amount Stored (cfs) During Filling	Percent Reduction in Average Flow
Randleman dam (0)	163	133	82
Randleman (2)	176	133	76
Worthville (4)	224	133	59
Ramseur (15)	350	133	38
High Falls (41)	800	133	17
Gulf (69)	1,100	133	12
Moncure (88)	1,436	133	9

(1) Numbers in parentheses equal to miles (rounded) downstream from dam site.

Source: NCDEHNR, 1991

Note: Table taken from USACE December 2000 Final EIS for Randleman Lake.

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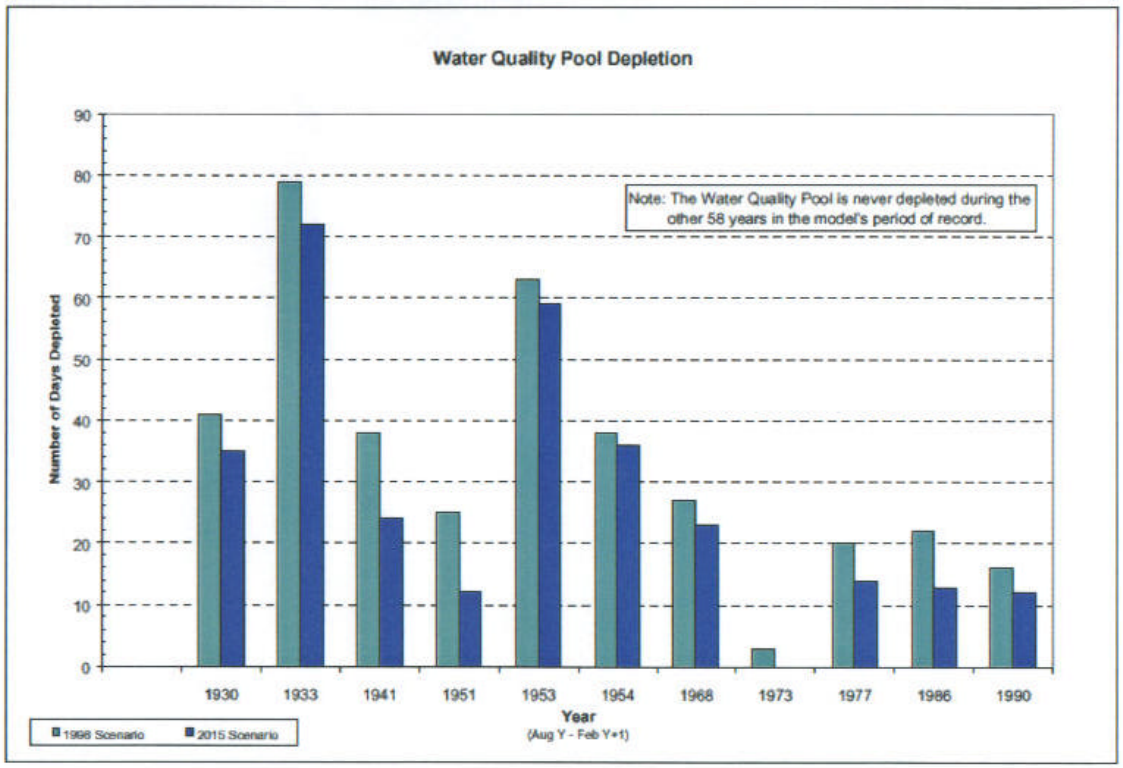
Address http://www.ncwater.org/reports/jordan/JordanAllocationR20900.pdf

Figure 5. Modeled Jordan Lake Water Quality Pool Reliability

Exhibit 6



18

Note: Figure taken from DWR September 2000 Jordan Lake Water Supply Storage Allocation & Interbasin Transfer Recommendations - Round Two.

156% 23 of 43 8.5 x 11 in

Exhibit 2

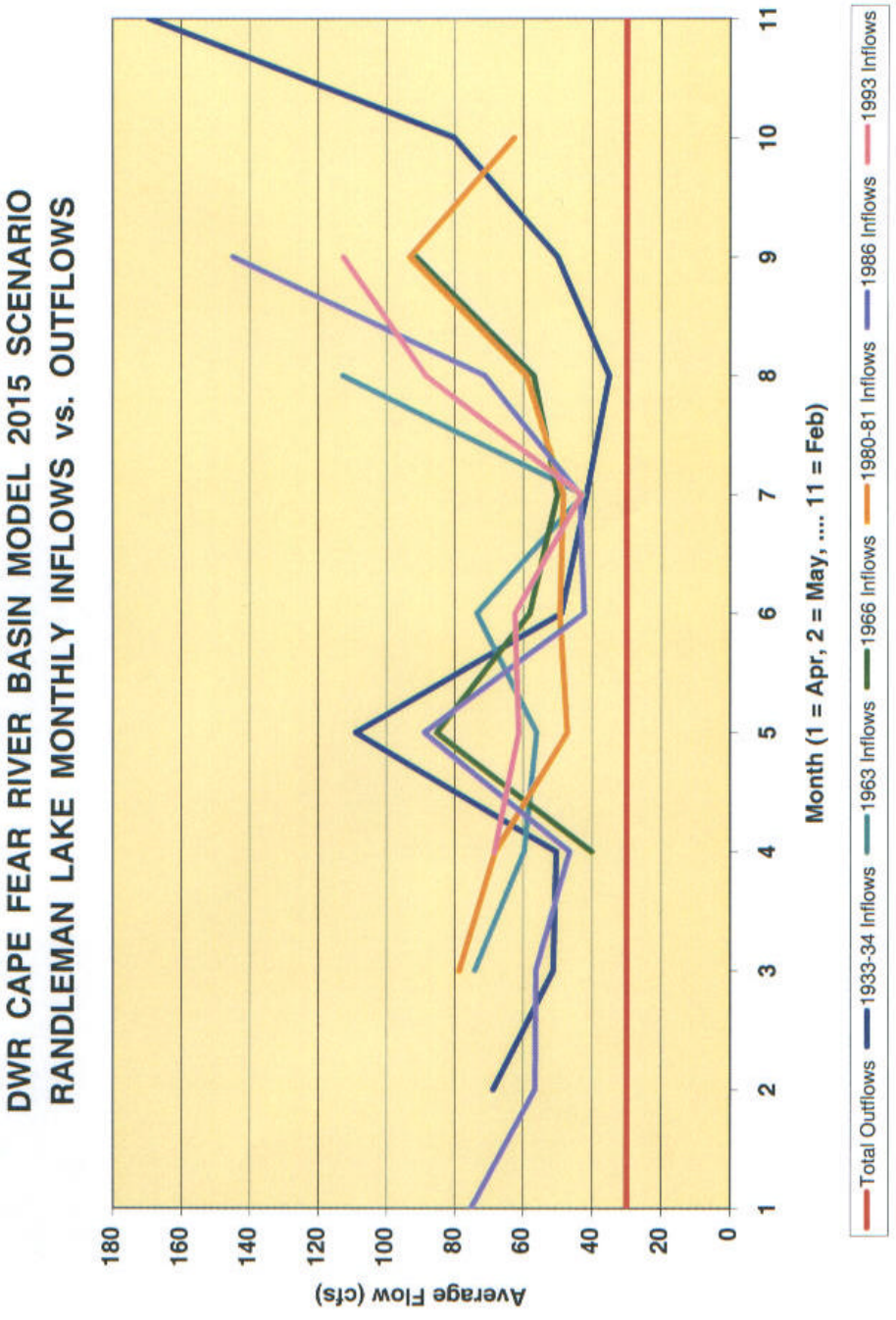

DWR CAPE FEAR RIVER BASIN MODEL 2015 SCENARIO
RANDLEMAN LAKE MONTHLY INFLOWS vs. OUTFLOWS
Average Flow (cfs)
0
20
40
60
80
100
120
140
160
180
1
2
3
4
5
6
7
8
9
10
11
Month (1 = Apr, 2 = May, ... 11 = Feb)
Total Outflows
1933-34 Inflows
1963 Inflows
1966 Inflows
1980-81 Inflows
1986 Inflows
1993 Inflows

Exhibit 3

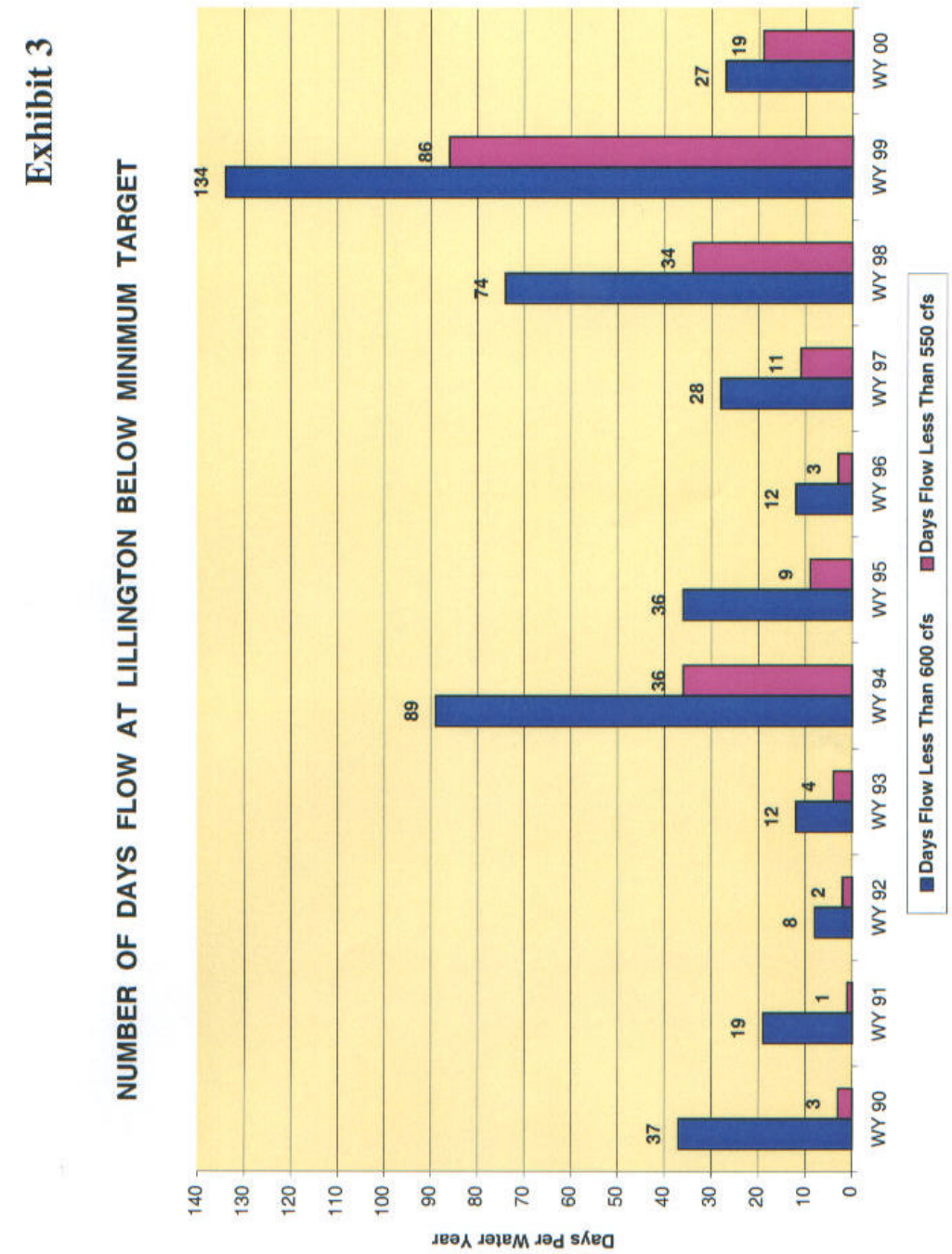

NUMBER OF DAYS FLOW AT LILLINGTON BELOW MINIMUM TARGET
Days Per Water Year
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
WY 90
WY 91
WY 92
WY 93
WY 94
WY 95
WY 96
WY 97
WY 98
WY 99
WY 00
37
3
19
1
8
2
12
4
89
36
36
36
9
12
3
28
11
74
34
134
86
27
19
Days Flow Less Than 600 cfs
Days Flow Less Than 550 cfs

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Exhibit 4

Table 1. Flow Profile Comparisons at Selected Points

	Flow (cfs) [1]		
Exceedence Probability	**10%**	**50%**	**90%**
Deep River at Ramseur, modeled [2]	705	153	38
Deep River at Ramseur, USGS [2]	692	153	37
Difference Between Modeled and USGS [2]	2%	0%	4%
Deep River at Moncure, modeled	3390	555	105
Deep River at Moncure, USGS	3350	542	99
Difference Between Modeled and USGS	1%	2%	6%
Cape Fear River at Lillington, modeled	8824	1321	619
Cape Fear River at Lillington, USGS	10700	1310	619
Difference Between Modeled and USGS	-18%	1%	0%
Cape Fear River at Lock & Dam #1, modeled	14775	3079	1076
Cape Fear River at Lock & Dam #1, USGS	15600	2910	1110
Difference Between Modeled and USGS	-5%	6%	-3%

[1] Statistic based on Water Year.

[2] Note that modeling was based on the 1930-1998 period, but USGS flows are based on the 1923-1998 period.

Note: Table taken from DWR January 11, 2001 Comparison of Cape Fear River Basin Model Results and US Geological Survey Flow Statistics.

Page 1 Sec 1 1/3 At 5.1" Ln 24 Col 53 REC TRK EXT OVR WPH

Exhibit 5

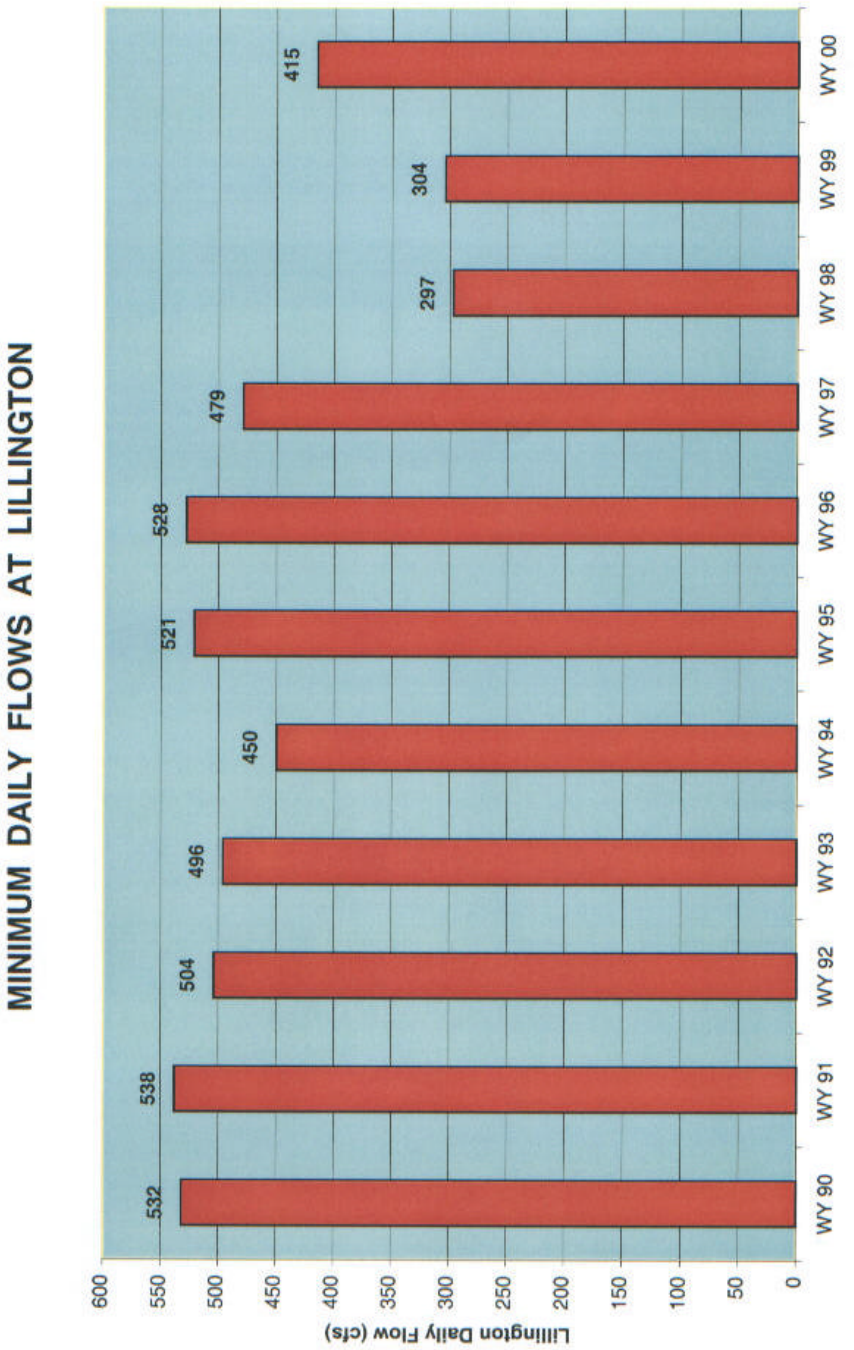
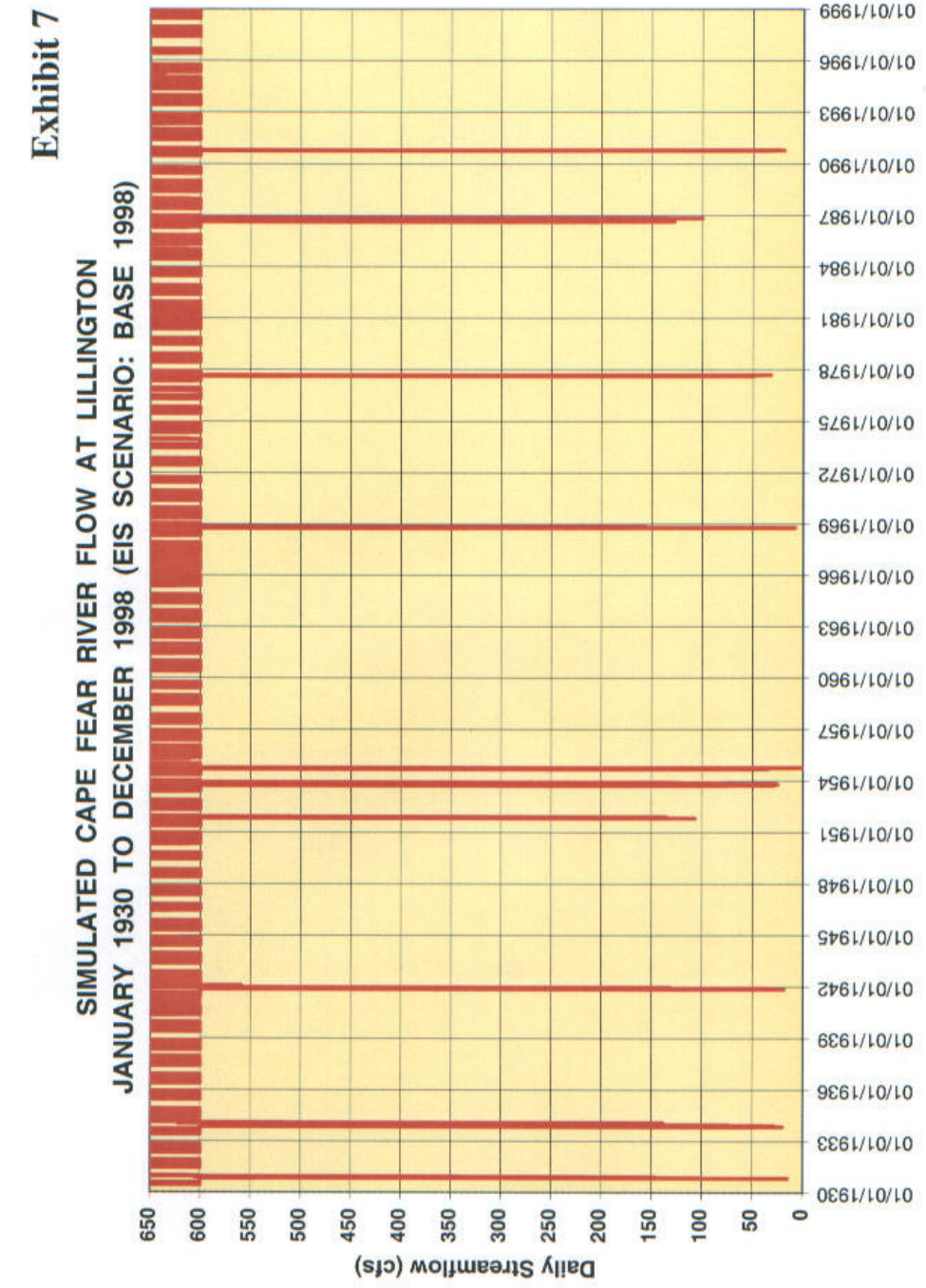

MINIMUM DAILY FLOWS AT LILLINGTON
Lillington Daily Flow (cfs)
600
550
500
450
400
350
300
250
200
150
100
50
0
532
538
504
496
450
521
528
479
297
304
415
WY 90
WY 91
WY 92
WY 93
WY 94
WY 95
WY 96
WY 97
WY 98
WY 99
WY 00

Exhibit 8

DWR's ESTIMATED 2015 JORDAN LAKE WATERSHED DIVERSIONS (mgd)

Exhibit 7


SIMULATED CAPE FEAR RIVER FLOW AT LILLINGTON
JANUARY 1930 TO DECEMBER 1998 (EIS SCENARIO: BASE 1998)
Daily Streamflow (cfs)
650
600
550
500
450
400
350
300
250
200
150
100
50
0
01/01/1930
01/01/1933
01/01/1936
01/01/1939
01/01/1942
01/01/1945
01/01/1948
01/01/1951
01/01/1954
01/01/1957
01/01/1960
01/01/1963
01/01/1966
01/01/1969
01/01/1972
01/01/1975
01/01/1978
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01/01/1993
01/01/1996
01/01/1999

Exhibit 9

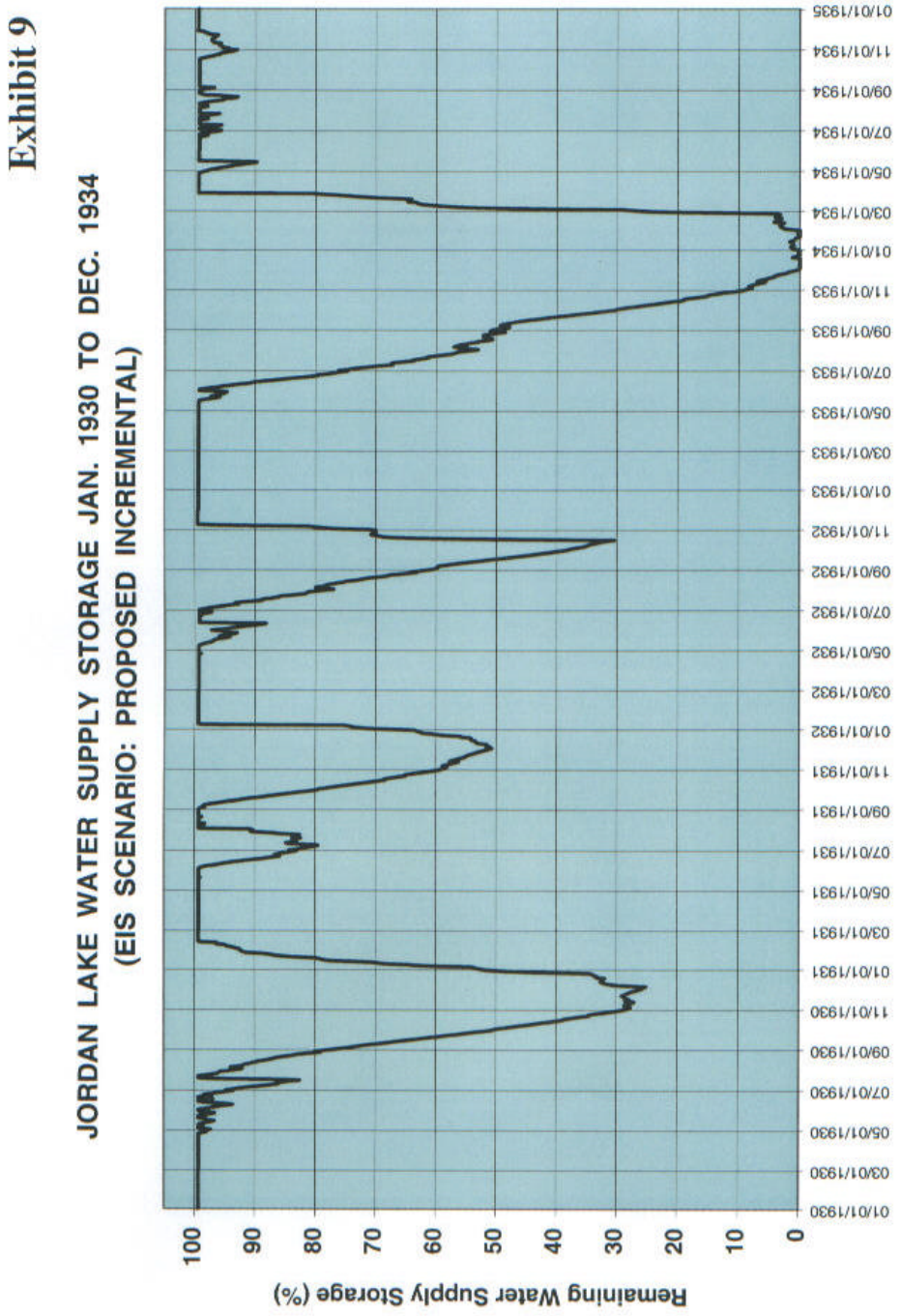
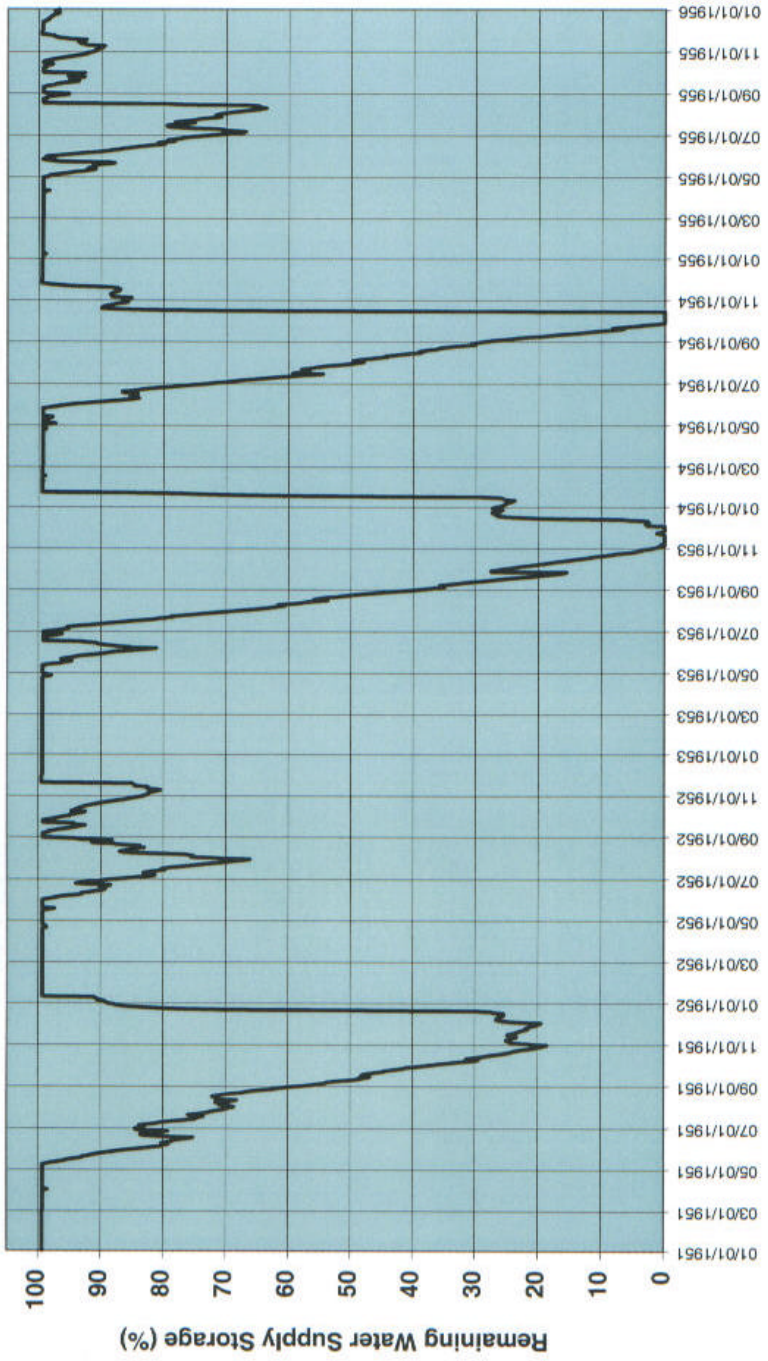

JORDAN LAKE WATER SUPPLY STORAGE JAN. 1930 TO DEC. 1934
(EIS SCENARIO: PROPOSED INCREMENTAL)
Remaining Water Supply Storage (%)
100
90
80
70
60
50
40
30
20
10
0
01/01/1930
03/01/1930
05/01/1930
07/01/1930
09/01/1930
11/01/1930
01/01/1931
03/01/1931
05/01/1931
07/01/1931
09/01/1931
11/01/1931
01/01/1932
03/01/1932
05/01/1932
07/01/1932
09/01/1932
11/01/1932
01/01/1933
03/01/1933
05/01/1933
07/01/1933
09/01/1933
11/01/1933
01/01/1934
03/01/1934
05/01/1934
07/01/1934
09/01/1934
11/01/1934
01/01/1935

Exhibit 10

JORDAN LAKE WATER SUPPLY STORAGE JAN. 1951 TO DEC. 1955
(EIS SCENARIO: PROPOSED INCREMENTAL)



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February 2, 2001

William G. Ross, Jr., Secretary
Department of Environment and
Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

Re: Jordan Lake Water Supply Storage Allocations - Round 2 and
Proposed Increase in Interbasin Transfer
Towns of Cary, Apex and Morrisville and Wake County (for RTP South)

Dear Secretary Ross: Bill

First of all, I would like to congratulate you on your recent appointment to serve as Secretary of DENR. We at the Public Works Commission ("PWC") for the City of Fayetteville are confident that you will do an excellent job and I look forward to resuming our working relationship

The purpose of this letter is to request your assistance on a matter of great importance to the City of Fayetteville and other users of the Cape Fear River below the B. Everett Jordan Dam. As you are no doubt aware, Cary, Apex, Morrisville and Wake County RTP South ("Cary/Apex"), have requested additional allocations from the Jordan Lake Water Supply Storage Pool as part of the Round 2 Jordan Lake allocation process. In conjunction with their request for a water supply allocation from Jordan Lake in Round 2, Cary/Apex have requested a certification to increase their interbasin transfer ("IBT") from the Haw River Basin to the Neuse River Basin from 16.0 to 27.0 MGD. This increase in the IBT requires a certificate from the Environmental Management Commission. Public hearings on the Division of Water Resources' recommendations for Jordan Lake Round 2 water storage allocations and the Cary/Apex petition for the increased IBT are scheduled for March 5th in Raleigh and March 6th in Fayetteville.

The PWC and other downstream users of the Cape Fear River have closely followed the Jordan Lake water supply storage allocations for Round 2 and the increased IBT requested by Cary/Apex. The PWC and other downstream users are justifiably concerned about the long-term impacts of significant IBTs out of the Cape Fear River Basin. We have participated in the Round 2 allocation process and have provided comments on the EA and EIS for the IBT requested by Cary/Apex. In our comments, we have consistently raised the issue that Cary and Apex

reportedly are spending over $50 million to expand their water treatment plant on Jordan Lake, even though the Environmental Management Commission has neither allocated the towns more water from Jordan Lake nor approved their request for an increased IBT out of the Cape Fear River Basin. PWC considers such actions by Cary/Apex as premature. They appear designed to influence the pending decisions of the EMC on the towns' requests for additional water allocations and IBT certification.

In addition, the PWC is concerned that DENR did not follow its own North Carolina Environmental Policy Act ("NC EPA") regulations in granting approval to Cary/Apex to upgrade the water treatment plant on Jordan Lake. Our recent review of Public Water Supply ("PWS") Section and State Clearinghouse files leads us to believe that the Environmental Review of the Cary/Apex Water Treatment Plant expansion was significantly flawed and does not appear to have been conducted in accordance with DENR's own NC EPA Rules. We request that you review the actions of the PWS Section with respect to the EA for the Water Treatment Plant expansion.

Documents in the PWS Section files indicate that the Section circulated an EA for the Cary/Apex Water Treatment Plant expansion in March of 1997. An April 25, 1997 letter in the PWS files forwarded copies of comments the Section had received related to the EA for the Water Treatment Plant expansion to consultant Robert Goldstein. A copy of these comments is enclosed.

One of the comments on the EA for the Water Treatment Plant expansion was from the N. C. Wildlife Resources Commission (WRC) and was dated April 2, 1997. The WRC comments raised the following important issues with respect to the impact of an increased IBT for Cary/Apex:

- It is our understanding that Cary has not been granted an increase in water allocation; therefore, we believe this document is premature. Additionally, due to the complexity and interrelated nature of the environmental issues, we believe a more comprehensive document is warranted. The revised document needs to discuss the water treatment plant expansion in context of interbasin transfer, the proposed wastewater treatment plant and impacts on the aquatic resources of the Cape Fear River and recreation on Jordan Lake and the adjacent public lands.

- The EA needs to discuss the impacts of interbasin transfer. Although a regional wastewater treatment plant is planned for the Haw River, a significant portion of the sewage effluent may be discharged into the Neuse River Basin, which could exacerbate water quality problems and adversely affect federally and state listed aquatic species. Conversely, the construction of a major regional wastewater treatment plant in conjunction with reduced flows from Jordan Lake may cause a decline in water quality and aquatic habitat in the Cape Fear River.

Hence, by April of 1997, the PWS Section was on notice of the significant interbasin transfer issues related to the Cary/Apex water treatment plant expansion and of the WRC's belief that the EA for the expansion was "premature" because Cary had not been granted an increase in water allocation. The WRC had commented that a much more comprehensive environmental document was warranted. However, we were unable to locate any documents in the file indicating whether the EA for the expansion was amended to address the WRC's concerns.

We also reviewed the State Clearinghouse file on the EA for the Cary/Apex Water Treatment Plant expansion. In reviewing the EA, which was dated 12 September 1997, several matters seemed noteworthy. First, Appendix A at page 24 of the EA contained "Responses to DEHNR Review Comments." However, there was no reference or response to the April 2, 1997 WRC comment which had raised important questions about the need to address the impacts of the increased IBT in the EA for the Water Treatment Plant expansion. It is possible that the EA circulated for review by the PWS Section in March of 1997 may have been a preliminary EA. However, we have been unable to locate in the files we reviewed any such preliminary EA, if one existed.

Second, if an attempt was made in the EA to address the WRC's requested discussion of IBT impacts, the attempt was cursory, erroneous and wholly inadequate. The only discussion of IBT impacts appears in Section 5.8.2 at page 10 of the EA, as follows:

> At present, the Cary and Apex WWTPs are in the Neuse River Basin (Crabtree Creek and Middle Creek), and none of the water withdrawn from Jordan Lake is returned from the Cape Fear River Basin. **Cary holds an Interbasin Transfer Certificate from DWR for 21 MGD, which is the total draft presently allocated to the Cary-Apex WTP.** Cary is also planning a new regional wastewater treatment plant (WWTP) on the lower Haw River or upper Cape Fear River, which would return a major portion of diverted flow. Impacts of the new WWTP will be addressed in a separate SEPA environmental document. **Interbasin water transfer is not expected to exceed the 21 MGD presently authorized.** The large storage pool provided by Jordan Lake for in-stream flow augmentation minimizes the potential for adverse impacts of interbasin water transfer. (Emphasis added.)

This discussion in the EA inaccurately describes both the existing and the proposed IBTs. Cary and Apex have an existing Interbasin Transfer Certificate for the transfer of 16 MGD (not 21 MGD) and have requested an increase of 11 MGD for a total maximum day transfer of 27 MGD. Thus, the description in the EA of the proposed IBT increase is erroneous and inaccurately characterizes the proposed increase by stating that: "Interbasin water transfer is not expected to exceed the 21 MGD presently authorized." We found no comments in the State Clearinghouse file from the Division of Water Resources which commented on or corrected this discussion of the proposed increased IBT in the final EA for the Water Treatment Plant expansion.

Furthermore, the discussion of the impacts of the IBT is brief and inadequate, containing only conclusory statements rather than a thorough evaluation of the issues. For example, the EA states that Cary is planning a new regional wastewater treatment plant on the lower Haw or upper Cape Fear River which would return a major portion of the diverted IBT flow. As we have done repeatedly, PWC again notes that Cary is under no obligation to construct such a wastewater treatment plant to return flow to the Cape Fear River Basin, nor is there any assurance it would be permitted. Hence, a basic premise of the EA, that diverted IBT flow would one day be returned to the Cape Fear River, is nothing more than mere speculation. Cary/Apex have been "planning" to build such a wastewater treatment plant for more than a decade, but there is still no assurance it will be built.

In summary, it appears that only a cursory and inaccurate attempt was made in the EA to address IBT issues raised by Wildlife Resources Commission comments. We were also unable to find anything in the PWS Section files or the State Clearinghouse file to indicate that the PWS Section ever considered delaying approval of the Water Treatment Plant expansion plans pending completion of the environmental review of the Cary/Apex IBT request. This would appear to violate the provisions of 15A NCAC 01C.0402, "Limitation on Actions During NCEPA Process," which govern conformity by DENR with the North Carolina Environmental Policy Act. 15A NCAC 01C.0402(a) provides that:

> While work on an environmental document is in progress, no agency shall undertake in the interim any action which might limit the choice among alternatives or otherwise prejudice the ultimate decision on the issue.

The Environmental Assessment for the IBT increase requested by Cary and Apex was being prepared in 1997. In December, 1997, the EMC postponed a decision on the Cary/Apex Round 2 water allocation request pending completion of the environmental documentation for the proposed IBT increase. The PWS Section should likewise have delayed approval of the plans for the Cary/Apex Water Treatment Plant expansion pending completion of the Environmental Assessment for the IBT certification request and final action by the EMC on the Cary/Apex Round 2 allocation request for additional water from Jordan Lake.

All the agencies at DENR should have been aware that the proposed expansion of the Cary/Apex Water Treatment Plant was integrally related to the towns' requested increase in water allocation and IBT. By approving the plans for the Cary/Apex $50 million plus Water Treatment Plant expansion prior to completion of the environmental review for the IBT, the PWS Section undertook an interim action which, contrary to 15A NCAC 01C.0402, limited "the choice among alternatives" and which clearly could prejudice the ultimate decision on the IBT issue.

Notwithstanding the pending environmental review of the Cary/Apex IBT request and the delay by the EMC of the Round 2 water allocation from Jordan Lake, on February 10, 1998, the PWS Section approved plans for installation of a 42 inch raw water transmission line between Jordan Lake and the Cary/Apex Water Treatment Plant. Thereafter, on July 20, 1998, Cary/Apex submitted plans for approval by the PWS Section for an upgrade to their Water

Treatment Plant from 16 MGD to 32 MGD. On November 17, 1998, the PWS Section approved the plans submitted for expansion of the Water Treatment Plant from 16 MGD to 32 MGD.

Cary/Apex then proposed revisions to the approved plans. These revisions provided for expansion of the plant to 40 MGD. Again, notwithstanding the pending environmental review of the IBT, the PWS Section approved the revised plans on October 11, 1999, allowing for expansion of the Plant from 16 MGD to 40 MGD. Included in the PWS Section correspondence related to approval of this plant expansion is a copy of an October 5, 1999 e-mail memo from Tom Fransen of the Division of Water Resources to Wayne Munden and other members of the PWS Section. A copy of this memo is enclosed. Tom Fransen's memo "summarizes the existing and proposed new Jordan Lake water supply allocations for Cary/Apex, Morrisville and Wake County/RTP," and provides the PWS Section the following information on the IBT request:

> Cary/Apex's current 16 MGD allocation is for a weekly average withdrawal. The staff recommendations will not be decided by the EMC until sometime next year. These Allocation requests involve interbasin transfers and the environmental documentation has not been completed yet. The EMC is going to act on both allocation and interbasin transfer at the same time.

Despite the WRC's April 1997 comments on the Water Treatment Plant expansion which raised significant concerns about the interbasin transfer issues and despite communications with DWR in October 1999 indicating that the environmental documentation on the proposed IBT had not yet been completed, the PWS Section did not delay approval of the Cary/Apex Water Treatment Plant expansion plans. The PWS Section's approval of the Water Treatment Plant expansion while work on the environmental document for the IBT was in progress appears to be contrary to both the letter and the spirit of 15A NCAC 01C.0402.

With all due respect, it is difficult for PWC to understand how DENR can make a truly objective evaluation of the Cary/Apex IBT request when the Department has already approved the facilities to make use of the IBT. Therefore, PWC respectfully requests that you review the actions of the PWS Section in approving the Cary/Apex Water Treatment Plant expansion to determine if DENR followed its own NC EPA regulations. Furthermore, in evaluating the Cary/Apex IBT certification request and requested Round 2 allocations, the Department staff and the EMC should not be influenced by Cary and Apex's premature expenditure of over $50 million to expand their Lake Jordan Water Treatment Plant.

Thank you very much for your consideration of this important matter. We would very much appreciate a response prior to the EMC Public Hearings scheduled for March 5th and 6th. We will look forward to hearing from you soon.

Sincerely,

PUBLIC WORKS COMMISSION

M. J. Noland, P.E.
Chief Operating Officer
Division of Water Resources

Enclosures
cc: John Morris, DWR
Jessica G. Miles, PWS

RALEIGH\278765_1

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Environmental Health
Public Water Supply Section

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
Linda C. Sewall, Director

April 25, 1997

Mr. Robert J. Goldstein
Robert J. Goldstein & Associates, Inc.
Environmental Consultants
8480 Garvey Drive
Raleigh, North Carolina 27616-3175

Dear Mr. Goldstein:

Attached are the comments we have received related to the Environmental Assessment for the Cary-Apex Water Treatment Plant Expansion.

The concerns expressed by the various Department of Environment, Health and Natural Resources review agencies must be addressed before a revised Environmental Assessment can be forwarded to the State Clearinghouse for statewide review.

It is usually best to contact the commenting agencies directly to work out acceptable ways to address their questions. If however, you need any assistance in this manner, feel free to contact me at 919/715-3217.

Sincerely,

Faith Abbott

L. Faith Abbott
Environmental Engineer
Compliance Services Branch

cc: Jessica Miles
Michael Douglas
J. C. Lin

attachments

P.O. Box 29536 ▲ Raleigh, NC 27626-0536
Telephone 919-733-2321 ▲ FAX 919-715-3242

State of North Carolina
Department of Environment, Health, and Natural Resources

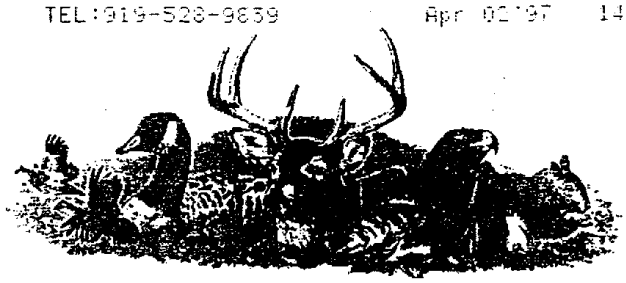
INTERGOVERNMENTAL REVIEW — PROJECT COMMENTS

Reviewing Office:	
Project Number: 837	Due Date:

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

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to construct & operate wastewater treatment facilities, sewer system extensions, & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts On-site inspection. Post-application technical conference usual	30 days (90 days)
☐	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
☐	Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
☐	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
☒	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15A NCAC 2H.0600	Please contact Stacey Julian at (919)571-4700 concerning permitting requirements for generators N/A	60 days (90 days)
☐	Any open burning associated with subject proposal must be in compliance with 15A NCAC 2D.0520.		
☐	Demolition or renovations of structures containing asbestos material must be in compliance with 15A NCAC 2D.0525 which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-733-0820.	N/A	60 days (90 days)
☐	Complex Source Permit required under 15A NCAC 2D.0800.		
☒	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Sect.) at least 30 days before beginning activity. A fee of $30 for the first acre and $20.00 for each additional acre or part must accompany the plan		20 days (30 days)
☐	The Sedimentation Pollution Control Act of 1973 must be addressed with respect to the referenced Local Ordinance:		(30 days)
☐	Mining Permit	On-site inspection usual. Surety bond filed with EHNR. Bond amount varies with type mine and number of acres of affected land. Any area mined greater than one acre must be permited. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
☐	Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.D. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
☐	Oil Refining Facilities	N/A	90-120 days (N/A)
☒	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to prepare plans, inspect construction, certify construction is according to EHNR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of $200.00 must accompany the application. An additional processing fee based on a percentage of the total project cost will be required upon completion	30 days (60 days)

Continued on reverse



North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Melba McGee
Office of Legislative and Intergovernmental Affairs

FROM: Owen F. Anderson, Piedmont Region Coordinator
Habitat Conservation Program

DATE: April 2, 1997

SUBJECT: Environmental Assessment for Cary-Apex Water Treatment Plant Expansion, Wake-Chatham Counties, NC, Project No. 837

Biologists on the North Carolina Wildlife Resources Commission staff have reviewed the subject document. These comments are provided in accordance with certain provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the North Carolina Statutes (G.S. 113-131 et seq.).

The Town of Cary is proposing to expand the existing Cary-Apex Water Treatment Plant (WTP) on B. Everette Jordan Lake from 16 MGD to 26 MGD, then to 32 MGD and ultimately to 40 MGD to meet increasing water demands. The work will include improvements to the water intake system and when demand exceeds 25 MGD the pumps will be upgraded to 40 MGD and a new 6.2-mile, 48-inch raw water transmission line will be installed. Work at the WTP will include the construction of a 145 million gallon, two-cell raw water reservoir.

The construction at the WTP will impact 11.55 acres of Piedmont Bottomland Forest (including 2.36 acres of jurisdictional wetlands), 15.95 acres of Dry-Mesic Oak/Hickory Forest, 10.85 acres of pine forest, 4.25 acres of mixed pine/oak/hickory forest and 5.85 acres of agricultural field. The vegetation types and interspersion make this very high quality wildlife habitat.

The environmental issues related to this expansion are complex. The increase in water withdrawal could lead to additional interbasin transfer and effluent discharge to the Neuse River. The solution to the interbasin transfer is to build a regional wastewater plant in the Cape Fear Basin, which could result in a decline in water quality that would adversely impact aquatic species. Among the species that could be impacted is the federally listed Cape Fear Shiner. The continued urban sprawl that will be facilitated by this expansion will result in continued fragmentation of terrestrial habitats and degradation of aquatic habitats. The increased growth around Jordan Reservoir is likely to result in more landowner-recreationist conflicts. Loss of hunting opportunities on Jordan Lake Game Lands and a continued deterioration of water quality that would impact aquatic recreational opportunities are consequences that could result from this expansion.

The environmental assessment (EA) does a good job describing the natural resources and associated impacts of the project. The secondary and cumulative impacts will have a greater impact on wildlife resources, including threatened and endangered species, than the direct impacts of the project. The consultant has included suggestions in the document on how some of these impacts can be mitigated. However, there are no specific details or commitment to measures that will be implemented by project sponsors to mitigate the significant secondary impacts to fish and wildlife resources from explosive development, which will be facilitated by the expanded water supply.

It is our understanding that Cary has not been granted an increase in water allocation; therefore, we believe this document is premature. Additionally, due to the complexity and interrelated nature of the environmental issues, we believe a more comprehensive document is warranted. The revised document needs to discuss the water treatment plant expansion in context of interbasin transfer, the proposed wastewater treatment plant and impacts on the aquatic resources of the Cape Fear River and recreation on Jordan Lake and the adjacent public lands.

We have the following comments, recommendations and requests for information on this project:

1. Discuss what specific measures will be taken to protect riparian corridors and protect the 100-year floodplain. We recommend that the greater of the 100-year floodplain or a minimum 100-foot buffer be maintained in forest along perennial streams. For intermittent streams, 35-foot forested buffers are recommended.

2. Discuss any comprehensive stormwater management plans that are currently in place to protect Swift and Middle creeks and Jordan Lake. Requiring commercial development to install stormwater wet detention ponds and residential developments to use stormwater best management practices (e.g., grassed swales and stormwater ponds) in addition to the forested riparian buffers will benefit water quality and endangered and threatened species.

3. Provide clarification on the wetland acreage that will be impacted. In section 5.11, it is stated that 1.16 acres of wetlands will be impacted at the WTP; however, it is stated in section 5.13 that 2.36 acres of wetland will be disturbed. Additionally, there is no commitment to wetland mitigation for the unavoidable impacts.

4. The document accurately points out that many wetlands are adversely impacted by secondary development caused by utility line construction. What mitigative measures will be taken by the project sponsors to protect wetlands and endangered and threatened species from impacts of sewer and water line hook ups by residential and commercial developments?

5. The EA needs to discuss the impacts of interbasin transfer. Although a regional wastewater treatment plant is planned for the Haw River, a significant portion of the sewage effluent may be discharged into the Neuse River Basin, which could exacerbate water quality problems and adversely affect federally and state listed aquatic species. Conversely, the construction of a major regional wastewater treatment plant in conjunction with reduced flows from Jordan Lake may cause a decline in water quality and aquatic habitat in the Cape Fear River.

6. The EA states that it may be necessary to close the WRC boating access road briefly for installation of the transmission line. We request that this work be coordinated with our boating section. An effort should be made to perform this work during slow recreational periods and to notify the public of any closures that can not be avoided.

7. The EA states that a proliferation of in-ground irrigation systems are increasing the water consumption in the Cary area. Encouraging landscaping with native trees and shrubs and discouraging highly manicured turf grass are recommended. Eliminating highly manicured lawns will reduce water consumption and adverse impacts to water quality from the toxic substances and nutrients required to maintain these areas.

8. In section 5.8.2, the EA states that the COE has determined that the additional 24 MGD withdrawal will not interfere with recreational use of the lake or maintenance of instream flow. The justification for this is that Jordan Lake has a large storage volume and the COE can regulate the release such that most of the resultant flow reduction in the Haw and Cape Fear rivers will occur during normal to high flow periods. Facilities (e.g., Cross Winds Marina) have experienced problems at current withdrawals during low flow periods; therefore, we do not follow the rationale that the large reservoir pool can alleviate impacts on recreation during low flow periods when users approach their maximum withdrawals and minimum releases are maintained. Provide clarification on the expected impacts on water levels in Jordan Lake during drought periods and how these levels would affect marinas, navigation and boating access areas.

Thank you for the opportunity to provide input during the planning stages for these projects. If we can provide further assistance to you, please contact our office at (919) 528-9886.

cc: John Hefner, Supervising Biologist, USFWS
Steve Hall, Biologist, Natural Heritage Program

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Environmental Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
A. Preston Howard, Jr., P.E., Director

DEHNR

October 6, 1995

MEMO

To: Wetland consultants and municipalities

From: John Dorney

Re: Modification to Certification for Nationwide Permit 12 - Utility lines

The Division of Environmental Management (DEM) has reissued the General Certification (GC) for Nationwide Permit 12 and Regional Permit 049. The new GC will expedite the permitting process and clarify for the applicant conditions necessary for a certifiable project. The significant changes are:

1) No fertilizer applied within 10 feet of streams;
2) Anti-seep collars every 150 feet in wetlands;
3) Restore to original contours after construction. A specific plan is needed;
4) Rip rap is restricted to stream bottom and banks directly impacted by the utility line;
5) The construction corridor (including access roads and stockpiling of materials) is limited to 40 feet in width;
6) Construction corridors parallel to streams shall be placed at the furthest distance from the stream to the maximum extent practicable; and
7) Although you still need to apply to the U.S. Army Corps of Engineers for these permits, written concurrence from DEM is no longer needed provided that all conditions of the General Certification are followed. Written concurrence is required if the utility line is installed parallel and closer than 10 feet to a stream or if the line crosses a stream channel at less than 75 degrees or more than 105 degrees (i.e., not perpendicular stream crossing).

A copy of the revised GC is enclosed for your information. DEM will be making compliance site inspections. Should the utility line be installed such that a condition is violated, remedial actions including utility line relocation or installation of anti-seep collars fines may be imposed.

Should you have any questions, please contact Eric Galamb or John Dorney at (919) 733-1786.

nw12.mun

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7. The construction corridor (including access roads and stockpiling of materials) is limited to 40 feet (12.2 meters) in width and must be minimized to the maximum extent practicable.

8. Measures shall be taken to prevent live or fresh concrete from coming into contact with waters of the state until the concrete has hardened;

9. Permanent, maintained access corridors shall be restricted to the minimum width practicable and shall not exceed 10 feet (3 meters) in width except at manhole locations. A 10 feet (3 meters) by 10 feet (3 meters) perpendicular vehicle turnaround must be spaced at least 500 feet (152.4 meters) apart.

10. An anti-seep collar shall be placed at the downstream (utility line gradient) wetland boundary and every 150 feet (45.7 meters) up the gradient until the utility exits the wetland for buried utility lines. Anti-seep collars may be constructed with class B concrete or compacted clay. Perpendicular wetland crossings less than 150 feet (45.7 meters) long do not require anti-seep collars.

    The compacted clay shall have a specific discharge of 1×10^{-5} cm/sec or less. A section and plan view diagram is attached for compacted clay and concrete anti-seep collars.

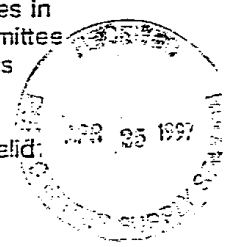
    The following specifications shall apply to class B concrete:

a) Minimum cement content, sacks per cubic yard with rounded course aggregate	5.0
b) Minimum cement content, sacks per cubic yard with angular course aggregate	5.5
c) Maximum water-cement ratio gallons per sack	6.8
d) Slump range	2" to 4"
e) Minimum strength - 28 day psi	2,500

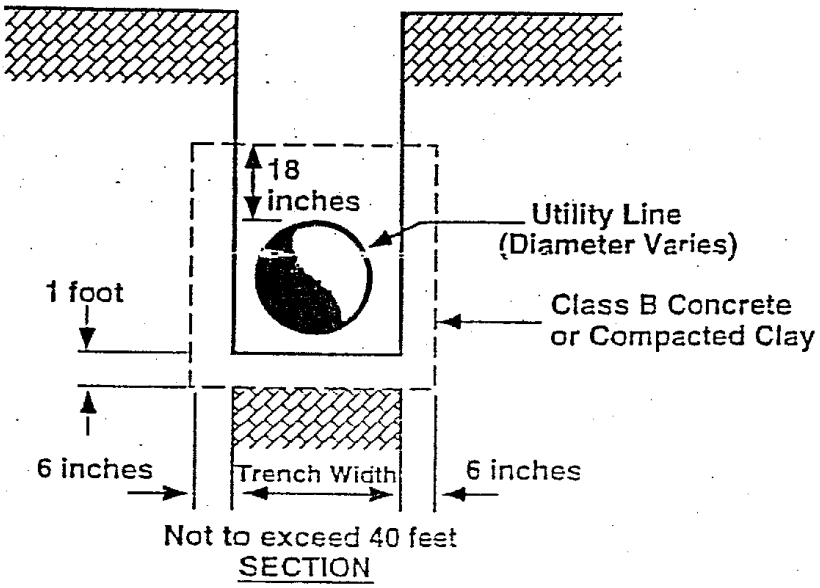
11. Placement of rip rap is restricted to stream bottom and banks directly impacted by the placement of the utility line. The stream berm must be restored to the original contour after construction;

12. This general certification does not authorize any permanent changes in preconstruction elevation contours in waters or wetlands. The permittee will have a specific plan for restoring wetland contours. Any excess material will be removed to a high ground disposal area;

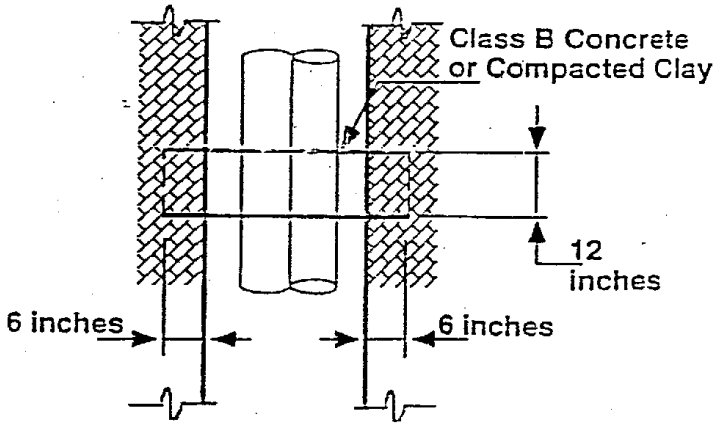
13. If an environmental document is required, this Certification is not valid;



ANTI -SEEP COLLAR



SECTION



PLAN

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Water Quality

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
A. Preston Howard, Jr., P.E., Director

DEHNR

April 23, 1997

MEMORANDUM

TO: Melba McGee

FROM: Michelle Suverkrubbe

THROUGH: Alan Clark

RE: Comments on DEHNR # 837; DWQ#11536
Cary-Apex Water Treatment Plant Expansion - EA
Cary, Wake County

The proposed project consists of expanding the existing Cary-Apex Water Treatment Plant. The Division of Water Quality (DWQ) has reviewed the above EA and has the following comments on the proposal:

a. The Division has some concerns regarding the potential toxicity of the water treatment plant backwash proposed for this project. Camp, Dresser and McKee and Goldstein Associates have indicated that some preliminary whole-effluent toxicity tests will be performed on the existing effluent to determine the degree of toxicity (if any). It is recommended that this information be provided to the Division as results become available. This information may be required prior to issuance of the NPDES permit for this project. If the EA is to be updated or amended, it is recommended that it contain data on the toxicity of the effluent. If you should have any questions on requirements for this permit, please call Dave Goodrich, NPDES Group Supervisor, at 919-733-5083, ext. 517.

b. The applicant should be made aware of the necessity to follow the requirements for the general certification for Nationwide Permit 12 - Utility Lines by the Army Corps of Engineers when disturbing wetlands for utility construction activities (See attached handout). Deviations from the General Certification will require a formal application for a Section 401 Water Quality Certification from our Division. If you should have any questions on wetland impacts or the 401 Certification process, please call John Dorney, Ecological Assessment Group, at 919-733-1786.

Please give me a call at 919-733-5083, ext. 567 if you have any questions.

mls:\837
enclosed handout

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State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Forest Resources

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
Stanford M. Adams, Director

Griffiths Forestry Center
2411 Old US 70 West
Clayton, North Carolina 27520
March 17, 1997

DEHNR

MEMORANDUM

TO: Melba McGee - Office of Legislative Affairs

FROM: Don H. Robbins, Staff Forester DHR

SUBJECT: EA for Cary-Apex WTP Expansion in Wake and Chatham Counties, N.C. at Jordan Lake

PROJECT #: 837

DUE DATE: 3-27-97

We have reviewed the above subject document of November 1996 and have the following comments:

1. It appears that the proposed expansion will impact a total of 46 acres of woodland. The majority of this contains merchantable trees.

2. It is hoped that the contractor will make all efforts possible to salvage merchantable trees that have to be cut for pulpwood, chips, poles and sawtimber whenever possible.

3. It is also hoped that the contractor will protect remaining standing trees from adverse construction damage.

4. It is suggested that woodland impacts be kept to a minimum whenever possible.

pc: Warren Boyette - CO
Alton Perry - Wake Co.
Ken Perry - Chatham Co.
File

P. O. Box 29581, Raleigh, North Carolina 27626-0581
Voice 919-733-2162 FAX 919-715-4350

NRC Reduce Reuse Recycle

Subject: Status of Cary/Apex's Jordan Water Supply Allocation
Date: Tue, 05 Oct 1999 10:24:00 -0400
From: Tom Fransen <Tom.Fransen@ncmail.net>
Organization: Water Allocation Section, Division of Water Resources
To: Munden <Wayne.Munden@ncmail.net>, Young <Tony.Young@ncmail.net>
CC: Chen <Tony.Chen@ncmail.net>, Broadwell <Mark.Broadwell@ncmail.net>

The following table summarizes the existing and proposed new Jordan Lake Water Supply Allocations for Cary/Apex, Morrisville, and Wake County/RTP.

	Current Allocation (MGD)	Amount Requested (MGD)	Staff Recommended (MGD)	New Total If Approved (MGD)
Cary/Apex	16.0	29.0	5.0	21.0
Morrisville	0.0	4.5	2.5	2.5
Wake/RTP	0.0	3.5	1.5	1.5
TOTAL	16.0	37.0	9.0	25.0

Cary/Apex's current 16 MGD allocation is for a weekly average withdrawal. The staff recommendations will not be decided by the EMC until sometime next year. These allocation requests involve interbasin transfers and the environmental documentation has not been completed yet. The EMC is going to act on both allocation and interbasin transfer at the same time.

The EMC in 1997 approved changing the Jordan water supply contracts from a weekly average to a storage contract. This is more consistent with the CORPS' contract with the State. The State purchased 32.6% of the storage between elevations 202 and 216. So in the table above MGD really is % of storage. For convenience MGD is usually used since the SY is 100 MGD.

The way DWR is interpreting the storage allocations for the new contracts is the approved amount is an average annual amount. This gives the allocation holders more flexibility to maximize their use of the storage allocation, i.e., ability to meet peak demands. With the new contract it will be acceptable for Cary to withdrawal 40 MGD for a maximum daily demand (assuming a 1.6 peaking factor) as long as they don't deplete their storage allocation.
One safe guard, to help be sure allocations holders don't exceed their allocation amount is they will be required to have an approved drought management plan. DWR will look at those plans to be sure as storage begins approaching low levels demand on the lake is reduced.

Please let me know if you have any other questions or concerns.

15

Subject: [Fwd: Interbasin Transfer]
Date: Wed, 07 Mar 2001 14:09:42 -0500
From: Tom Fransen <Tom.Fransen@ncmail.net>
Organization: Water Allocation Section, Division of Water Resources
To: Ambat <Sheila.Ambat@ncmail.net>

-------- Original Message --------
Subject: Interbasin Transfer
Date: Wed, 07 Mar 2001 08:34:24 -0500
From: "BETTY SHACKELFORD" <SHACKELB@ftccmail.faytech.cc.nc.us>
To: <TOM.Fransen@ncmail.net>

See attachment from Larry B. Norris, President, Fayetteville Technical Community College

Betty Shackelford
Fayetteville Technical Community College
1-910-678-8222 (fax 1-910-678-8269)
shackelb@ftccmail.faytech.cc.nc.us

Interbasin Transfer Hearing.wpd	**Name:** Interbasin Transfer Hearing.wpd **Type:** Corel WordPerfect 8 Document (application/x-unknown-content-type-WP8Doc) **Encoding:** base64 **Description:** WordPerfect 6.1

Interbasin Transfer Hearing

March 6, 2001

Fayetteville Technical Community College, the second largest institution in the North Carolina Community College System, has two primary missions: developing the workforce and improving the quality of living for the citizens of Fayetteville and Cumberland County, North Carolina. Our critical role is the development of the workforce to help grow the economy of our service area. Vital to that role is providing graduates with essential skills to serve existing industry and businesses and to assist in recruiting new industry, particularly in high tech and emerging technologies.

As a low wealth county, Cumberland struggles to expand and diversify its economy, particularly in fostering a climate for industrial and business development. Our location on Interstate 95 and near Interstate 40 makes Cumberland County a prime location for economic investment. Our ability to provide necessary infrastructure for potential industries, as well as assist existing industry in their expansion, must not be compromised by potential loss of invaluable resources like the water from the Cape Fear River. In addition, renewal of downtown Fayetteville depends greatly on the development of the waterfront. The River is also essential to the growth and expansion of the Cape Fear Botanical Garden.

While statistical data and models may show that diversion of additional millions of gallons of water each day from the Cape Fear River may have no permanent short-term effect on the health of the River and its ability to provide water at current demands, we question the accuracy of such data and models

for long-term impact. Common sense tells us that water taken from the River for necessary use by communities must be replaced for the long-term health and vitality of the River.

Though we have been labeled as "chicken little" because of our concerns and objections to additional transfers, we believe that such transfers will have significant long-term negative effects on the quality and availability of water for the future of our community. In Cumberland County, we seek to plan carefully and thoughtfully for the future of our community. Diversion of additional water from the Cape Fear River has significant potential to harm the economic development of Fayetteville and Cumberland County. Addressing such potential negative effects is essential to effective planning for the future of our community.

Frankly, we oppose the transfer. However, while it may be necessary for the communities up-river to temporarily increase their use of the water without replacing it, we fully believe that such transfers, if approved, must be limited to no more than ten years. During that time, those same communities must build appropriate treatment plants to clean and replace water back into the Cape Fear River. It would appear that more effective planning by up-stream communities with far greater wealth should have already provided for current demands for water through building the necessary treatment plants. Lack of such planning and action, including projected great costs for those cities, must not create problems for our community's growth.

As a representative of Fayetteville Technical Community College, I request that the approval of any additional transfer of water from the Cape Fear River be denied or, if approved, be limited by specific parameters of time and that cities be required to construct and begin operating treatment plants

within the next ten years so that all water taken from the River be discharged back into it.

Respectfully Submitted,

Dr. Larry B. Norris
President
Fayetteville Technical Community College

Subject: Interbasin Water Transfer
Date: Wed, 7 Mar 2001 16:49:51 -0500
From: "Richard J. Perry" <rperry_fay@msn.com>
To: <tom.fransen@ncmail.net>

It is understandable that the Triangle area needs water from the Cape Fear Basin, but it is not understandable, or acceptable, not to return that water to the basin from which it came. So the cities involved have to build a return pipeline from their treatment plant to the Cape Fear. That's part of the cost of the water they need.

Not to return said water to the river basin from which it came is totally unfair to the thousands of North Carolinians who live downstream.

Please be Fair.

Sincerely,
Richard J. Perry
Fayetteville, NC

BIOGEN®

- Biogen's corporate headquarters are based in Cambridge, MA.
- We have 1600 employees working worldwide.
- The company is 24 years old.
- Biogen is a fully operational company and we also have products that are licensed to other companies to make, market, and sell such as the Hepatitis B vaccine.
- There are over 20 products in the developmental pipeline, which will be used to treat a wide range of disorders.
- Biogen's most notable product, Avonex, for the treatment of Multiple Sclerosis, is manufactured in RTP.

Biogen RTP

- Started in 1995 to support growth for next 25 years.
- Currently 135 employees - Will double in next 2 years. These jobs are high paying and require the incumbents to have science or high tech backgrounds.

Biogen currently owns 176 acres of property in RTP and has 5 buildings (500,000 sq. ft) which are either completed or under construction at a cost of $275 million. One of Biogen's new buildings is a 250,000 sq. ft Bio Pharmaceutical Plant that is the second largest in the world. We also have 4 additional buildings in the 10-year plan, which will cost approximately $200 million. Obviously Biogen wants to grow its business in North Carolina.

Biogen's growth in RTP is dependent on water. Water is the lifeblood of our BioProcess operations. If we do not have the appropriate amounts of water, growth will be impossible.

Biogen supports the IBT, without conditions.

Subject: TRANSFER OF WATER
Date: Thu, 8 Mar 2001 10:59:07 EST
From: Unc411957@aol.com
To: Tom.Fransen@ncmail.net

Dear Mr. Fransen,

On the matter of the proposed interbasin transfer, I want our comments to be part of the record of the public hearing held March 6, 2001 in Fayetteville. We would like to request that there will be no additional transfer of water from Jordan Lake to Cary, Apex, and Raleigh unless they will return it to the Cape Fear River Basin. Do not grant any additional water from Jordan Lake until they are prepared to follow through with their promises to build a treatment plant that would return treated wastewater to the Cape Fear.

We would also like to request that an extensive environmental impact study be done, funded by the state, conducted by an impartial research organization with impeccable credentials, and thoroughly peer-reviewed.

Sincerely,
Dr. & Mrs. Joe Quigg

Subject: Transfer of water
Date: Thu, 8 Mar 2001 10:45:40 EST
From: Unc411957@aol.com
To: Tom.Fransen@ncmail.net

Dear Mr. Fransen,

On the matter of the interbasin transfer of water, I want our comments to be part of the record of the public hearing held March 6, 2001 in Fayetteville. Do not permit any additional transfer of water from Jordan Lake to Cary, Apex, and Raleigh unless they will return that water to the Cape Fear River Basin. Do not grant any additional water to them from Jordan Lake until they are prepared to fulfill their promises of a treatment plant that would return the water.

I would hope that an extensive environmental impact study will be done, funded by the state,conducted by an impartial organization with impeccable credentials, and thoroughly peer reviewed.

Sincerely,
Dr. & Mrs. Joe Quigg

Subject: Comments from the Sanford Area Chamber of Commerce Concerning Round 2 Jordan Lake Water Supply Storage Allocations and Proposed Increase in Interbasin Transfer by the Towns of Cary, Apex, Morrisville, and Wake County (for RTP South)
Date: Fri, 9 Mar 2001 09:41:06 -0500
From: Jimmy Randolpn <jrandolph@wave-net.net>
To: "'Tom.Fransen@ncmail.net'" <Tom.Fransen@ncmail.net>
CC: "'sanpworks@wave-net.net'" <sanpworks@wave-net.net>

Dear Commission Members:

The Sanford Area Chamber of Commerce supports the City of Sanford's position on the Jordan Lake water supply storage allocations and the proposed interbasin transfer issue. An adequate supply of quality water is essential for our organization to continue to accomplish its purpose in the Sanford community.

It is our position that the following items should be addressed concerning the request for interbasin transfer:

1. A study analyzing the entire basin should be conducted to determine future water demand from urban growth, agricultural need and the flow necessary to maintain a healthy riparian ecosystem. This study should address all water needs and all water available in the basin, including the water storage in Jordan Lake.

2. The maximum interbasin transfer should not be increased above its present level of 16 mgd. A "temporary" interbasin transfer could be allowed if Cary and Apex are required to build a wastewater treatment plant that discharges back to the Jordan Lake watershed. The plant should be built and online by the year 2010, at which time the interbasin transfer should be reduced to the original 16mgd.

The Chamber appreciates the seriousness of this issue for all the communities concerned, and we would like to thank the Commission for the opportunity to present our input on this most important issue. We feel that the position we advocate is a reasonable compromise that will ultimately ensure that the needs of all affected community's are met.

Sincerely,

Jimmy Randolph
President, Sanford Area Chamber of Commerce

Statement by James O. Roberson, President
Research Triangle Foundation of North Carolina
In Support of the Request by Cary and Apex for A Certificate to Increase Their Interbasin Transfer of Water from the Haw River Subbasin to the Neuse River Subbasin

March 6, 2001

Thank you for the opportunity to provide some comments with respect to the interest of Research Triangle Foundation in this request for additional water from Jordan Reservoir to serve, among other locations, the Wake County portion of Research Triangle Park.

As you, the hearing officers, are aware, Research Triangle Park may be one of the most significant and successful economic development initiatives in the history of North Carolina.

When the Park began in 1959, North Carolina lagged virtually every other state in new line technology related industries. In 1956, as an example, less than 12 percent of our state's work force was employed in these vibrant new industries that were reshaping the economics of most other states.

By 1995, the state had reached the level when almost one in three jobs was in new line industries. And these new jobs were much higher paying than the old-line industry jobs. North Carolina had a 20.7 percent increase in per capital income just during the five-year period from 1994 to 1998, raking as 13th in the nation in positive change in per capital income.

Today, Research Triangle Park is the host to 144 businesses and organizations that employ more than 50,000 full and part time jobs with an annual payroll well in excess of $2 billion.

By virtually every measure, RTP has had a major beneficial impact on the economy of North Carolina.

But the future may be even more promising. Important new developments can be expected in the near term future, particularly in the Wake County portion of the Park.

If I may, I would like to direct your attention to two very important factors relevant to our request.

The first has to do with the way we have treated environment considerations in the Wake County portion of the Park.

In 1986 the Research Triangle Foundation began planning the development of the Wake County portion of the Research Triangle Park. The Wake County Portion of the Park comprises approximately 2000 acres. The Foundation contracted with the School of Design at N.C. State University to prepare a land plan for this area. Instructions to the School of Design were to prepare "the best plan possible" for this land – a plan that

would accommodate research uses but which would be an environmentally responsible plan. The Foundation recognized that our land included floodplains, wetlands, steep slopes, and wildlife and was in the upper reaches of the watershed for Jordan Reservoir.

The plan, prepared by the School of Design over a period of four years and currently under implementation by the Foundation, provides for a significant amount of land (approximately 500 acres) to be placed in permanent open space. For our purposes this open space is called "Natural Area Preserve". The Natural Area Preserve encompasses the floodplain and wetland areas associated with the streams which cross the property. In many areas the Natural Area Preserve includes additional wooded areas beyond the actual floodplains. Areas of steep slopes on the adjoining lots are designated as "Surface Cover Maintenance Areas" which companies are required to retain in existing vegetation to reduce the potential detrimental effects of erosion and sedimentation during construction on these sites and to help infiltrate stormwater run-off from these sites after development. In addition, lot coverage (i.e., impervious surfaces) is limited to 30%. Please note that the Foundation was planning for limitations on impervious surfaces long before the State regulations called for a five mile protected area around Jordan Reservoir and in fact applied our limitations to the entire Wake county portion of the Park although only about half of the land falls within the 5 mile protected area.

Finally, the plan calls for construction of a series of lakes to provide a regional stormwater retention system for the southern portion of RTP. Studies by the School of Design indicated that such lakes would provide a pollution reduction of 70% or more over storm runoff, which is not impounded. We feel that the reduction in potential pollution to Jordan Reservoir that these lakes would accomplish would benefit all communities who will ultimately use Jordan as a drinking reservoir and therefore despite the considerable expense, constructing these lakes represents an environmentally responsible approach to development of the southern portion of RTP.

To date, two lakes have been constructed; each retaining at least one inch of stormwater run-off and the final lake is under design. 563 acres have been sold and 1.96 million square feet of space has been completed with another 1.46 million under construction. Conservatively, this represents an investment of over $500 million. Another 686 acres remain available in salable lots in the Wake County portion. Development of this vacant land will likely equal or surpass that of the currently developed acreage.

I think you will agree that we have been zealous in the actions we have taken to ensure that the ecology and the environment of our portion of Wake County will be preserved and enhanced.

The second factor has to do with the suggestion by some that, if the additional water requested is provided by the approval of the interbasin transfer, the approval should expire in 2010.

The suggestion to reduce the transfer request in less than 10 years is going to introduce an aspect of uncertainty to decision makers in new and expanding industry that could be devastating.

Today, there are seven companies—Biogen, Ericsson, Cisco Systems, Covance, Delta Products, Larscom and Magnequench—located in Wake County. They have invested over $500 million todate and have plans to spend an additional $750 million on facilities under construction or set to begin construction in the near future.

Thousands of new jobs, highly paid jobs, have been and will be created by this investment.

But business must be assured that they will have an adequate supply of water in the future.

You will hear from representatives of two of these world class companies—Biogen and Cisco Systems—this evening and they can confirm the need for confidence that the water necessary for their future operations is going to be available after 2010.

You have received undisputed documentation that granting this request will have no significant impact on downstream flows or on Jordan Lake elevations.

Indeed, the North Carolina Department of Environment and Natural Resources, including its Division of Water Resources, has fully reviewed all related documents and supports the findings that the IBT request will have no negative impact.

We respectfully urge you, as the hearing officers, to advise the Environmental Management Commission that our request for the interbasin transfer is essential to our future growth and development, that there is no negative impact on our downstream neighbors and that our request should be granted, as submitted, expeditiously.

Subject: Cape Fear River Interbasin Transfer
Date: Thu, 22 Mar 2001 17:01:22 EST
From: TeaWater1@aol.com
To: tom.fransen@ncmail.net

At approximately 11:00 AM, Thursday, March 22, 2001, I received a call from the office of the Environmental Management Commission stating my presentation at the Cape Fear River Interbasin Transfer hearing held March 6, 2001 in Fayetteville, NC was somewhat garbled in transmission from the recording. The person calling requested that I recap my remarks from my notes as best I can and e-mail them to "Tom.Fransen@ncmail.net"
As follows:
I have before me Volumes I & II, Corps of Engineers' "Comprehensive Report on the Cape Fear River Basin, North Carolina", dated 30 October 1961. In 1963, as president of the Fayetteville Area Chamber of Commerce I attended, along with Mayor Robert Butler and City Attorney Joe Talley, the Senate committee hearing concerning the proposed New Hope Dam and Reservoir held in Washington, DC. Senator B. Everett Jordan presiding.

Noone in Wake or Orange county provided any help in seeking approval of the project. Dr. Mott Blair of Siler City is the only person from the upstream area I recall actively promoting the dam and impoundment. Rather, there was resistance from a group of Chapel Hill professors and a congressman from Nashville, NC.

The Cary folks should be mindful that were it not for the leaders in the Cape Fear Basin there would be no Jordan Lake from which they now enjoy 16,000,000 gallons/day.

(note:add to the above the previous e-mail sent March 8, 2001 as folows):

Dear Mr. Fransen: I wish to add the following to my remarks made at the Cape Fear River Interbasin Water Transfer hearing held in Fayetteville, NC, March 6, 2001:

The problem that your board should consider as parmount is the ultimate effect the reduction of stream flow will have on the "dilution of pollution" which is one of the Corps of Engineers's concerns when the New Hope Dam and Lake was proposed in the early 1960's. Should the flow of water continue to be diverted to another basin the effects will be felt due to the lack of dilution of the pollution which will always be there as stormwater drains into the creeks and streams, agricultural run-off and ineffective wastewater treatment facilities which exists today.
I think your decision should give weight to the fact that the people asking for the transfer have no intention of providing facilities to return the water to the Cape Fear Basin due to the cost without being forced to so so. Otherwise, they would be expending the money on building a wastewater treatment plant with definite plans now to return the present 16,000,000 gallons per day to the Cape Fear Basin rather than building the plant to empty the treated water into the Neuse Basin.

Serious thought should be given to the effect that the increased flow into the Neuse River when the next storm surge blocks the river from flowing into the sound. The City of New Bern will be inundated. Even now, though it doesn't happen often, it does happen.. I remember. I was there!

The transfer must not be granted until Cary and the others have completed and have in operation the required facilities to return the treated water to the Cape Fear Basin with adequate monitoring equipment.
Thank you for allowing this input.

Thornton W. Rose
2614 Mirror Lake Drive
Fayetteville, NC 28303
(910) 484-9060

Subject: proposed interbasin transfer from Jordan Lake
Date: Fri, 09 Mar 2001 12:05:53 -0500
From: "raymond j. rundus" <rjrundus@foto.infi.net>
To: Tom.Fransen@ncmail.net

Dear Mr. Fransen:

I want the following comments to be considered part of the record of the public hearing held in Fayetteville on March 6, 2001.

PLEASE DO NOT PERMIT ANY ADDITIONAL TRANSFER OF WATER FROM JORDAN LAKE TO CARY, APEX, AND RALEIGH OR OTHER WAKE COUNTY SITES UNLESS THE USED WATER WILL BE RETURNED TO THE CAPE FEAR RIVER BASIN. PLEASE DO NOT GRANT ANY ADDITIONAL WATER TO THESE SYSTEMS UNLESS THEY ARE PREPARED TO DO THAT.

Sincerely,

Raymond J. Rundus (Hope Mills, NC)

Appearance Before
The
Environmental Management Commission

Let me say first of all that I am pleased that you have chosen to come to Fayetteville to listen to us about our hopes and Concerns. My name is Robert (Sandy) Saunders and I am the Chairman of the Public Works Commission. PWC provides water utilities to the more than 60,000 ~~residents~~ water customers of the Fayetteville/ Cumberland County area. When PWC built its first water filtration plant in 1912, our capacity was 1 million gallons. Today, with the growth experienced in our community, we have the capacity to treat 50 million gallons. Area leaders who served before me and this present Commission planned very carefully to insure that our customers always had a quality water supply. It is now my responsibility and the responsibility of ~~the~~ PWC ~~Commission~~ today to ensure that Fayetteville continues to have a high quality water supply source. We are also charged with the responsibility of planning so that future generations have the same quality water supply source that we have now.

I WOULD LIKE THEREFORE to urge the Environmental Management Commission to have that same responsibility. I urge you to ensure all technical issues are adequately resolved to make sure our residents of tomorrow are not compromised by decisions being made today.

At PWC, our vision is to improve the quality of life in the Fayetteville/Cumberland County areas by providing a range of competitive utility services to the region. Without water, there is no quality of life. Help us keep our quality of life. Protect our Cape Fear River Basin. ~~(Protect Haile Creek Put back what the Lake took.~~

Thank you for your consideration, and enjoy your stay in our beautiful city of Fayetteville.

Thank everyone who came out today for your support

Subject: Inter-Basin Transfer of water
Date: Wed, 7 Mar 2001 15:26:01 EST
From: SLSCALYPSO2@aol.com
To: Tom.Fransen@ncmail.net

DO NOT ALLOW ANY ADDITIONAL TRANSFER OF WATER FROM JORDAN LAKE TO WAKE COUNTY CITIES UNLESS THEY RETURN IT TO THE CAPE FEAR RIVER BASIN. DON'T SACRIFICE THOSE DOWNSTREAM OF THEM TO POLITICAL POWER.

S. L. SHACKLEFORD
2854 SKYE DR.
FAYETTEVILLE, N. C.

Subject: Comments for Record, Interbasin Transfer
Date: Thu, 08 Mar 2001 12:19:22 -0500
From: kim/denny/francesca <fms12490@foto.infi.net>
Organization: InfiNet
To: Tom.Fransen@ncmail.net

I would ask that the EMC deny the 27.0 mgd interbasin transfer requested By Cary, Apex and others.

The EIS is not adequate, and suspect. For example, what happens when Jordan Lake fills up with dirt, which all such lakes do? The amount of water given away, to not return to the Cape Fear River is gone.

I am a wife and mother of an 11 year old daughter. Her future in Fayetteville will depend on an adequate, good water supply. This should not be sold to the town with the most money.

Do not let them have any more water until the are ready to clean it up and put it back in the Cape Fear River.

Kim Martin Shaffer
2910 Skye Drive
Fayetteville, NC 28303

Francesca Martin Shaffer
2910 Skye Drive
Fayetteville, NC 28303

Please include these comments in the record of the public hearing held by the EMC in Fayetteville on March 6, 2001. Thank you.

REQUEST MADE BY CARY AND APEX TO INCREASE THE AMOUNT OF WATER THEY WITHDRAW FROM THE CAPE FEAR BASIN

Good Evening Council Members, ladies and gentlemen. I am present this afternoon to express my support for the community's opposition to the Council's support of the request made by Cary and Apex to increase the amount of water they want withdraw from the Cape Fear Basin.

The Council's condition that Cary and Apex build a wastewater treatment plant on the Cape Fear River within 10 years is insufficient. And, consideration to the consequences and the impact this decision will have on the residents of Cumberland must not be minimized.

We know that the withdrawal of this water will significantly impact our water source in the future and all of us residents who depends on the Cape Fear.

This inter-basin transfer plan can only affect the residents who are losing the water.

1

It is not going to affect those who are benefiting from it. It will not affect the residents of Cary and Apex they are the ones benefiting from the withdrawal of water.

We talk about the growth of Cary, Apex and the Research Triangle and as these areas' population grows so does their needs for increased water supply.

We must ask ourselves as planners and as leaders what about our towns, what about our population growth. As population growth occurs in our area won't our water supply need also increase.

We too must plan our water supply, just as Cary and Apex are planning.

In 1997 Cumberland County's population totaled 289,350. By 2010 that population is expect to be 321,450. This growth represents a projected Population Growth in Cumberland County of 11% between 1997 and 2010.

Can we truly overlook this type of population growth? Can we overlook our struggle to locate industry to our County?

If we are seeking industry growth isn't there are absolute parallel between growth in industry and growth in population.

We also cannot overlook the population growth statistics for Cape Fear Basin users that includes the following counties –

Almanace	***Durham***
Bladen	***Forsyth***
Brunswick	***Guilford***
Caswell	***Harnett***
Chatham	***Hoke***
Columbus	***Johnson***
Cumberland	***Lee***
Duplin	***Montgomery***
Moore	***New Hanover***
Onslow	***Orange***
Pender	***Randolph***
Rockingham	***Sampson***
Wake	**Wayne**

3

These 26-Counties represents areas with their own growing population. The total population for these counties in 1997 represented 1,691,627. That same population is expected to grow to 1,992,125 residents by 2010. This growth represents a 17.8% change in population between 1997 and 2010. (Source – Cape Fear River Basin Management Plan)

II. The Allocation Of Water Resources

The allocation of water resources must be critically evaluated. And in my point of contention, I will pose the question? – In December 1997, PWC's Request to the state to increase its water allocation was denied (Item I.

The purpose for PWC's request was to try to ensure/plan that in future years Fayetteville would have an allocation of water when they needed it.

During that same period, while Fayetteville's [PWC's] request was being denied the state panel, that same panel gave approval to the Wake County town of Holly Springs to take 2-million gallons a day.

Senator Rand in 1996 told Fort Bragg/Pope Air Froce Base Regional Land Use Advisory Commission that adequate water supply is the key to the economic and human future of the Cape Fear River area: He sited four major challenges we face. (Item 2)

1. **Guide development so it does not destroy the vital streams and wetlands that feed the mainstream rivers of the Cape Fear River Basin.**

2. **Control the sedimentation resulting from already developed areas – coping with runoffs**

3. **Pollution, protecting the river water and groundwater from pollution.**

5

4. **Facing the challenges of a fair give-and-take balance in the trick business of inter-basin transfer, making sure the greedy Research Triangle area does not suck away too much water from the Cape Fear River Basin**

Today, 2001, are other towns planning their future water needs at the costly expense of others, such as the residents of Fayetteville/Cumberland County.

And, I must agree with former State Senator, Laura Tally, who said recently "We are a low-wealth county," "These counties asking for this water are wealth counties.

They want to do something about their water without paying for it... I think that the people should really know about this. It is terribly important. It is our drinking water."

Yes, I agree Senator Tally.

Fayetteville's conditions to the request, that these towns build a Waste Water Treatment Plant within 10-years is insufficient in righting the problem that we as residents will face.

6

Pollution in the Cape Fear continues to be significant environmental factor, and is a problem for all of us. Therefore, the construction of a Wastewater Treatment Plant cannot and should not be used as a bargaining chip for our future needs.

Pollution in the Cape Fear we know is a major environmental factor. The Public Interest Research Group in its list of America's most heavily polluted waterways, a list that included the Mississippi, the Ohio and the Hudson, included, you can guess it, the Cape Fear. The Cape Fear sits among the top 20 polluted waterways, taking on thousands of tons of toxins; heavy metals, carcinogens, and pollutants known to cause health conditions (Item 3).

And, Let us also remember that in 1996, the state decided that most of the Cape Fear had reached its limit for wastewater, in other words the Cape Fear needed no more wastewater.

Nearly 1.5 million people live and benefit from the basin, and by 2010 most of the counties where these citizens live can expect population growth of up to 40%. We know, too, that with population growth comes more pollution.

7

Therefore, this promise to build a Wastewater Treatment Plant that will only increase treatment discharge into the basin is not a protection or prevention to the amount of pollution that we face now as well as what we will face in the future.

We know that we cannot count on alternative water sources such as Jordan Lake to fulfill our future water needs, because we know that our request, PWC's request for increased allocation in its water denied? Clearly indicating that there are no guarantees, unless you prepare your own.

Fayetteville's water reservoirs, Glenville Lake I and 2 – is not going to be sufficient in supplying our growing needs.

We cannot accept that taking away from our water supply without putting back is the way to plan for our future water supply.

8

From an "Opinion" written by Tom White, in Sunday, March 4, 2001 Fayetteville Observer newspaper. (Item 4) He said that ...

Following a call for a meeting from John Norris of the state's Division of Water Resources, who wanted to assure the citizens of Fayetteville there is plenty of water in Jordan Lake, which feeds the Cape Fear and there is no possible from Cary's taking more water, plus there is Cary's promise to construct a new wastewater treatment plant by 2010.

Mr. White asked the readers to consider :

- **In the mid-90's, Cary officials vowed that the town would have a wastewater plant on-line by 2000. When that fell through it was guaranteed for 2001, now its 2001, now there guarantee is for 2010. He asked, " Is their guarantee a scam in exchange for buckets of empty promises".**

- **The studies that the state and Cary used as proof there will be no increase in environmental damage from the water withdrawal was financed/paid for by Cary.**

9

- **Cary started building the new pipeline system long ago, even though it still did not have its permits. Does that mean that these upcoming hearings are all for show? That the deal is already done?**

- **Nearly half the members of the state Environmental Management Commission which will rule on Cary's permit, come from the Wake County area. We know too, that the Triangle area cities and town have huge political clout.**

- **Bill Coleman, Town Manager for Cary said, "Nobody in Fayetteville understands the plan to divert more water and the lack of environmental impact from the withdrawal of an additional million gallons a day from the river basis." "Just because there is a lot of "Chicken Littles" saying that the sky's going to fall, when all the scientific evidence (financed by the Town of Cary) says it won't.**

Mr. White said - "Let me put this on the record: The sky is not falling. We will have drinking water tomorrow.

10

But, taking 4 billion gallons of water a year out of the Cape Fear, and not replacing it, is a questionable practice on many levels, filled with potential problems and unintended consequences.

"Even Cary officials acknowledges that they should change that practice, but the town has never kept its word. "Maybe it's time to tell them there is no permit until they show us the money. "Chicken Littles"

I ditto Mr. White.

Cary installed miles of pipes water (Item 5) to carry almost 24-million gallons of water per day, as a part of its $65 million project to expand their plants from 16-million gallons per day to 40-million gallons per day. *Now, they are asking your approval?* Did they ask for approval from the residents downstream – i.e. Fayetteville, before they began putting down these water pipes.

11

Members of the Council, Ladies and Gentlemen, we, the residents of Fayetteville/Cumberland County must become proactive about determining our future and that includes our water resources and alternative resources.

May I also call your attention, to a newspaper article dated December 11, 1998 – it said "Water Supply drying Up" (Item 5) You see ladies and gentlemen, 1998 was a severe drought period for many areas of the state. It resulted in near-record low levels for both the Cape Fear River and Jordan Lake, and it raised serious concerns about possible water shortages, especially if we have drought periods. Lack of rain, ladies and gentlemen. We can't control our rainfall, can we?

My concerns for our water supply did not just begin, with this issue. As you know over the past few years, I have continued to push for Fayetteville/Cumberland to plans their water allocation efforts by building alternative resources such as a reservoir.

12

Our County Commissioners also the need to begin to look for alternatives in harnessing our water resources, and unanimously supported a resolution for a proposed reservoir plan that would meet the county's long-term water needs. (Item 7)

The benefits of a reservoir are numerous:

- **It provides protection to our water allocation and reserves and addresses future drinking water needs for the area;**
- **Recreational activities and Quality of Life benefits to residents;**
- **Economic Development and its Benefits**

My efforts is to support Fayetteville/Cumberland, to continue to plan and to seek alternative water resources and to seek the same kind of support and assistance through the State's Water Qualify Improvement Efforts, as other counties are doing.

13

In 1998, North Carolina's voters overwhelmingly approved an $800 million clean water bond referendum. The bond provides $330 million in state grants to help local governments repair and improve water supply systems and wastewater collection and treatment. And, another $300 million made available for clean water and to improve and repair water and sewer systems. (Item 8)

Since, that time, these grant moneys continue to go, and fast, across the state. But Cumberland County has benefited very little. Cumberland County represents about 4% of the state's population, yet in its receipt from the State Cumberland County has received only about 0.08% of these moneys. (Item 9)

I have spoken out on this disparity not only here, but in the General Assembly. As I have said, "the entire state will repay the bond debt. The bond is felt by all taxpayers, yet there are some taxpayers/communities that have seen no direct benefit from the water and sewer package.

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We must question ourselves ... 'Have the residents of Cumberland County really benefited from their votes on the State's Bond Package for water and sewer?'

We must begin planning for the future, Today. We have to do what everyone else, including Cary is doing and that is planning for the future.

We must plan for our future water needs by harnessing our water resources, or, we will fail our residents. We cannot look the other way or say yes, without fully understanding the consequences that these decisions will have on the future of our community.

This is a very costly and important decision and I beg the Council to deny this request and to seek options and alternatives will protect the future water resource needs and the Quality of Life that our residents should enjoy in Fayetteville and Cumberland County.

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Thank you for allowing me the opportunity to speak before you on a very important matter. I conclude, that I, too, joined the residents of this community who opposes the Council's decision and/or plans to support/approve the request that has been made by Cary and Apex to increase the amount of water they want to withdraw from the Cape Fear Basin.

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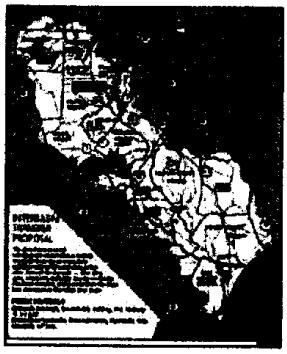
FAYETTEVILLE ONLINE LOCAL NEWS

Friday, March 2, 2001

Interbasin transfer turbulent

Cape Fear community leaders are skeptical of a plan to divert river water for use by Triangle towns.

By Nomee Landis
Staff writer
A state official says there is enough water in the Cape Fear River to with people who live outside its basin.



Click to enlarge

John N. Morris is the director of the state Division of Water Resources. He said diverting about 4 billion gallons of water a year from the Cape Fear River Basin to the Neuse River Basin will neither hurt the water supply nor degrade the environment around the Cape Fear.

But officials in Fayetteville and other communities along the Cape Fear say they don't want Cary and other Triangle area communities to take water from the Cape Fear basin without making plans to put it back, at least eventually. The city manager of Cary says that those officials are taking a "Chicken Little" attitude, worrying about problems that aren't going to happen.

The growing towns of Cary and Apex, which also supply water to Morrisville and a portion of Research Triangle Park, have asked the state Environmental Management Commission to approve their request to draw an additional 11 million gallons of water a day from Jordan Lake -- the source that supplies the Cape Fear River.

They have also asked the state to allow them to discharge this additional water through their treatment plants, which feed into the Neuse River. Cary and Apex currently transfer 16 million gallons a day from the Cape Fear basin to the Neuse basin. This switch is called an interbasin transfer.

But some residents and community leaders in the Cape Fear region

oppose the transfer. They say they don't mind sharing their water with communities upstream -- as long as they return the water to its basin of origin.

On Tuesday night, supporters and opponents of the interbasin transfer request will be able to offer their opinions to members of the Environmental Management Commission, the 17-member body charged with deciding whether to approve the transfer.

A public hearing on the matter is scheduled from 5 to 7 p.m. at Fayetteville State University's Shaw Auditorium.

Staff members of the Division of Water Resources have recommended that the commission approve the request.

Scientific studies

Scientific models and environmental impact studies have shown that the interbasin transfer will have no negative effects on communities that depend on the Cape Fear River, said Bill Coleman, Cary's manager.

Coleman plans to attend the meeting Tuesday to talk about the issue. He said, based on what he has read in newspapers in the Cape Fear region, "nobody in Fayetteville understands it."

Coleman said that science has proven that the transfer will not hurt the Cape Fear basin. "Just because there's a lot of Chicken Littles saying the sky's going to fall doesn't mean the sky is going to fall, when all the scientific evidence says it won't."

Franklin Clark, a Fayetteville businessman, is a member of the Environmental Management Commission. He said nearly half the members of the commission are from the Wake County area. He said those involved should remember lessons they learned in kindergarten when considering this issue. "Once you use something, clean it up and put it back," Clark said.

He said the contention arises from one thing: It is easier and cheaper for these communities to discharge the water, through their existing plants, into the Neuse basin.

Clark said he disagrees with the assessment that the movement of the proposed amount of water out of its original basin will not affect the river. "That's a lot of water, every day," Clark said. "Once gone, never to come back. We should not allow that. People in Cumberland County should come and lodge a protest with (the Department of Environment and Natural Resources) protesting that decision."

Coleman said Cary is committed to building a new treatment plant on the Cape Fear basin side of town in order to return water to the Cape Fear.

additional transfer. He said other interbasin transfers involving the Cape Fear basin actually mean a net increase in the water transferred into the basin. The city of Durham draws water from the Neuse basin and discharges it into the Cape Fear basin. As of 1997, Durham transferred about 18 million gallons a day.

Long-term worries

Mick Noland, the chief operating officer for the water resources division of Fayetteville's Public Works Commission, said he does not worry about the short-term effects of the interbasin transfer. He worries about the future, if quickly growing communities keep getting allocations.

"We want a better handle on the long-term effects and the long-term water needs of the entire basin, not just the short-term quick fix for Cary and Apex.

"Right now, he who runs out of water first gets an allocation. They are rewarded for running out of water, and those who have it, get it taken away. That is not good planning."

Morris said the state has initiated a discussion of long-range plans, beginning with the Cape Fear River Basin.

"Fayetteville has a large water resource to support it in the future," Morris said. "I would hate to see Fayetteville talk itself into a depression about this issue."

He said Cary and Apex have stringent water conservation plans, including a plan to use untreated water for irrigation.

"We see our responsibility to be fair to all parts of the state," Morris said.

But Noland said he is concerned that demand upstream will eventually lead to less water downstream.

"Perhaps 20 or 30 years down the road," Noland said, "when the easy water is gone, when we need water, where is it going to come from?"

Staff writer Nomee Landis can be reached at 486-3595 or at landisn@fayettevillenc.com

Friday, Dec. 12, 1997

PWC's water request denied

By Mark Stinneford
Raleigh Bureau

RALEIGH -- A state panel on Thursday rejected Fayetteville's request for 20 million gallons of drinking water per day from Jordan Lake.

The city's request was unusual in that it did not seek to pipe water from the lake, but to have operators of the reservoir discharge additional water downstream via the Cape Fear River.

"There's no reason they couldn't use that river channel as a conduit" for water resources, said Mick Noland, director of water resources for the Fayetteville Public Works Commission. "The purpose of the request was to try to ensure that in future years Fayetteville would have an allocation of that water when they needed it."

The Environmental Management Commission also rejected requests from Durham and Greensboro to take drinking water from the lake. State officials concluded that the cities have enough water from existing sources to meet demand for the next 20 years.

"The answer was not 'no' but 'not now,' " said John Morris, director of the state Division of Water Resources. "There were a lot of communities that requested water allocations. All of them have substantial existing water resources."

The panel approved a request from the Wake County town of Holly Springs to take 2 million gallons a day from the lake. But it delayed a decision on requests from other fast-growing communities in western Wake County. Since those requests involve diverting water from the Cape Fear River basin, they must go through a separate approval process that is expected to take several months.

PWC officials contend that the state's projections for Fayetteville's water demand are too low. And, they object to the state's projecting the community's water needs for 20 years rather than 30. But even PWC's figures indicate that it will have a surplus of water in 2025.

"Any of that can change based on industrial development or anything else that can cause a big swing in water demand," Noland said. "I don't think it's appropriate for them to wait until there's a crisis or a deficit."

Diversions at issue

Noland said the issue of most concern to the region is what the state decides on the requests to divert water up to 37 million gallons a day from the basin.

The towns of Cary and Apex now take up to 16 million gallons a day from the Cape Fear basin. They want to increase that by 29 million gallons. The state has made a preliminary recommendation for a 5 million gallon increase.

Wake County and the Research Triangle Park want 3.5 million gallons daily. The state's preliminary recommendation is for 1.5 million gallons. Morrisville wants 4.5 million gallons. The state recommends 2.5 million.

The requests are of concern because the communities would take the water from the Cape Fear basin

but it would ultimately be discharged as treated wastewater into the Neuse River basin. Region officials argue that diversions could reduce water quality and the flow needed for downstream development in the Cape Fear basin.

"That's where the urgency is as far as downstream water users, including the city of Fayetteville, are concerned," Noland said.

Downstream flow

State officials say that the Jordan Lake reservoir is designed to allow up to 100 million gallons a day to be used for public water needs, without affecting the portion of the lake reserved for downstream flow.

If the state approved the allocation recommendations, more than 50 million gallons would still be left for drinking water use, Morris said. Region officials contend the 100 million gallon water supply capacity is based on old information.

Before allowing large water transfers, the Environmental Management Commission must find that the benefits outweigh the potential harm.

The General Assembly has put a moratorium on approval of new transfers until the conclusion of its 1998 session to give lawmakers time to study the issue. Morris said state analysis of proposed requests is allowed during the moratorium.

Monday, Jan. 22, 1996

WATER'S THE KEY

Rand is alerting the public to Cape Fear challenges

State Sen. Tony Rand was making a significant point, even if he was largely preaching to the choir, when he told the Fort Bragg/Pope Air Force Base Regional Land Use Advisory Commission that adequate water is the key to the economic and human future of the Cape Fear River area.

The officials who labor every day at protecting and enhancing the area's natural resources are acutely aware that water supply and protection issues are intertwined with land use issues.

The public needs to know it as well, and Rand was making the point that public participation will be vital as the area grapples with challenges presented by development and population growth that will double the demand for water in the next quarter century.

Rand cited four major challenges:

- The first is to guide development so it does not destroy the vital streams and wetlands that feed the mainstream rivers of the Cape Fear River Basin.
- Another is to control the sedimentation resulting from already-developed areas -- a task that falls heavily on local governments as they try to cope with stormwater runoff from subdivisions, mall parking lots, and streets.
- The third is pollution, protecting both river water and groundwater from the bacteria, chemicals, and other bad stuff dumped or leaked from septic tanks, farming, industry, and backyard lawn spraying.
- Finally, there's the long-standing challenge of maintaining a fair give-and-take balance in the tricky business of interbasin transfer, making sure the greedy Research Triangle area doesn't suck away too much Cape Fear River Basin water without putting it back.

Public agencies, especially the armed services at Bragg and Pope, are often pointing the way in attention to land-use issues and water issues, either by necessity or because they are under tough rules that apply only to government. Private interests are not always so alert to the kinds of challenges that Rand cited. It is past time they were.

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foto@infi.net

Wednesday, Sept. 16, 1998

CAPE FEARS

It's time to answer questions long ignored

What in the world is the Cape Fear River doing high up the Public Interest Research Group's list of America's most heavily polluted waterways -- a list that includes the Mississippi, the Ohio, the Hudson, and even the Pacific Ocean?

What it's doing is sitting there in 19th place, taking on thousands of tons of toxins: heavy metals, carcinogens, pollutants known to cause birth defects. A more useful question is, what should be done about it?

The solution isn't entirely legislative. The General Assembly, after all, isn't dumping any of that stuff. But the Assembly has work to do in its next regular session.

It need not -- *should* not -- take one dime away from the study of the fish-killing microorganism infesting the Neuse. It should not divert any research or enforcement personnel now engaged in projects along the coast. In fact, there is no reason to pit any river against any other river. The Cape Fear may have more toxic chemicals in it than any other Tar Heel waterway, but it is only one troubled river among many.

If the lawmakers step back and take a hard look at the data, they will see that everything now under way was initiated with insufficient evidence in hand and that we need more of everything, across the board.

They haven't done anything wrong; they just have more to do than anyone realized.

True, the PIRG ratings, like most things statistical, are vulnerable to attack. Ascertaining which river is "the worst" would require more data than the group found in the federal Toxic Release Inventory. You would need to know, just for starters, how much of each chemical is being discharged into what volume of water. You would need to know how each chemical reacts with water, and how profoundly (or if) the reaction is influenced by water flow. You would need to know something about the absorptive capacity of each river, factoring in not only the deliberate (and usually licensed) discharges from industrial plants downriver, but also licensed and unlicensed infusions of sewage, and agricultural and municipal stormwater runoff.

There is, however, no way to massage the statistics to make them read like good news. Look again at the preceding paragraph. You're reading a work order, not a rebuttal. We need answers we don't now have.

How much tolerance for abuse did nature give the Cape Fear, the Neuse, the Catawba, the Yadkin? How much of that absorptive capacity was used up before humans even got around to talking about the cumulative effects of industrial discharges, treated sewage, and runoff? Upon what science do regulators base a presumption that a particular discharge is tolerable?

Unless North Carolinians want to trust to luck with the health of a truly vital natural resource, we need a statewide research effort no less vigorous or comprehensive than the most exhaustive project now commanding dollars and headlines.

The Fayetteville Observer
SUNDAY
March 4, 2001

OPINION

Item 4

TIM WHITE

Chicken Little could be right

My name's not Chicken Little. I don't think the sky is falling. And I don't trust Bill Coleman.

Coleman is town manager in Cary, the Triangle boomtown that is our upstream neighbor on the Cape Fear River, which is why it's important to know about falling skies and trustworthiness.

For years, Cary has taken its drinking water out of the Cape Fear River basin and dumped it into the Neuse River basin. This strange practice is rooted in money — because of the way this town's municipal water and sewer systems were developed, it was cheaper to take the water out of one river and put it into another.

We talked about this oddity last week. On Sunday, I questioned the practice, and suggested that letting Cary and its neighbors take even more water is not a good idea. We followed with a similar editorial opinion Monday. When the clippings arrived in Raleigh, I got an urgent call from John Morris, who runs the state's Division of Water Resources. He wanted to see me right away. We talked at 10 on Wednesday, and he was here shortly after 1, accompanied by one of his well-prepared technical aides.

The message, in brief: Don't worry, be happy. There's *plenty* of water in Jordan Lake, which feeds the Cape Fear. No way that Cary's swiping more water could ever, possibly, conceivably harm Fayetteville's water supply. And besides, Morris repeatedly assured — Cary promises a new wastewater treatment plant by 2010, putting the town's cleaned-up effluent right back into the Cape Fear.

Morris is a serious man, dignified and believable. I would have felt somewhat reassured, save for a few items.

- Back in the mid-'90s, Cary officials vowed that the town would have that wastewater plant on-line by 2000. And when that fell through, they guaranteed it by 2001. Now, it's 2001, and they're guaranteeing 2010. Are they telling the truth? Or is this yet another scam to take more water in exchange for buckets of empty promises?
- The studies that the state and Cary say prove there will be no environmental damage from the increased water withdrawal were financed by the very towns that will benefit from the additional water.
- It looks like a fix, a paid-for deal — Cary started building the new pipeline system long ago, even though it still didn't have its permit. Does that mean the upcoming hearings are all for show, that this is a slam-dunk?
- Morris says his division needs to "be fair to all parts of the state," but it's clear that Triangle-area cities and towns have huge political clout over state bureaucracies. Nearly half the members of the state Environmental Management Commission, which will rule on Cary's permit, come from the Wake County area.
- And then comes Bill Coleman, who says "nobody in Fayetteville understands" the plan to divert more water and the lack of environmental impact from the withdrawal of an additional 11 million gallons a day from the river basin. "Just because there's a lot of Chicken Littles saying the sky's going to fall doesn't mean the sky is going to fall, when all the scientific evidence says it won't." Yeah, right, who are *we* to argue with the gifted and mighty powers of the Triangle? Shame on us.

Let me put this on the record: The sky is not falling. We will have drinking water tomorrow. But taking 4 billion gallons of water a year out of the Cape Fear, and not replacing it, is a questionable practice on many levels, filled with potential problems and unintended consequences. Even Cary officials acknowledge that they should change that practice, but the town has never kept its word. Maybe it's time to tell them there's no permit until they show us the money.

Reminder: The Environmental Management Commission will hold a hearing on Cary's request Tuesday from 5 to 7 p.m. in Shaw Auditorium at Fayetteville State University. A large turnout may send a message. Please be there.

Saturday, July 29, 2000

Cary, Apex already expanding water plants

By Paul Woolverton
Staff writer

APEX -- Nearly six miles of 42-inch pipe are along the edge of U.S. 64 between Apex and B. Everett Jordan Lake, waiting to be put in the ground.

Staff photo by Brian Thorpe

Elford Swayne Stanley works at the site where Apex and Cary are spending $65 million to expand their plant.

The pipe is a glimpse of the future for the growing water-rationing communities of Cary and Apex. It may also hold portent for Fayetteville's future, where leaders fear that the Research Triangle communities will take so much water from the Cape Fear River that Fayetteville won't have enough drinking water.

"The lower the flows are here, the less water we have to take out of the river for drinking water supply, and the less wastewater we can discharge back into the river," said Chad Ham of the water resources department at the Fayetteville Public Works Commission.

Once installed, the pipe to the water plant that Apex and Cary share in western Wake County will carry as much as 24 million gallons of water per day. It's part of a $65 million project to expand their plant from 16 million gallons per day of water treatment to 40 million gallons per day. In addition to serving Cary and Apex, the plant sells water to Morrisville, part of Research Triangle Park and the Raleigh-Durham Airport. The expansion is due to open in spring 2002.

The problem with Cary and Apex's plan, people in Fayetteville say, is that it takes water from Jordan Lake, which feeds into the Cape Fear River, and puts it into waters leading to the Neuse River. This movement of water from one river basin to another is known as an "interbasin transfer." Cary, Apex, Morrisville and Wake County have filed the

Non-residential water customers in Cary are banned from watering their grass and lawns.

People who break these rules can be fined up to $1,000.

Apex has alternate day watering rules, too.

In 1990, Cary had about 45,000 people and Apex 5,000. Now Cary has 95,000 and Apex 22,000. Both towns have new policies in place to slow their growth. The water plant expansion is predicted to supply enough water for the area's needs through 2015, Goodwin said.

Coupled with the interbasin transfer request are plans to build a new regional wastewater treatment plant in the Cape Fear basin, Moran said. This wouldn't eliminate the transfer, Goodwin said, but hold it to the 27 million gallon-per-day total.

The plant has not been sited, and Fayetteville officials worry about that.

"There's really no guarantee whatsoever that that plant will ever be built," said Ham of the Public Works Commission.

Moran said that the state may tell Cary and Apex they can have the transfer, but only if it builds the plant.

Environmental concern

There are dozens of interbasin transfers on the Cape Fear. Most involve small or unknown amounts of water, according to state Division of Water Resources officials. Some, such as Cary and Apex's 16 million gallon withdrawal, take water from the basin. Others, such as an 18 million gallon transfer from Durham, put water in.

As of now, the known transfers result in a net increase of 1.7 million gallons per day upstream of Fayetteville.

An environmental study that Cary and Apex put together says that their request, which will bring the Cape Fear River basin to a net decrease of 9.3 million gallons per day, will have no significant effect on the environment.

People in Fayetteville don't trust that assessment.

Already, said Ham of the Public Works Commission, the Cape Fear River has dropped to low levels during drought. For example, he said, Jordan Lake is supposed to store water during rainy periods and release it during dry periods to maintain a minimum flow in the Cape Fear.

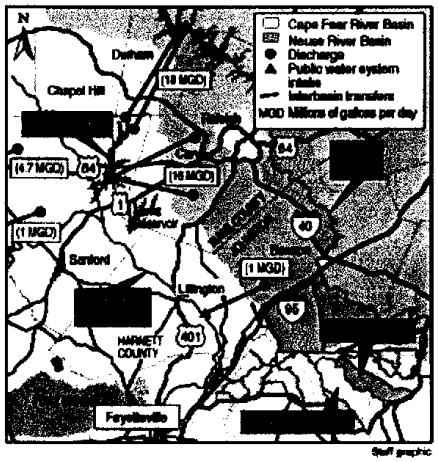
At Lillington, the minimum specifies that 600 cubic feet of water is

request.

Fayetteville water officials wouldn't be so upset if Cary and Apex could put all the water back into the Cape Fear basin.

"If you use it, put it back," said Franklin Clark, a Fayetteville businessman and member of the state's Environmental Management Commission.

That commission is scheduled to vote in February whether to allow Cary to increase its transfer of water from the Cape Fear basin into the Neuse basin. Although Clark has said he is opposed to the plan, it is unknown which way the entire commission will vote.



The Cary-Apex plant today is authorized to take 16 million gallons per day from the Cape Fear basin to the Neuse basin. It wants to increase the transfer to 27 million gallons per day, and with construction already started on its water plant expansion, is gambling that it will get it.

Fayetteville has been fighting the interbasin request, but Cary and Apex are confident they'll get permission. If they don't, "our mayor says we'll have a big, expensive doorstop," said Cary spokeswoman Susan Moran.

Water demand high

Cary and Apex have to get a new source of water soon, said Moran and other officials with the towns. With their rapid population growth over the last 20 years, they use more water than their plant can produce. They buy water from Raleigh, but even with that additional water, there have been days that they have come close to running out, said Moran and Leila Goodwin, Cary's water resources manager.

So now Apex and Cary require their residents to ration their water.

For example, no one is allowed to water a lawn in Cary on Mondays. The rest of the week, residential customers may water their yards only on alternate days. A person whose street address ends in an odd number can water his yard only on Tuesdays, Thursdays and Saturdays. People with even-numbered addresses water on Wednesday, Friday and Sunday.

supposed to flow by every second. During a dry period in 1998, the river had 300 cubic feet of water running by per second.

Mick Noland, the chief operating officer of the Public Works Commission's water resources division, said that the Cary-Apex study used unrealistic figures.

The Cary-Apex request is working its way through the state's approval process. The state Division of Water Resources and Environmental Management Commission will continue looking at it through the fall, with a decision expected in February.

In the meantime, Fayetteville will continue to watch it closely.

"We just want to make sure nothing is done to really handicap the growth and ability of the Cape Fear Region to move forward, and water is extremely valuable," said state Sen. Tony Rand of Fayetteville, who has written a letter saying that the transfer will be dangerous and unfair to Fayetteville and other communities downstream of the Triangle.

Friday, Dec. 11, 1998

Water supply drying up

A drought that has lowered the levels of the Cape Fear River and Jordan Lake has state officials concerned

By Gary Moss
Staff writer

Drought has resulted in near-record low levels for both the Cape Fear River and Jordan Lake, and that has raised concern about possible water shortages if it doesn't rain soon.

Michael Parham and his girlfriend, Lisa Higginbotham, fish near the boat ramp off Person Street. The couple sits on rocks normally covered by water but the Cape Fear River is near its lowest level.
Staff photo by Steve Aldridge

"We are probably good at least through the end of January and probably into February if conditions continue as they are," said Tom Fransen, the water allocation section chief for the state Department of Water Resources.

The normal amount of rain for December in Fayetteville is 3.22 inches. As of Thursday, it had rained 0.04 inches.

Fransen said the state is being cautious because of forecasts that show below-normal rain.

"It's serious, but historically -- by the time we hit February -- we start getting some heavy rains."

The Cape Fear River is the major source of water for much of the Cape Fear region. The U.S. Army Corps of Engineers has regulated the flow of water into the river since it built and opened Jordan Lake in 1981.

The state sells some water from the lake to nearby cities, such as Cary. The rest of the water is released as needed into the Cape Fear River to maintain a steady flow of water.

The corps uses the reservoir to hold back floodwaters during periods of heavy rains and to maintain a consistent flow of water during dry periods.

Maintaining the volume of water, particularly in hot summer months, is crucial to maintaining water quality.

The corps measures the river flow as it cuts through Lillington. Under normal circumstances, the corps releases enough water to keep a flow of 600 cubic feet per second, Fransen said.

That rate amounts to a water volume of about 390,000 million gallons a day.

Because of the lack of rain, the corps was releasing about 600 cubic feet per second from Jordan Lake into the river.

It started cutting back the amount of water it released as the dry spell continued through the fall, and lake levels continued to drop.

On Oct. 28, the corps reduced the rate of water released from 570 cubic feet per second to 500 cubic

feet per second; on Nov. 3, the rate was reduced to 444 cubic feet per second. On Monday, it was reduced to 312 cubic feet per second.

Fransen said the state has monitored the Cape Fear River since October and has found that the lower water volumes have not affected water quality.

On Thursday, the water flow of the river was only 425 cubic feet per second, said Steve Ward, the assistant director of the water plant in Lillington. Other water enters the river through tributaries and drainage.

Under normal weather conditions, the typical water flow in December is about 1,200 cubic feet per second, Ward said.

Still, Ward said there is little reason to worry.

"We are pretty lucky in that the Cape Fear River is the largest basin in North Carolina," Ward said. "Weather permitting, I don't see any supply problems unless the drought continues on and on."

Eric Farr, a hydraulic engineer with the Corps of Engineers in Wilmington, said the corps tries to keep the water level at Jordan lake at 216 feet above sea level. The last time the lake's water level was that high was in June, Farr said.

Thursday morning, the water level at Jordan Lake was 210.32 feet. The record low was 207.85 feet, which was set in the mid-1980s.

Of the water that enters Jordan Lake, about 33 percent is sold to nearby cities; the remaining 67 percent is available to release into the Cape Fear River, Farr said.

Mick Noland, a water specialist with the Public Works Commission in Fayetteville, said water supplies to PWC customers are not threatened.

At 5 a.m. Thursday, the river level at Fayetteville was 9.69 feet, Noland said. The record low for the river since Jordan Lake was built is 9.1 feet.

The normal level of the river at this time of the year is above 10 feet, he said.

Noland said the PWC would have a serious problem supplying water if the river level fell to 6.1 feet, which is the level of intake.

Noland said the PWC would start to consider conservation measures if the water level reached below 7.1 feet.

The lack of rain has raised fears of spot fires in places like Clinton, where a fire ban was imposed earlier this week. Over the past month, the Clinton Fire Department had responded to about 15 calls for woods and grass fires.

Harnett County reported 27 brush and woods fires in November. On Tuesday, the county reported a 25-acre fire, the largest fire of the fall season.

Correspondent Tom Weaver contributed to this report.

Tuesday, Mar. 16, 1999

Commissioners support reservoir

By Scott Travis
Staff writer

County commissioners gave unanimous support Monday night to a proposed reservoir plan that could meet the county's long-term water needs.

The commissioners agreed to pay up to $30,000 for a feasibility study, which would determine the best location for the reservoir. The study is expected to cost about $60,000, but the state will pay half of it, officials said. The county will ask Fayetteville's Public Works Commission and the town of Hope Mills to pay for part of the study. Hope Mills may have a potential site for a reservoir.

The county has to apply for state aid by the end of March, officials said.

The commissioners also agreed to let Chairman Thomas Bacote and County Manager Cliff Strassenburg organize a task force to study the issue further.

State Sen. Larry Shaw is spearheading the plan. He wants to develop a reservoir in the county that could serve as a municipal water supply and as a state park where residents could swim and boat. He said the county could be eligible for millions of dollars in grants that were approved in a statewide water and sewer bond referendum in November.

The vote of support came two months after the commissioners split 3-3 on the issue.

County Commissioner Lee Warren said in January that he doubted a reservoir could be built in the county because the land is too flat and has too many wetlands.

But since then, he and other commissioners learned that a dam on Rockfish Creek in Hope Mills, which is owned by the town, could probably be used to create the reservoir.

Commissioners Ed Melvin and Mac Tyson said they still had some concerns about paying for the study, because the county is facing a projected deficit of $12.5 million for next year.

But Commissioner Tal Baggett argued that the project was vital for the county.

"I understand this is a tight budget year, but that doesn't mean much when the well runs dry," Baggett said.

"I don't want that to happen. This project will ensure that won't happen."

Item 7

COUNTY OF CUMBERLAND NORTH CAROLINA

SUPPORT FOR SENATE BILL 1573
CUMBERLAND STATE PARK STUDY FUNDS

WHEREAS, SB 1573 appropriates funds to the Department of Environment and Natural Resources to conduct a study to (1) determine the feasibility and cost of developing a State Park in northeastern Cumberland County; (2) select a site for a State Park in Cumberland County that would be conducive to having a State reservoir; and (3) determine the feasibility and cost of developing a State reservoir that could serve as a future drinking water supply for the region and provide recreational activities to visitors to the State Park; and

WHEREAS, northeastern Cumberland County is well situated for a State Park that would serve the entire region as it is easily accessible to the fourth largest metropolitan area of the State and is near several major interstate highways; and

WHEREAS, the Cape Fear River and South River flow through northeastern Cumberland County, thereby providing an opportunity to develop a State reservoir that could address future drinking water needs of the area; and

WHEREAS, the voters approved the Clean Water Bonds in the November, 1998 providing funds that could be used for a water supply; and

WHEREAS, a State reservoir within the desired State Park would provide wholesome water sports and recreational activities for families within the entire region; and

WHEREAS, Cumberland County is a low-wealth county and a State Park located in this economically distressed area would vastly improve the quality of life for the residents in the area; and

WHEREAS, by preserving the natural beauty of the land and by providing recreational activities such as hiking, camping, swimming, biking and fishing, a State Park in northeastern Cumberland County that includes a State reservoir would attract economic development to this region; and

WHEREAS, Phillip S. Rea, of the Parks, Recreation and Tourism Management Department at North Carolina State University, reviewed documents

relative to parks and recreation in North Carolina and Cumberland County and made the following findings:

- recreation planning in Cumberland County has been focused on existing park property and active recreation needs;
- Cumberland County ranks seventy-ninth in North Carolina counties in the number of residents per acre of land available for dispersed recreation use, forty-second in the availability of local park acreage per resident, and thirty-second in the availability of regional park area;
- of the 10 most popular outdoor recreation activities identified by North Carolinians at least seven would be typically included in reservoir based State recreation areas;
- a reservoir based recreation area would be expected to generate nearly $100,000,000 in total gross output based on visitor expenditures;
- total income from employment resulting from expenditures would be approximately $30,000,000, from an estimated 2,500 jobs (based on data of the Kerr, Jordan and Falls Lake Reservoir based State recreation areas).

NOW, THEREFORE BE IT RESOLVED that the Cumberland County Board of Commissioners supports a State Park in Cumberland County because it would provide tremendous economic and social benefits to the County and State and urges the General Assembly to enact Senate Bill 1573.

ADOPTED this 15th Day of March, 1999.

Thomas B. Bacote, Chairman
Board of Commissioners

ATTEST:

Clerk to the Board

NCDENR

North Carolina's Water Quality Improvement Efforts

(Prepared by the N.C. Department of Environment and Natural Resources. For more information, contact Don Reuter, Public Affairs, 919-715-4112).

Restore and Protect Rivers

Clean Water Bonds - On Nov. 3, 1998, North Carolina voters overwhelmingly approved an $800 million clean water bond referendum. The clean water bonds provide $330 million in state grants to help local governments repair and improve water supply systems and wastewater collection and treatment, and to undertake water conservation and reuse projects. Another $300 million is to be made available in clean water loans. Many communities need help improving water supplies and water treatment systems. Outdated systems, some more than 70 years old, are allowing millions of gallons of untreated or partially treated wastewater to spill into the state's rivers and streams. Nearly 100 communities cannot bring in new businesses, or jobs, because their wastewater systems are already operating at or above capacity. The N.C. Rural Economic Development Center has released a study of more than 650 water and sewer systems in mostly rural areas. The study found that the need for improving and repairing water and sewer systems is more than $11 billion.

Governor Hunt's 1998 Clean Water Budget - On May 4, 1998, Governor Jim Hunt announced an aggressive clean water budget plan to continue the state's fight against pfiesteria and water pollution and to strengthen marine fisheries protection. The plan, included in the $77.7 million environmental budget passed by the General Assembly and signed by Governor Hunt, focuses on three key components -- prevention, detection and response -- to combat water pollution. The budget includes critical funding to reduce nutrients and sediments in North Carolina waterways, support the state's river basin planning program, provide more aggressive responses to fish kills and boost the state's compliance and enforcement efforts. Hunt's clean water initiative includes $3.3 million to improve river basin management; $3 million for monitoring, research and pfiesteria response; $2.3 million to reduce nonpoint pollutionand $710,813 to improve compliance with water quality laws, and $2.7 million to implement the Fisheries Reform Act passed by the General Assembly last year. The fisheries request will support the development of plans to improve our coastal fisheries habitats, improve data collection and management, and restore and protect fisheries stocks.

Conservation Reserve Enhancement Program - The Clean Water Management Trust Fund has committed $39.3 million over a six-year period to the Department of Environment and Natural Resources (DENR) for use in a proposed $274.6 million package to protect and restore North Carolina's waterways. On April 27, 1998, the fund trustees voted to support the proposal and approved $5,885,549 for fiscal year 1998-99. DENR and the Clean Water Management Trust Fund are preparing a $274,610,165 proposal to the U.S. Department of Agriculture (USDA) for up to six years of funding to purchase 100,000 acres of agricultural land next to rivers, streams, field ditches and wetlands, and install best management practices (BMPs). Eligible land must be actively and primarily in agricultural use. The proposal would use $53.6 million in state funds, which include the trust fund commitment, to attract $221 million in federal funds for the effort. The proposal will cover three eastern river basins (Chowan, Tar-Pamlico, and Neuse) and the Jordan Lake watershed, where nutrient runoff from agricultural operations is a prominent water quality problem.

Enhanced Enforcement Program - Governor Hunt appointed Wayne McDevitt as new DENR Secretary on August 1, 1997. On August 7, 1997, McDevitt directed the state's water quality programs to take stronger enforcement actions against polluters of North Carolina's waterways. The new enforcement policy includes the following:
1) increased penalties for water quality violations;
2) a plan for improved "bad actor" enforcement, including consideration of Department-level investigation capability for environmental crimes, streamlined permit revocation processes, increases in the statutory caps on penalties, and any other changes, that are crucial to having top-notch "bad actor" enforcement capability in water quality protection programs; and
3) a review of how divisions now do water quality enforcement and otherwise encourage compliance and recommendations on steps that should be taken to strengthen compliance and enforcement policy for water quality.

Governor's Water Quality Initiative - On May 1, 1997, Governor Jim Hunt announced a plan to make sure the state's waterways are cleaner and safer through stepped up monitoring of coastal waters, additional resources for pfiesteria research and a new Neuse River Rapid Response Team. Coastal recreational water monitoring efforts were expanded to include more than 1,300 sites. The Rapid Response Team is equipped to respond to fish kills quickly in order to better determine causes and conditions. The state had already funded $600,000 to support studies of potential health problems and causes of pfiesteria when the Governor earmarked an additional $638,000 for equipment, improved facilities and a national information bank at the Water Resources Research Institute. On March 20, 1998, Governor Hunt announced an aggressive plan in preparation for the coming fish kill season. The governor allocated $2.9 million for:

river basins.

Strengthened Agricultural Cost Share Program - The N.C. Division of Soil and Water Conservation has been working diligently to increase statewide compliance by animal operations and to improve processes for the distribution of cost share funds with a focus on water quality protection. The division is conducting performance reviews of county programs which have improved the targeting and tracking of the funds.

Straight-Piping Program - The Division of Environmental Health's straight-piping program has received more than 600 calls from 33 counties reporting failing septic systems. More than 100 of these systems have already been repaired.

Prevent Animal Waste Pollution

Senate Bill 1217 - This legislation includes the recommendations of a Blue Ribbon Commission on Animal Waste which was convened to address issues related to the management of waste generated by intensive livestock operations in North Carolina. It requires the permitting of all animal waste management facilities and requires inspection of those permitted facilities. It also requires the certification of animal waste management system operators.

Clean Water Responsibility and Environmentally Sound Policy Act - The bill, signed by Governor Hunt on August 26, 1997, puts a moratorium on hog farms, requires comprehensive planning across the state to ensure clean water and gives counties the right to

zone large hog farms and restricts where hog farms can be built.

Smithfield Foods Permit - In September 1998, the state issued a new permit for the Smithfield Food Processing plant in Bladen County. The Division of Water Quality issued a permit that requires the slaughtering house to only accept animals from farms that have not received a fine for discharging animal waste to surface waters or wetlands, or where a grower has land applied waste in excess of an approved application rate.

Improve Marine Fisheries Management

Marine Fisheries Reform Legislation - The legislation, passed by the General Assembly during the 1997 session, is designed to improve fisheries management in North Carolina. It requires that detailed plans be developed for improving fish habitats and managing fish stocks. It also calls for stricter enforcement of fisheries laws, including increased penalties for illegal fishing, higher fees for commercial licenses and a cap on the number of licenses issued. The reform legislation addresses four key areas: resource planning and management, organization, licensing, and law enforcement and public education.

Division of Marine Fisheries Audit - Following an internal assessment and an audit by the State Auditor's Office, the Division of Marine Fisheries instituted a series of organizational and management changes to improve the agency's performance and customer service.

Habitat Summit - The Department of Environment and Natural Resources hosted a habitat summit June 1 in Raleigh to launch the process of developing Coastal Habitat Protection Plans. The Fisheries Reform Act calls for DENR to create the plans to improve protection of wetlands, spawning areas, threatened/endangered species habitat, nursery areas, shellfish beds, submerged aquatic vegetation and outstanding resource waters. The Marine Fisheries, Coastal Management and Environmental Management commissions will jointly develop plans to protect this essential habitat, while ensuring that all future regulations are consistent with the plans.

Improved Stock Status - The 1997 stock status report showed that out of 36 major fish or shellfish stocks, 18 were considered either "healthy" or "recovering," eight were listed as "declining" or "depressed," and 10 were listed as "unknown." Significant in this recovery was the status of weakfish and bluefish, which moved from the "depressed" category to the "recovering" category.

Updated Polluted Area Closures - DMF and the Shellfish Sanitation Section of the Division on Environmental Health have updated and consolidated closure descriptions for all waters permanently closed to shellfish harvest in North Carolina for the past ten years. As a result of this update, 1225 acres of water have been opened and 1173 acres of water have been closed, for a net opening of 52 acres.

Internet Access - DMF continues to expand its information and education website which received 26,000 visits in 1997 and continues to draw acclaim for its quality and educational value.

Public Education - DMF was awarded the Agriculture Commissioner's Award for Best Noncommercial Exhibit at the 1997 NC State Fair. Additionally, over 341,000 educational contacts were made at presentations, exhibits and workshops throughout the state.

Polluted Waters Signs - Developed durable, professional polluted water signs with international symbols to warn fishermen of the potential health hazard of consuming shellfish from polluted areas. Signs were developed in response to health concerns for non-English speaking fishermen and will be phased in throughout state waters.

Striped Bass Recovery - In October 1997, striped bass stocks in the Albemarle Sound/Roanoke River were declared recovered by the

Atlantic States Marine Fisheries Commission. After a decade of intensive management and monitoring by the DMF and the WRC, this historic fishery has rebounded.

Improve Inland Waters & Their Habitats

Dam Removals - One of the major roadblocks to improving fish migration in the state was the Quaker Neck Dam that straddled the Neuse River just below Goldsboro. In the first voluntary dam removal of its kind, Carolina Power & Light Company, owners of the dam, worked with several state and federal fishery management agencies to solve the problem. Removal of the dam is expected to greatly improve the migration of several important commercial and recreational fish up the Neuse River, to spawn and return to the ocean. Funds were pooled from several state and federal agencies and the dam removal process began Dec. 18, 1997. On May 28, 1998, concrete came crumbling down at the Cherry Hospital dam, as the state began removal of the dam that spans the Little River near Goldsboro. The dam removal will improve the spawning opportunities for fish that migrate up inland waters before returning to the ocean. The small earthen - steel dam -- 135-feet wide and seven feet high was built by the state about 50 years ago to impound water for use by nearby Cherry Hospital. A few years ago, the hospital began buying its water from the City of Goldsboro and the dam was no longer needed. Removal of the Cherry Hospital dam will open 21 miles of the Little River and 33 miles of tributaries to the fish species that migrate from the ocean. Fish species that will benefit from the removal of the Cherry Hospital dam are American shad, striped bass, short-nosed sturgeon, Atlantic sturgeon, hickory shad and alewife.

Nantahala Agreement - The state's Division of Water Resources helped negotiate an agreement between the department and Nantahala Power and Light to improve instream flows downstream of three of NP&L's major hydroelectric projects. The flow changes will improve fishing, aquatic habitat and recreational opportunities in a large area of southwestern North Carolina.

Increase Public Awareness and Involvement

Environmental Education For Water Quality - North Carolina has initiated a series of environmental education efforts to support the river basin strategy. They include:
1) Executives of 10 major home lawn fertilizer manufacturers and lawn care services from North Carolina, Florida, Georgia, Alabama, Virginia and Ohio are collaborating to use their corporate policies, resources, networks and employees to raise public awareness of natural river basin systems and human impacts on these systems. The program will go be made public in spring of 1998.
2) Carolina Power & Light, Duke Power and North Carolina Power companies are collaborating to implement an adult environmental education initiative using billings to raise public awareness of river basins in North Carolina. The inserts will reach over 2 million households four times in two years.
3) The North Carolina river basin environmental data is being integrated into classrooms as a result of teacher training workshops using geographic information systems (GIS) to develop classroom activities.
4) The Department of Transportation has erected "Neuse River Basin" signs at 38 locations along major highways in 12 counties in the Neuse River Basin to make the traveling public aware that they live and work within the basin.

Return to DENR Home Page.

Item 9

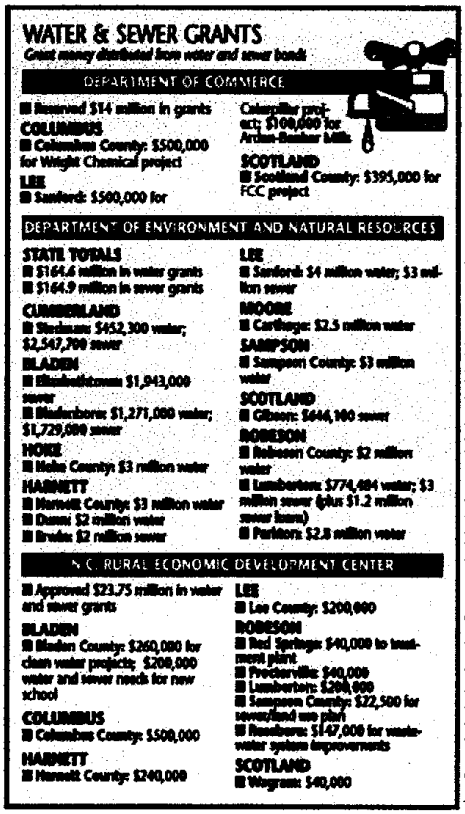
Saturday, March 25, 2000

Water grants trickle in

County receives few bond dollars

By Kim Nilsen
Raleigh bureau

RALEIGH -- Grant money from a 1998 state bond package for water and sewer work is quickly disappearing, and so far, Cumberland County has netted little -- a discrepancy that angers a Fayetteville lawmaker.



More than $360 million has already been handed out or reserved. Cumberland County's share so far -- $3 million for work in Stedman.

Some cities and counties have scored big from the voter-approved state package. Brunswick County landed $16 million in grants and $10 million in loans in the first round of funding last year, plus $500,000 for work linked to industrial development. Projects in Duplin County have netted $25 million over two years.

Cumberland County, with about 4 percent of the state's population, has received just 0.8 percent of the money.

The Department of Environment and Natural Resources heard some grumbling last year when it released the first list of grant recipients. This year, Sen. Larry Shaw brought the bond

spending up during a meeting of a powerful House-Senate committee that tracks most state spending.

Shaw, a Democrat from Fayetteville, has said that money from the $800 million water and sewer package isn't being spread evenly across the state. He said the bulk of the grant money under the grant-and-loan package went to eastern North Carolina in the first round, with spotty spending elsewhere in the state and Cumberland County coming up short.

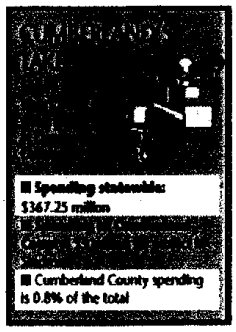
He said the focus is particularly frustrating because the entire state will repay the bond debt. The burden will be felt by taxpayers in some communities that have seen no direct benefit from the water and sewer package.

Shaw had big hopes for the package. He pushed state officials early last year to consider putting some of the money toward construction of a reservoir in Cumberland County -- a project that he said would guarantee adequate water supply and double as a recreation spot.

But the reservoir idea has stalled. And with a majority of grant dollars tapped out, Fayetteville's Public Works Commission doesn't appear likely to land anything but loans.

Decisions defended

State officials defend the grant decisions, saying the package has done what backers intended and voters approved -- replacing old pipes and septic tanks, bringing clean water to communities, helping industries expand or settle in North Carolina.



"We didn't choose them based on geography at all," said Johanna Reese, a spokeswoman for the Department of Environment and Natural Resources. In ranking requests for grants for water projects, the agency gave priority to communities with public health and environmental problems if other qualifications were met. Sewer grants were to go first to communities with critical needs, including those struggling to meet customer demand and facilities out of compliance with state regulations. A community's financial footing also played a role, with a portion of the sewer money set aside for municipalities with lower bond ratings.

"The list I've seen has shown right much spread all over the state," said Sen. John Kerr, one of the chief proponents of the bond package.

Across the Cape Fear region, counties got money to replace lines and

upgrade treatment plants. Lee County came away with several grants, including industrial development projects to aid businesses Caterpillar and Arden-Benhar Mills.

Grant money went to rural counties, such Hoke and Sampson, and small communities such as Erwin, Dunn, Carthage, Bladenboro, Parkton and others. Eastover, a Cumberland County community with plans to build a rural water system, had lined up federal financing before the bond vote and won't be dipping into the state money.

In some respects, Fayetteville's Public Works Commission was a victim of its own success. The utility, which provides water and sewer service, has planned well and has no capacity troubles, said Mick Noland, chief operating officer of PWC's Water Resources Division. PWC has no compliance problems and has the resources to pay for its own maintenance and growth.

"That's good; that's not bad," Noland said.

But it brings up a common complaint about the distribution of the money: in the competition for grant dollars, communities seem to be rewarded for non-compliance and poor planning.

Noland said that PWC never applied for grants because officials with the city utility did not think it would qualify.

State officials say, however, that towns scored points for being proactive, for smart land use planning and water conservation programs, for having designs ready to go. In that category, many eastern North Carolina communities scored high. That region has been coping longer with water issues and pollution problems, state officials say.

The problem with the $800 million package was it simply didn't go far enough, Kerr said. "It was just short of a drop in the bucket."

A study by the N.C. Rural Economic Development Center of 650 water and sewer systems, mostly in rural areas, put the cost of needed improvements and expansions at $11 billion.

Close to 200 water systems applied for grants in 1999 through the Department of Environment and Natural Resourse's second round of funding. Water project requests totaled $366 million, but the agency had only $66 million to give.

The environmental agency has already committed all of its water and sewer grant money from the package. The Department of Commerce has awarded or reserved $14 million of $20 million of bond money set aside for utility work linked to industrial development.

Other money from the package is being awarded by the state's Rural

Economic Development Center. it has a little more than $91 million left from its share of the bond package. The rural center's money is supposed to be used to supplement other grants, deal with plant capacity problems and extend sewer into communities with no service.

The Department of Environment and Natural Resources has money remaining for low-interest loans for water and sewer projects. PWC has applied for about $8 million in loans for the second phase of expansion at a one of its two waste treatment plants, Nowland said. The drawback for communities is that loans, unlike grants, have to be paid back out of local money.

Subject: Contact%20Information
Date: Thu, 8 Mar 2001 09:36:21 EST
From: ShooMom4@aol.com
To: Tom.Fransen@ncmail.net

Mr. Fransen, I attended the public hearing in Fayetteville on Tuesday, March 6.

Judging from the number of interested citizens who attended, I would say this is a matter of utmost importance to Fayetteville residents.

I coach a high school and middle school Envirothon team. Together we have learned all about the importance of healthy ecosystems and clean water. I am proud to report that these 11 students have participated in Big Sweep and initiated a pond clean up at the Art Museum.

Coaching these teams has had a dramatic effect on me. I now find myself an activist in such matters. I encourage you to oppose the interbasin transfer requested by Cary, Apex and Wake County/RTP. While I am certainly sympathetic to their needs, I think they should slow down their development until they can properly handle the demand.

At the very least, the treated water should be returned to the river from which it was taken. The sad truth that my students are learning is that it is all about MONEY. It is my hope they that will learn to be good stewards, conservationists, caring citizens.

Please consider the voices of those who are most affected by this transfer.

Sincerely,

Harriett Shooter
2113 Pinewood Terrace
Fayetteville, NC 28304

Nolan G. Smith
601 Spring Ave
Spring Lake, N.C. 28390

RECEIVED
MAR 8 2001
DIVISION OF
WATER RESOURCES

Tom Fransen
Division of Water Resources
DENR
1611 Mail Service Center
Raleigh, N.C. 27699-1611

Dear Sir;

I am writing to voice My concern about the proposed Inter-Basin transfer of water from the Cape Fear River Basin to the Neuse River Basin by the towns of Carey and Apex.

I don't think that this should be allowed to Happen unless they are required to build a treatment plant/s and put back into the Cape Fear what they use!

I am appalled at their arrogance! The equipment is already being put into place to accomplish this before any permission or permits.

I am also concerned that the board that will be making this decision is comprised of members mainly from Cary/Apex/RTP!

The towns of Carey and Apex already are taking water from the Cape Fear which they aren't putting back.

Why allow them any more at all until they become responsible.

Carey / Apex / RTP have tax bases adequate enough to do the right thing by people and communities downstream of them.

Towns and communities downstream have the right and the need of water resources for future growth also.

If Carey / Apex is allowed to take any more water from us, I plan to do all I can to bring about replacing those in offices which are responsible for this!

I am trusting on you Sir, to do the right thing by us!

Thanks for your consideration.

Sincerely,

Nolan T. Smith

Subject: Contact%20Information
Date: Thu, 8 Mar 2001 09:46:22 EST
From: Bandunc1@aol.com
To: Tom.Fransen@ncmail.net

Dear Sir:

I have read about the hearing at Fayetteville State University and have great concern that the Cape Fear Region will be shorted of its water if the Cary Water is put into the Neuse. This is not equitable to us here. If you take our water, please give it back.

Sincerely,
Judith P. Sorrell
blueheavensouth@aol.com

Subject: Inter Basin Water Transfer
Date: Tue, 6 Mar 2001 10:08:55 -0500
From: "Sunbelt Business Brokers" <fayetteville@sunbeltnetwork.com>
To: <Tom.Fransen@ncmail.net>

To: Mr. Tom Fransen, Division of Water Resources

Mr. Fransen,

I am speaking to the issue of the interbasin water transfer between the Cape Fear and Neuse basins. I own a business and appreciate the necessity of certain resources required to promote industrial growth and civil development. It should come, however, with close attention to the long range impact upon the environment and future needs of other affected municipalities and individuals. It is imperative that we do not implement policies today that can bite us in the rear end tomorrow.

I submit my objection to the interbasin transfer. If the water must be drawn from the Cape Fear, it should be treated and replaced. Also, promises made today are too easily obviated when the inevitable increase in withdrawal becomes a reality tomorrow.

Sincerely,

Bill Speight, President
Sunbelt Business Brokers
951 S. McPherson Ch. Rd.
Suite 108
Fayetteville, NC 28303
Phone: (910) 323 - 5559
Fax: (910) 323 - 3958

The Town of Broadway

Harold Harrington, Mayor

Anita B. Harry, Clerk

P. O. Box 130
Broadway, North Carolina 27505
Telephone: (919) 258-9922 • Fax: (919) 258-9831

March 7, 2001

NC Environmental Management Commission

RE: Comments from the Town of Broadway Concerning Round 2 Jordan Lake Water Supply Storage Allocations & Proposed increase in Interbasin Transfer by the Towns of Cary, Apex, Morrisville, and Wake County (for RTP South)

Dear Commission Members:

The Town of Broadway supports the City of Sanford's position on the Jordan Lake water supply storage allocations and the proposed interbasin transfer issue. We are currently under contract with the City of Sanford to purchase water. An adequate supply of quality water is essential to the quality of life for the citizens of Broadway.

It is our position that the following items should be addressed concerning the request for interbasin transfer:

1. A study analyzing the entire basin should be conducted to determine future water demand from urban growth, agricultural need, and the flow necessary to maintain a healthy river environment. This study should address all water needs and all water available the basin, including the water storage in Jordan Lake.

2. The maximum interbasin transfer should not be increased about above its present level of 16 mgd. A ''temporary'' interbasin transfer could be allowed if Cary and Apex are required to build a wastewater treatment plant that discharges back to the Jordan Lake watershed. The plant should be built and online by the year 2010, and the interbasin transfer should be reduced to the original 16 mgd.

We would like to thank the Commission for the opportunity for the opportunity to present our concerns. We feel this position is a reasonable compromise that will address all the needs of the communities in the area.

Sincerely,

Bob Stevens
Broadway Town Manager

Subject: Cape Fear River
Date: Wed, 07 Mar 2001 07:03:46 -0500
From: Marie Stewart <stewart@infi.net>
Organization: InfiNet
To: Tom Fransen <Tom.Fransen@ncmail.net>

Mr. Fransen,

We citizens of Cumberland County trust you and the other members of the state's Environmental Management Commission to do the fair thing, which is to require that the Wake County communities have in place the means to return clean water to the Cape Fear River Basin before taking addition water from the Cape Fear.

I prayerfully trust that you will do this.

Marie T. and George C. Stewart, Jr.
216A DeVane St., Fayetteville, NC 28305

Subject: Fwd: water transfer from the Cape Fear
Date: Tue, 6 Mar 2001 08:52:26 EST
From: JSuberati@aol.com
To: Tom.Fransen@ncmail.net

Dear Mr. Fransen,
I am forwording this letter that was sent to Mr. Nolan . I hope this and
other letters will prevent Cape Fear River from being depleted.
Sally Suberati

Subject: water transfer from the Cape Fear
Date: Mon, 5 Mar 2001 16:30:26 EST
From: JSuberati@aol.com
To: www.mick.nolan@FAYPWC.com

Dear Mr. Nolan.
I have only been a resident of Cumberland County for 5 years. My husband
and I chose this area and have been very happy with what it has to offer.
The one thing my husband and I have noticed in this short time is the unfair
way that the State has treated Cumberland County. Part has had to do with
the short-sightedness of the powers that be, but much has to do with the
amount of money this area can generate.
Mecklenburg can have a sales tax to pay for stadiums--but we can't. Wet
lands can be diverted for roads in Wake and New Hanover---but not Cumberland
Now it water. How dare Cary build a pipeline to the Neuse River before
permission is granted. The arrogance '!!!!!!. It is one thing to share, but
that is stealing. If you are going to use it, then put it back or don't
touch. I hope Cumberland County can prevail for once, not so much for the
present population --but those to come. This will be growing and prospering
long after Cary is saturated.
I am unable to make the meeting at Shaw auditorium. Please convey not
only my sentiments, but those of my subdivision. For the last two years I
have been President of Wells Place Community Watch
Thank you for your time and consideration.

Sincerely

Sally and John Suberati
1938 Merrimac Dr.
Fayetteville,NC 28304

From: Sullivan, Mark
Sent: Wednesday, March 07, 2001 12:32 PM
To: 'TomFransen@ncmail.net'
Subject: Interbasin Transfer Hearing

I am sorry that I was not able to attend the meeting at FSU on Tuesday the 6th of March. I am not an elected official, I am not on any boards or commissions or corporations. I am an auto adjuster for Allstate Insurance Company in Fayetteville, North Carolina. I grew up in Washington, DC and lived in the DC area all of my life before moving to Fayetteville. I have CHOSEN to make Fayetteville my home and to settle roots down here because of the quality of life and the available amenities here.

The proposed interbasin transfer is quite unnerving to me. If the transfer were to be granted with a requirement for treatment and redeposit into the lake I would not worry. Having seen how towns and cities change with the political climate and the economic forecast I am quite worried. If the towns requesting the interbasin transfer are not BOUND by an agreement to treat and return the water then Fayetteville, Bladen County towns and others downstream have had our future growth potential given away in the interest of cities north of us who have no long term plans and few if any conservation restrictions or water use limitations. Why a beautiful lawn in Cary when a future tax revenue producing business enterprise in Bladen County may not be a possibility due to lack of natural resources?

Short sighted views have won out before. Now is the time for long sightedness. Look at what cities and towns and counties will need to leverage their economic and financial futures not at what Cary and Raleigh want now without promises for fairness in the future. We depend on that water and unless those towns up river are willing to work and pay for the resource it is unfair to deprive the communities who have lived on and preserved the resource of their future. Please make the right decision. The voters and tax payers of these southern counties are watching and waiting and trusting you to do that.

Sincerely,

Mark Sullivan
Claims Adjuster
Fayetteville MCO
910.826.6517

Subject: Cary & the Cape Fear River Basin
Date: Wed, 7 Mar 2001 15:21:39 -0800
From: dtalbot@juno.com
To: tom.fransen@ncmail.net

Tom Fransen
Division of Water Resources
DENR
1611 Mail Service Center
Raleigh, NC 27699-1611

Tom:

In regards to the public hearing held in Fayetteville on 6 March, I was not able to offer my comments in person, so I will offer the following comments via e-mail:

One thing that I never heard mentioned and have not read about concerning this project is the fact that Jordan Lake itself is not an unlimited resource. All of us can remember not long ago that you could walk across the lake shore line to shore line in many places during recent droughts.

The newspaper was full of pictures and stories about the lake being down so low. Water use from the lake was restricted. Every pier around them lake was dry. If this happens again I don't believe Cary or anybody else could safely depend on the volume of water being requested. Considering the consequences of little water moving down stream, how could Cary suggest that their needs will be satisfied in a drought period? During periods of drought water quality suffers greatly and there seems to be little mention of water quality from your division. Water quality is discussed only when making comparisons to periods of substantial water quantities.

While the lake is up and capable of discharging ample quantities of water it should be reasonably expected that any water taken from the river basin be returned to the same river basin cleaner than when received.

Cary's request for a permit should be denied until a satisfactory waste water treatment facility is up and ready to handle the capacity of water taken from Jordan Lake.

Please remember that all the people from below the City of Cary to Wilmington inside the Cape Fear River Basin are all stakeholders in the ultimate decision, not just Cary alone.

Respectfully,

Don Talbot
Fayetteville City Council
7135 Evanston St.
Fayetteville, NC 28314-1277

HARNETT COUNTY DEPARTMENT
OF
PUBLIC UTILITIES

MEMBER NORTH CAROLINA RURAL WATER ASSOCIATION

MEMBER AMERICAN WATER WORKS ASSOCIATION

BUIES CREEK - COATS WATER & SEWER DISTRICT
SOUTH CENTRAL WATER & SEWER DISTRICT
WEST CENTRAL WATER & SEWER DISTRICT

NORTHEAST METROPOLITAN WATER DISTRICT
EAST CENTRAL WATER & SEWER DISTRICT
BUNNLEVEL - RIVERSIDE DISTRICT

NORTHWEST WATER & SEWER DISTRICT
SOUTHWEST WATER & SEWER DISTRICT
SOUTHEAST WATER & SEWER DISTRICT

March 5, 2001

Mr. Tom Fransen
Division of Water Resources
NCDENR
1611 Mail Service Center
Raleigh, NC 27699-1611

Dear Mr. Fransen:

Harnett County Public Utilities Department has reviewed the Final Environmental Impact Statement and the Division of Water Resources Recommendations for Jordan Lake allocations, and increased Interbasin Transfer from the Haw River basin to the Neuse River basin, requested by the Wake County and the Towns of Cary, Apex, and Morrisville. We wish to comment as follows:

- The proposed transfer does increase the water withdrawals from Jordan Lake and, more importantly, from the Cape Fear River Basin. It is proposed that, on a maximum day basis, 27 mgd of this withdrawal would not be returned to the basin. This is an increase of approximately 11 mgd over the currently permitted maximum day transfer of 16 mgd.
- The Mike Basin models accompanying the EIS indicate that the proposed transfer will have no significant impact upon flows in the Cape Fear River at the gauging station at Lillington.
- A potential condition presented in the public hearing notice for the Interbasin Transfer certificate would be to require implementation of wastewater effluent return to the Cape Fear River basin in 2010.
- Based upon the FEIS and Mike Basin analyses, Harnett County does not object to the requested 27-mgd Interbasin Transfer. We support inclusion of a condition in the Interbasin Transfer certificate requiring the applicant to begin returning water to the Cape Fear River basin in 2010.
- Harnett County would like to go on record that no additional transfer beyond the 27 mgd be authorized by DWQ until the following has been resolve

  1. a viable drought management plan is in effect
  2. inclusion of a condition in the Interbasin Transfer certificate requiring the applicant begin returning water to the Cape Fear River basin in 2010
  3. a safe yield of Jordan Lake be confirmed
  4. that the effects of the Randleman Dam be evaluated
  5. a low flow impact assessment be completed.

- Harnett County does not object to the Division of Water Resources recommendations for Jordan Lake allocations to Wake County, Cary, Apex and Morrisville provided DWQ is on record to commit that the issues 1thru 5 are in effect by the time of authorization.

POST OFFICE BOX 1119 • LILLINGTON, NORTH CAROLINA 27546 • 910/893-7575 • FAX 910/893-6643
QUALITY ON TAP, OUR PROFESSION, OUR COMMITMENT

- As you know we are record for allocation request from Jordan for Harnett County. We wish to remain on record for the request as Harnett County has reviewed its long term needs and commissioned the Wooten Company to assist our evaluation of water supply alternatives. We wish to be good neighbors with our communities to the north . This can only happen if we all maintain a heathly basin and return what we use.

We fully support the effort of the Division of Water Resources to develop a comprehensive model of future Cape Fear River Basin use.

Thank you for this opportunity to comment on the requested Interbasin Transfer. Should you have any questions, please contact us.

Sincerely,

Rodney M. Tart
HCDPU Director

Lower Cape Fear Water and Sewer Authority

Post Office Box 1673
Wilmington, North Carolina 28402
(910) 762-2065
(910) 762-3418 FAX
e-mail: lcfwasa@cape-fear.net

March 5, 2001

Mr. Tom Fransen
Division of Water Resources
DENR
1611 Mail Service Center
Raleigh, NC 27699-1611

Re: Comments for Public Hearing on Jordan Lake Round 2 Water Supply Storage Allocations and IBT's

Dear Mr. Fransen:

The Lower Cape Fear Water & Sewer Authority appreciates the opportunity to comment as part of the Public Hearing process in reference to the above. Our concerns are offered as follows:

The Authority's region (Bladen, Brunswick, Columbus, New Hanover, and Pender Counties) is geographically located at the end of the largest river basin in North Carolina. To our region, water quantity and quality issues are especially considered synonymous and inseparable. In Southeastern North Carolina we are particularly concerned about decisions made that can directly or indirectly further affect the degradation of the water quality in the Cape Fear River. DWR staff has related that "because the water stored for flow augmentation will not be affected by use of the water supply storage, the transfer will not affect flows at low flow periods when downstream water availability is a concern". However, I understand that the Base 1998 scenario in the EIS does not represent existing conditions since it does not accurately portray historical low flow conditions. Lillington flows have dropped below the 600 cfs minimum flow target every year between 1982 and 2000, often far below 600 cfs, and to levels as low as 300 cfs. Furthermore, the Base 1998 EIS scenario demonstrates that the Jordan Lake water quality pool is already insufficient for downstream needs, with Lillington flows dropping down to about 100 cfs or less during one out of seven years on average. Lillington flows of 100 cfs or less spell catastrophe for downstream water and wastewater facilities. Why should anything but the briefest possible temporary increase in IBT be permitted if downstream systems already face the risk of periodic shutdown?

While the severity of future weather conditions (droughts) are difficult to predict, records reflect that the water quality pool is fully depleted in 11 of 69 simulated years, for up to nearly 80 days in a single year.

However, to date DWR staff and the Corps of Engineers have not considered the prudence of supplementing the water quality pool with the water supply pool in case of extreme emergency conditions because this would take away water from those relying on water from Jordan Lake. Is this fair? Any transfer reduces the flow of water to downstream stakeholders that otherwise would have been available for assimilative capacity requirements.

The Division of Water Quality's (DWQ) Cape Fear River Basin Management Plan sets out that there is little to no assimilative capacity in the Lower Cape Fear River. The Lower Cape Fear River Basin has also been placed on the 303d list due to low dissolved oxygen. We have been working with DWQ staff in the development of a water quality model estimated to cost $1,500,000 to establish TMDLs for oxygen consuming substances causing DO deficit. Since the Cape Fear River Basin does not have a basinwide water quality modeling game plan, it is impossible to know on a factual basis the true total affects upstream stakeholders, non-point dischargers, and interbasin transfers have on the water quality of the middle and lower basins. DWR has the use of a water quantity model to U.S. Lock & Dam No. 1 in Bladen County; the water quality modeling component is currently not in existence.

In short, the EIS did not address the water quality impacts of the IBT on the Lower Cape Fear River Basin, and the EIS sets out no requirements that a new wastewater treatment plant be built discharging to the Cape Fear River. This is of great concern.

The Authority realizes that the applicants in Round 2 are in dire straits for the need for water. I also realize that these same applicants and others have already submitted draft applications for additional water supplies under the Round 3 Jordan Lake allocation process. I understand that the Round 3 allocation process has been considerably improved for the purpose of evaluating allocation recommendations by DWR. A major component of improvement is the proposed development and completion of a Cape Fear River Basin Water Supply Plan. While the EIS for the Round 2 allocation appears to be incomplete in satisfactorily addressing several complex issues relative to the IBT, I feel hopeful that the Round 3 allocation process will be more thorough and comprehensive in more closely and factually analyzing all the facts from a basinwide standpoint. Thus, the Authority is not opposed to the Round 2 allocation if the EMC includes in its certification the following conditions:

1. To allow the requested maximum day interbasin transfer amount of 27 MGD until 2010, but reduce it to 16 MGD after 2010. The allocation certification should be made on a temporary and not permanent basis unless future facts prove convincingly otherwise.

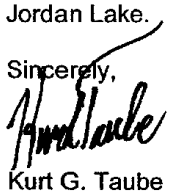
2. To require that a Cape Fear Wastewater Treatment Plant be on line before the Round 2 applicants are considered for a future allocation beyond Round 2. The EMC has previously stated that the interbasin transfer would not be approved without the assurance that a wastewater treatment plant would be

constructed to discharge the water to the Cape Fear River Basin. Since the applicants forecast greater water needs by submitting draft applications for Round 3, the EMC should consider imposing a deadline together with specified penalties for non-attainment.

3. I think another reasonable condition of the Round 2 applicants should be that they show that they are making a serious effort to find other regional water supply solutions than dependence on Jordan Lake for their water. While this issue will be addressed more under the Round 3 allocation process, this condition would assist in providing more than lip service to this goal.

Thank you again for the opportunity to express the views of the Authority. We respectfully ask that our comments and concerns be seriously considered by the EMC in its deliberation of this important and paramount matter to all of us downstream from Jordan Lake.

Sincerely,



Kurt G. Taube
Executive Director

KT/blw

cc: Authority Board Members
Authority Member Government Boards

Subject: Further IBT Comment
Date: Wed, 7 Mar 2001 08:21:28 -0500
From: lcfwasa@cape-fear.net (Lower Cape Fear Water & Sewer Authority)
To: "Tom Fransen" <tom.fransen@ncmail.net>
CC: "Mick Noland" <mick.noland@faypwc.com>, "Don Freeman" <cfra@faynet.com>, "Hugh Caldwell" <Hugh.Caldwell@ci.wilmington.nc.us>

Tom,

Another reason the EMC should firmly require the construction of the Cape Fear Wastewater Treatment Plant is because this would assist Wake County and others to speed up the regional system that has been in the planning stages. I understand the the Wake County Manager hopes this might be the case.

Thanks,

Kurt

Subject: Water Transfer
Date: Tue, 06 Mar 2001 22:51:31 -0800
From: Giltbert <gilnc@foto.infi.net>
To: Tom.Fransen@ncmail.net

Sir, I think if you take water from the Cape Fear River Basin it should be treated and returned and not put into another River basin. I think we are creating a future water problem for the lower Cape Fear region by not including the return aspect to the whole equation.

Thank for your time,

Gil.Taylor

Thursday night, March 8

Mr. Tom Fransen
Division of Water Resources
DENR, 1611 Mail Service Center
Raleigh, NC 27699-1611

Dear Mr. Fransen:

I was out-of-town on business on Tuesday, March 6 and unable to attend the hearing at Fayetteville State University. I arrived home tonight and am writing this letter in hope you will consider an additional opinion even though you may receive it after your stated deadline.

Having viewed the Colorado River in Arizona, it's hard to realize that such a mighty flow turns into a practically dry river bed where it once entered the Gulf of California. The proponents for taking water from the Colorado probably told the downstream interests "there's plenty of water."

Apex, Cary, The Research Triangle Park and other communities must not be allowed to enjoy growth without bearing the costs necessary to make certain their water needs are met by short-changing the future of Fayetteville and other downstream communities.

After proper treatment, waste water from all communities should be returned to the same river basin from which the water is initially withdrawn.

(2)

The Cape Fear River is nothing like the mighty Colorado, and if such water transfers continue, it may be that in the lifetime of our children, the Cape Fear will be only a trickle before reaching the Atlantic at Wilmington.

Please consider the future of Sanford, Lillington, Fayetteville, Elizabethtown and other communities. If cities such as Apex and Cary withdraw water from the Cape Fear basin, it seems only reasonable to require that they bear the cost of returning their properly treated waste-water to the same river basin.

The decision of the Environmental Management Commission (and all the agencies involved in this matter) will have a bearing on not only the Cape Fear, but all the river basins in North Carolina.

Sincerely,

C L Thaggard
3409 Cornell Drive
Fayetteville, NC 28306

P.O. Box 3729
Sanford, NC 27331-3729

City of Sanford

PHONE: (919) 775-8231
FAX: (919) 774-8179

LARRY B. THOMAS, P.E.
Director of Public Works

March 6, 2001

NC Environmental Management Commission

Re: Documentation Requested by Commission Regarding Allowable Drafts from the Cape Fear River by the City of Sanford

Dear Commission Members:

At the public hearing held in Raleigh on March 5, 2001, we were requested to send documentation pertaining to restrictions on our allowable draft of water from the Cape Fear River. Attached are various correspondence and e-mails, which document the requirements necessary for increasing allowable withdrawals. Also enclosed is a copy of the most recent update to the City of Sanford 1997 Water Supply Plan, and the request for the increase for the allowable withdrawal for the City of Sanford. The water supply plan notes the total surface water supply available as mandated by the Division of Water Resources. I have highlighted the most relevant information on these documents.

On September 26, 2000, Jim Cramer, from Hazen & Sawyer, and I met with Tony Young, Woody Yonts, and Sydney Miller. At that meeting it was indicated that they would be developing guidelines for determining the allowable water withdrawals from the Cape Fear River, and that the City of Sanford's request for increasing its draft will be determined after these guidelines are adopted. The guidelines will include an assessment of the total needs along the Cape Fear River.

I hope this information will be helpful. If I can provide any additional information, please let me know.

Sincerely,

Larry B. Thomas

Larry B. Thomas
Public Works Director
City of Sanford

LBT:fw

Sanford Public Works

From: Sydney Miller <Sydney.Miller@ncmail.net>
To: Sanford Public Works <sanpworks@wave-net.net>
Cc: Tom Fransen <Tom.Fransen@ncmail.net>
Sent: Wednesday, November 15, 2000 4:05 PM
Subject: Re: Meeting on 11-16-00 at 10:00 a.m.

Fay,

The meeting on 12 December has actually been scheduled for 3 hours (1:00-4:00). The purpose of the meeting is to discuss available supply in the Cape Fear River. We may be able to answer some Jordan Lake application questions if there is time at the end of the meeting, but such will not be a focus.

--Sydney

Sanford Public Works wrote:

> Will this meeting focus at all on the Jordan Lake Water Supply Storage Application process? If so, how much time of the two hours do you anticipate discussing it, and in how much depth? You can e-mail me back at sanpworks@wave-net.net.Thanks for your time.Fay WoodruffPublic Works AdministratorCity of Sanford(919)775-8302

--
Sydney Paul Miller
Environmental Planner
Division of Water Resources
NC Department of Environment & Natural Resources
1611 Mail Service Center, Raleigh, NC 27699-1611
Phone: 919-715-3044, Fax: 919-733-3555
sydney.miller@ncmail.net

03/06/2001

From: Woody Yonts <Woody.Yonts@ncmail.net>
To: Sanpworks@wave-net.net <Sanpworks@wave-net.net>
Cc: Tony Young <Tony.Young@ncmail.net>; Chrys.Baggett@ncmail.net <Chrys.Baggett@ncmail.net>; Mark Broadwell <Mark.Broadwell@ncmail.net>
Date: Wednesday, March 29, 2000 11:23 AM
Subject: City of Sanford Cape Fear River Withdrawal

Larry Thomas, Director of Public of Works
City of Sanford (919-775-8010)

Larry, please send the Scoping Letter to:

Mrs. Chrys Baggett
North Carolina State Clearinghouse
Department of Administration
1302 Mail Service Center
Raleigh, 27699-1302

Subject: Scoping Letter for Intergovernmental Review

- Announce the Scoping Letter is for intergovernmental review of City of Sanford plans to increase pumping capacity to withdraw water from the the Cape Fear River for public water supply.
- Suggest you also include a map showing the point of intake and discharge.
- Note in the letter you have discussed this matter with Woody Yonts (919-715-5453), Division of Water Resources, NCDENR; the phone number for Mrs. Baggett is 919-733-7232.

Please let me know if you have other questions about your request..

increase allowable withdraw water to 30 MGD

P.O. Box 3729
Sanford, NC 27331-3729

City of Sanford

PHONE: (919) 775-8231
FAX: (919) 774-8179

LARRY B. THOMAS, P.E.
Director of Public Works

April 10, 2000

Woody Yonts
NC Division of Water Resources
NCDENR
PO Box 27687
Raleigh, NC 27611-7687

RE: City of Sanford 1997 Water Supply Plan

Dear Woody:

Please find enclosed the corrected 1997 Water Supply Plan for the City of Sanford. Please review the corrections we have made to our previously submitted plan, and advise me as soon as possible if you have any concerns.

Also enclosed for your review is a copy of our letter to Mrs. Chrys Baggett concerning the scoping letter for intergovernmental review of the City of Sanford's plan to increase pumping capacity to withdraw water from the Cape Fear River. We are requesting an increase of our allowable withdrawal of water from the river to 30 mgd.

Thank you for your assistance in this matter. Please let me know if you have any questions or need further information. My phone number is (919)775-8231.

Sincerely yours,

Larry B. Thomas

Larry B. Thomas
Public Works Director
City of Sanford

P.O. Box 3729
Sanford, NC 27331-3729

City of Sanford

PHONE: (919) 775-8231
FAX: (919) 774-8179

LARRY B. THOMAS, P.E.
Director of Public Works

April 10, 2000

Mrs. Chrys Baggett
North Carolina State Clearinghouse
Department of Administration
1302 Mail Service Center
Raleigh, NC 27699-1302

Re: Scoping Letter for Intergovernmental Review

Dear Mrs. Baggett:

This scoping letter is for intergovernmental review of the City of Sanford's plan to increase pumping capacity to withdraw water from the Cape Fear River for public water supply. We are requesting to increase our allowable withdrawal of water from the river to 30 mgd.

Please find attached a map showing the point of intake and discharge. Please note that discharge into the Deep River is upstream from the intake on the Cape Fear.

We have discussed this matter with Woody Yonts with the Division of Water Resources, NCDENR. Please let me know if you have any questions about this request, or need any further information. My phone number is (919)775-8231. Thank you in advance for your assistance in this matter.

Sincerely,

Larry B. Thomas
Public Works Director
City of Sanford

LBT:fw

P.O. Box 3729
Sanford, NC 27331-3729

City of Sanford

PHONE: (919) 775-8231
FAX: (919) 774-8179

LARRY B. THOMAS, P.E
Director of Public Works

April 17, 2000

Mrs. Chrys Baggett
North Carolina State Clearinghouse
Department of Administration
1302 Mail Service Center
Raleigh, NC 27699-1302

Re: Scoping Letter for Intergovernmental Review

Dear Mrs. Baggett:

This scoping letter is for intergovernmental review of the City of Sanford's plan to increase pumping capacity to withdraw water from the Cape Fear River for public water supply. We are requesting to increase our allowable withdrawal of water from the river to 30 mgd.

Please find attached a map showing the point of intake and discharge. Please note that discharge into the Deep River is upstream from the intake on the Cape Fear.

We expect no new lines to be constructed in the next 10 years to bring water from the intake to our water plant. Also, the City of Sanford presently has contracts to sell water to Chatham County, the Town of Broadway, Carolina Trace, and Lee County. We expect these entities would be served by the increased capacity.

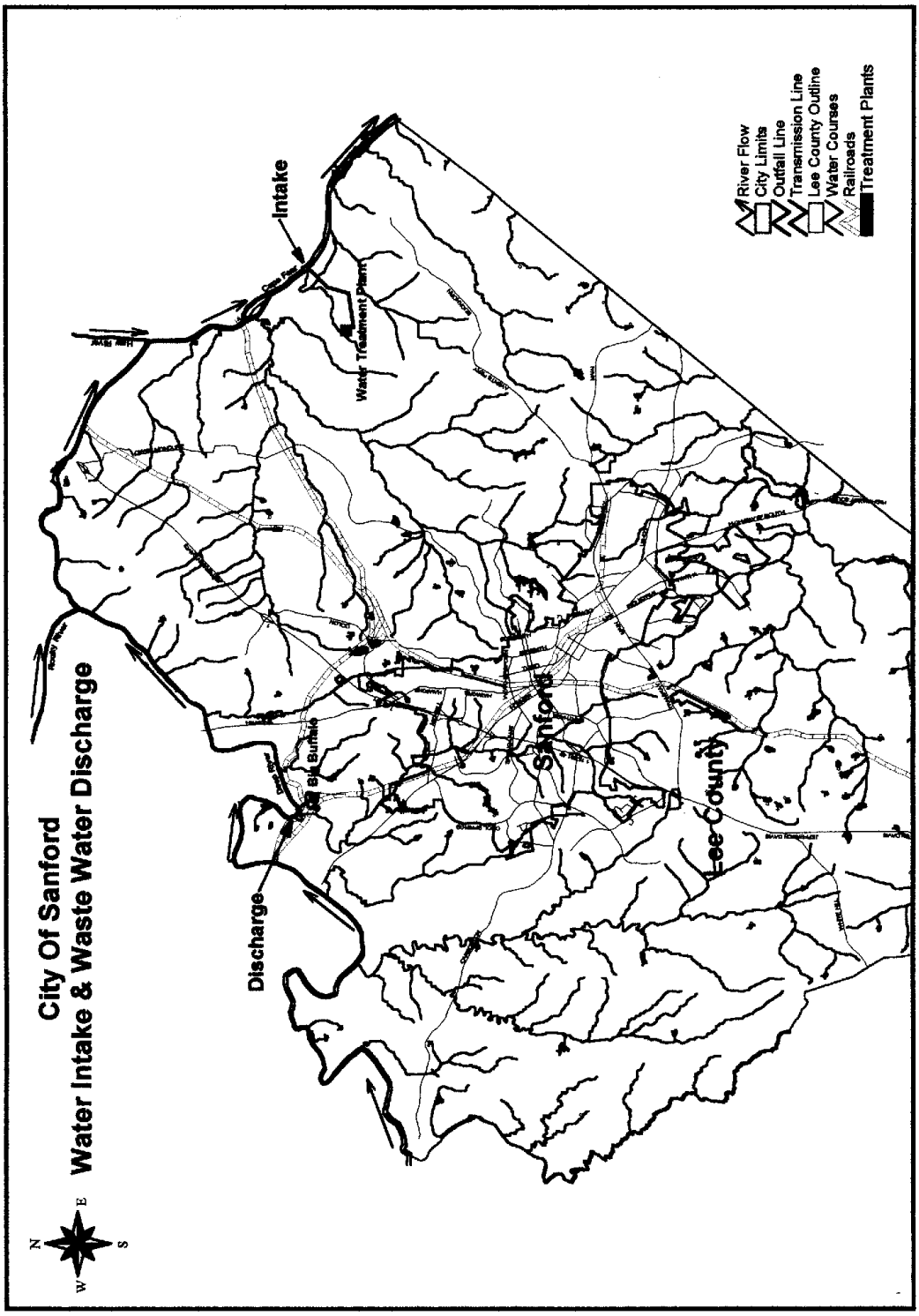
Carolina Trace presently discharges approximately 200,000 gallons into the Little River, which discharges into the Cape Fear River approximately 15 miles downstream from our intake. They also pump their wastewater on occasion into our Big Buffalo plant on the Deep River. There are some residential water users in the Little River basin who have septic tanks. Presently, the total water used, which is not returned to the Cape Fear River above our water intake, is less than one million gallons per day. We would not expect this amount to change as a result of any increased withdrawal.

We have discussed this matter with Woody Yonts with the Division of Water Resources, NCDENR. Please let me know if you have any questions about this request, or need any further information. My phone number is (919)775-8231. Thank you in advance for your assistance in this matter.

Sincerely,

Larry B. Thomas
Public Works Director
City of Sanford

LBT:fw


City Of Sanford
Water Intake & Waste Water Discharge
Intake
Water Treatment Plant
Discharge
Sanford
Lee County
River Flow
City Limits
Outfall Line
Transmission Line
Lee County Outline
Water Courses
Railroads
Treatment Plants
N
E
S
W

North Carolina Department of Environment and Natural Resources
Division of Water Resources

LOCAL WATER SUPPLY PLAN
Part 1: Water Supply System Report for Calendar Year 1997

Completed By: Fay Woodruff Date: 4/6/00

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 State:NC Zip Code:27331-3729

1-G. Phone: (919)775-8231 1-H. Fax: (919)774-8179 1-I. E-mail:

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 1997: Year-Round 21,608
Seasonal (if applicable) -0- Months

2-B. Total Water Use for 1997 including all purchased water: 2,168.81 Million Gallons (MG)

2-C. Average Annual Daily Water Use in 1997: 5.94 Million Gallons per Day (MGD)

2-D. List 1997 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	8285*	1.4			1.4
(2) Commercial	1111**	1.0			1.0
(3) Industrial	31	1.08			1.08
(4) Institutional	0***	-	8	.40	.40
				(5) Sales to other Systems	.183
				(6) Backwash	.92
				(7) Subtotal [sum (1) thru (6)]	4.99
				(8) Average Annual Daily Water Use [Item 2-C]	5.94
				(9) Unaccounted-for water [(8) - (7)]	.95

* Includes 739 residential for Lee Co.
** Includes 85 commercial for Lee Co.
***Include unmetered uses by city government.

Local Water Supply Plan X Part 1: Water Supply System Report for Calendar Year 1997 X Page 2

2-E. List the Average Daily and Maximum Day Water Use by Month for 1997 in Million Gallons per Day (MGD):

	Average Daily Use	Maximum Day Use		Average Daily Use	Maximum Day Use		Average Daily Use	Maximum Day Use
Jan	5.538	6.294	May	5.806	7.858	Sep	6.483	7.575
Feb	5.543	6.062	Jun	6.169	7.912	Oct	6.217	7.028
Mar	5.651	6.578	Jul	6.503	7.596	Nov	5.450	6.403
Apr	5.674	6.381	Aug	6.766	7.666	Dec	5.207	6.428

2-F. List the system's Largest Water Users and their Average Annual Daily Use in Million Gallons per Day (MGD) for 1997: (include sales to other systems)

Water User	Average Daily Use	Water User	Average Daily Use
Sandhills Printing & Finishing	.19	Chatham County	.064
Sanford Housing Development	.17	Stanadyne	.065
Lee County Water System	.17	GKN Automotive	.065
Parkdale America	.085	Frontier Spinning	.062
Utilities, Inc. (Carolina Trace)	.10	Wyeth-Lederle	.042

2-G. WATER SALES TO OTHER WATER SYSTEMS List all systems 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	.029	210	.033 max	8/11/92	10	R
Chatham County	03-19-045	.064	365	.30 max	1/23/02	8	R
Carolina Trace	03-53-101	.10	365	.10	6/30/96	12	R
Lee County	03-53-111	See Below	365	2 max	7/1/35	see below	R
*Lee County customers are metered							
individually and are billed by the City of							
Sanford. These usages are included in 2-D.							
Estimated Lee County usage .179mgd.							

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

2-H. What is the Total Amount of Sales Contracts for Regular Use? 2.433 MGD

SYSTEM NAME Sanford PWSID 03-53-010

Local Water Supply Plan X Part 1: Water Supply System Report for Calendar Year 1997 X Page 3

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* Facility 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	Type of Facility		
Cape Fear	3,100	Y		5.94	365	7.9	18.5*	SY20	12	4	-0-	R
							12.6*	SY50				

*NOTES Column 7 Supply Qualifiers: C=Contract amount, SY20=20-year Safe Yield, SY50=50-year Safe Yield, F=20% of 7Q10 or other instream flow requirement, T=Treatment plant capacity.
Column 8 Type of Facility: 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 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)

SYSTEM NAME Sanford PWSID 03-53-010

Local Water Supply Plan X Part 1: Water Supply System Report for Calendar Year 1997 X Page 4

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* Facility Limiting Daily Output Capacity MGD	11* Facility Limiting Daily Output Type of Facility	12* R or E

*NOTES Column 11 Type of Facility: 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? _____

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

SYSTEM NAME Sanford PWSID 03-53-010

3-J. WATER TREATMENT PLANTS List all WTPs, including any under construction, as of 12/31/97. 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? 2.7 Million Gallons

SECTION 4: WASTEWATER INFORMATION

4-A. List Average Daily Wastewater Discharges by Month for 1997 in Million Gallons per Day (MGD)

	Average Daily Discharge		Average Daily Discharge		Average Daily Discharge		Average Daily Discharge
Jan	4.16	Apr	3.14	Jul	3.38	Oct	3.05
Feb	4.6	May	2.64	Aug	2.63	Nov	3.23
Mar	4.16	Jun	2.42	Sep	2.69	Dec	3.42

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. 31,1997 MGD	3 Design Capacity MGD	4 Average Annual Daily Discharge MGD	5 Name of Receiving Stream	6 Sub-Basin
NC0024147	6.8	6.8	3.04	Deep River	Deep River
WQ0000543	1,000 tons per day			Land Application	Deep River & Cape Fear

SYSTEM NAME Sanford PWSID 03-53-010

4-C. List all Wastewater Discharge Interconnections 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

4-D. Number of sewer service connections: 6,161

4-E. Number of water service connections with septic systems: 3,266

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? 245 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	25	15	10	5	44	1

5-C. Were any lines replaced in 1997? □No ✓Yes 4,000 linear feet

5-D. Were any new water mains added in 1997? □No ✓Yes 7,525 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

SYSTEM NAME Sanford PWSID 03-53-010

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. The Jonesboro area of Sanford has pressures as low as 20 psi. A water tank and booster pump station are under construction to create a new pressure zone

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, periodically use listening devices.

5-J. Has water use ever been restricted since 1992? □No ✓Yes Please explain. Transmission line failure. 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 1997? □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. The City relies on water conservation education and a high-unit rate schedule to promote prudent water use.

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 1997? 1,406 meters

5-T. How old are the oldest meters in the system? 20 years

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

5-V. Are there meters for outdoor water use, such as irrigation, which are not billed for sewer services? □No ✓Yes # of meters U/K

5-W. Does this system use reclaimed water or plan to use it within the next five years? ✓No □Yes # of connections _____ ; _____ MGD

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.

SYSTEM NAME Sanford PWSID 03-53-010

LOCAL WATER SUPPLY PLAN
Part 2: Water Supply Planning Report

Completed By: Fay Woodruff Date: 4/6/00

WATER SYSTEM: Sanford PWSID:03-53-010

SECTION 7: WATER DEMAND PROJECTIONS

7-A. Population to be Served

	1997	2000	2010	2020
Year-Round	22,905	24,800	33,000	44,000
Seasonal (if applicable)*	-	-	-	-

*Please list the months of seasonal demand: _____

7-B. Projected Average Daily Service Area Demand in Million Gallons per Day (MGD). (Does not include sales to other systems)

	1997 (Table 2-D)	2000	2010	2020
(1) Residential	1.4	1.53	2.1	3.0
(2) Commercial	1.0	1.09	1.5	2.0
(3) Industrial	1.08	1.18	1.38	1.68
(4) Institutional	.40	.43	.54	.65
(5) Backwash	.92	.95	.98	1.00
(6) Unaccounted-for water	.95	1.06	1.29	1.69
(7) Service Area Demand [sum (1) thru (6)]	5.75	6.24	7.79	10.02

7-C. Is non-residential water use expected to change significantly through 2020 from current levels of use? ✓No □Yes
If yes, please explain: _____

7-D. FUTURE SUPPLIES List new sources or facilities to be added and mark locations on the System Map.

1		2	3	4	5*
Source or Facility Name	PWSID	Source Type: Surface, Ground, or Purchase	Additional Supply MGD	Year On-line	R or E
N/A					

*NOTE R=Regular Use, E=Emergency Use

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

7-F. FUTURE SALES CONTRACTS List new sales to be made to other systems.

1 Water supplied to:		2 Contract Amount and Duration			3	4*
System Name	PWSID	MGD	Year Begin	Year End	Pipe Size(s) Inches	R or E
Town of Broadway	03-53-015	.033	2000	2020	10	R
Town of Broadway	03-53-015	.066	2010	2020	10	R

*NOTE R=Regular Use, E=Emergency Use

7-G. What is the Total Amount of Future Sales Contracts for Regular Use? _____.066_____ 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.

8-A. AVERAGE DAILY DEMAND AS PERCENT OF SUPPLY

Available Supply, MGD	1997	2000	2010	2020
(1) Existing Surface Water Supply (Item 3-B)	12.6	12.6	12.6	12.6
(2) Existing Ground Water Supply (Item 3-G)	-0-	-0-	-0-	-0-
(3) Existing Purchase Contracts (Item 3-E)	-0-	-0-	-0-	-0-
(4) Future Supplies (Item 7-E)	-0-	-0-	-0-	-0-
(5) **Total Available Supply** [sum (1) thru (4)]	12.6	12.6	12.6	12.6
Average Daily Demand, MGD				
(6) Service Area Demand (Item 7-B, Line 7)	5.75	6.240	7.790	10.020
(7) Sales Contracts (Item 2-H)	2.433	2.433	2.433	2.433
(8) Future Sales Contracts (Item 7-G)	-0-	.033	.066	.066
(9) **Total Average Daily Demand** [sum (6) thru (8)]	8.183	8.706	10.289	12.519
(10) ***Demand as Percent of Supply*** = [(9)) (5)] x 100	65%	69%	82%	99%
(11) ***Additional Supply Needed to Maintain 80%, MGD*** = [(9)) 0.80] - (5)	0.000	0.000	0.261	3.05

System Notes: The City of Sanford Water Plant was upgraded in 1993.

8-B. Does Line 10 above indicate that demand will exceed 80% of available supply before the year 2020? □No ✓Yes
If yes, you are requested to attach a specific plan that should include the following:

(1) Plans for obtaining additional water supply before demand exceeds 80% of available supply. 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 (for example, 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, including:

OPlacing a moratorium on additional water connections until the additional supply is available.

OAmending or developing your water shortage response ordinance to trigger mandatory water conservation as water demand approaches the available supply.

SYSTEM NAME Sanford PWSID 03-53-010

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).

8-E. Has this system participated in regional water supply or water use planning? □No ✓Yes Please describe.
Participating with other communities for Mutual Aid Compact. Met with Broadway about water supply and Chatham County participated in planning activities with systems to identify compatabilities and needs.

8-F. List the major water supply reports or studies used for planning.
City of Sanford Water Distribution System and Master Plan (Hazen & Sawyer)
Lee County Water Study (Phase I and Phase II)

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.

The City has identified four major needs for the water system. First, we are starting to have problems maintaining chlorine residual in several lines. The City staff is exploring the options of improving the water circulation within these lines or changing our water treatment from chlorine to ammonia. Another concern is the capacity of the raw water pumping station. The station's capacity is 9 mgd. Due to the projected water demand as well as the current peak demands, it is evident that the station will need to be expanded in the near future. A problem the City has battled for several years is the 24-inch transmission line that carries water from the water treatment plant into town. The City has experienced severe leaks along this line. In 1996, the City paralleled a portion of the 24-inch line with a 36" transmission line using State revolving loan funds. The City needs to complete the parallel line for better protection.

Finally, the City needs to enlarge some of the major distribution lines in the system. In some areas we are not able to completely fill the elevated water storage tanks. In these cases, we are continually serving residents from the distribution system. Larger lines would allow a greater volume of water to the area, and the City could then fill tanks. Unfortunately, the creation of a new pressure zone noted in Section 5H of this report will negatively impact this problem.

Please note: Local water supply plans can be revised or updated at any time and submitted to the North Carolina Division of Water Resources after the changes have been approved by the local governing board.

North Carolina Department of Environment and Natural Resources
Division of Water Resources

September 13, 2000

Notice & Invitation:

Technical Work Group:
Cape Fear River Allowable Withdrawals

The NC Division of Water Resources is now working on a variety of issues related to Jordan Lake water supply storage allocations. One of these issues is allowable water withdrawals from the Cape Fear River. The Division of Water Resources will develop guidelines for determining a water system's allowable withdrawal from the Cape Fear River.

This issue is related to Jordan Lake allocations, but of broader interest. Allowable withdrawals from the Cape Fear River must in some part be based on the management of Jordan Lake's water quality pool. Similarly, a given water system's allowable withdrawal from the Cape Fear River will determine that system's future need for an allocation from Jordan Lake's water supply pool. This issue has both technical and policy aspects.

We want to offer interested parties an opportunity to participate in a technical work group. The purpose of this work group is to assist the Division of Water Resources in developing sound, defensible guidelines for determining a given water system's allowable withdrawal from the Cape Fear River at any point from Jordan Dam to Lock & Dam #1. These guidelines must consider the management of Jordan Lake, drought conditions, instream needs, and water quality impacts. Our aggressive schedule for Round Three of Jordan Lake Allocations requires this technical work group to complete its task by November.

The first meeting of this work group will be on **Monday, 2 October 2000, 1:00-4:00 PM.** We will announce the location of this meeting once we have secured a facility.

If you (or your designee) would like to participate in this work group, please reply with your availability for our first meeting to Sydney Miller at 919-715-3044, or Sydney.Miller@ncmail.net. Please also include the name of the person who will participate and his/her contact information. Please feel free to call with any questions.

Thank you.

Ni
16
Raleigh, NC 27699-1611
Telephone 919-733-4064
http://www.ncwater.org

NCDENR

North Carolina Department of Environment and Natural Resources
Division of Water Resources

Jordan Lake Water Supply Storage Allocation
Round Three Application Outline
September 21, 2000

Governmental organizations expressing an interest in receiving a Jordan Lake water supply storage allocation will be sent an application packet. Applicants will be required to provide detailed information describing their current water supply sources, projected water supply needs, and alternative water supplies. The application packets will include guidelines for forecasting demand and supply, as well as completing an updated Local Water Supply Plan (LWSP). The applications are basically an extension of the LWSPs, providing for more consistency and justification, and looking further into the future. Applications and LWSPs must be consistent.

DEMAND FORECASTING

I. Demands will be forecast by using a **disaggregated method**. Applicants will divide their customers into **user sectors**, such as *residential*, *commercial*, *industrial*, and *institutional*. Applicant will choose how they assign their customers to the various user sectors, but applicants must provide complete information about their method.

II. Applicants will then **project** the growth in each of those sectors for the years 2000-2050, in five year increments (i.e., 2000, 2005, 2010, ..., 2050). The most important consideration when projecting growth for the various sectors is that applicants fully document their methodology and calculations. A detailed map of existing and projected water service areas will be included.

III. Applicants will calculate a **usage rate** for each of their user sectors and apply these rates to their projections for each sector. Applicants will express the usage rate for the *residential sector* in both *per capita* and *per household*. Applicants will express the usage rate for the *nonresidential sectors* in *per 5/8th in. meter equivalents*.

IV. When applying a usage rate to a sector projection, the applicant will adjust the usage rate to reflect the potential affect of reasonable **conservation** for each sector. Applicants will include a description of the conservation and demand management practices they will use.

V. After projecting the water demand for each sector, the applicants will calculate their total service area demand. **Total demand** is the sum of the projected demand for each sector, plus a percentage for *system processes* and a percentage for *unaccounted* water.

(continued)

North Carolina Division of Water Resources
1611 Mail Service Center, Raleigh, NC 27699-1611
Telephone 919-733-4064
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Division of Water Resources

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(continued)

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North Carolina Department of Environment and Natural Resources
Division of Water Resources

Cape Fear River Available Supply
Proposed Policy

December 4, 2000

Basic Policy

This basic policy is consistent with the policies of the NC Division of Water Quality's NPDES program, the NC Division of Water Resources' Instream Flow requirements, and the NC Division of Environmental Health's Water Supply Design Criteria. Original authorization for Jordan Lake clearly considers municipal and industrial watersupply an expected use of water released for downstream low flow augmentation (Public Law 88-253). Such uses were considered when the 600 cfs flow target at Lillington was set (House Document Numbered 508, Appendix VI).

$$AS = 0.2 * 7Q10_J$$ – Probably will not come into play

or

$$AS = Q_{Jmin}$$

whichever is less.

AS = Available Supply, the maximum allowable withdrawal during low flow conditions, as defined by the 7Q10.

$7Q10_J$ = 7Q10 calculated by USGS based on the period of record since Jordan Lake reached normal pool, 5 February 1982 to the present, inclusive.

Q_{Jmin} = Minimum daily flow of record since Jordan Lake reached normal pool, 5 February 1982 to the present, inclusive.

The available supply as determined by the basic policy may be reduced by the following additional parameters.

Additional Parameters

1. Withdrawals from the Cape Fear River or a tributary of the Cape Fear River within the drainage area of the Lillington gage will not exceed a quantity that significantly diminishes the reliability of the Jordan Lake water quality pool. The reliability of the Jordan Lake water quality pool is determined by the predicted flow duration curve at the Lillington gage, and the predicted frequency that the water quality pool is drawn below some percentage.

2. Withdrawals from the Cape Fear River or a tributary of the Cape Fear River within the drainage area of the Lillington gage will not exceed a quantity that significantly impacts the state's DO standard. The NC Division of Water Quality will make such a determination.

North Carolina Division of Water Resources
1611 Mail Service Center, Raleigh, NC 27699-1611
Telephone 919-733-4064

Jordan Lake Allocation Process
Cape Fear River Withdrawals
Work Group

Meeting Summary
December 12, 2000

Participants

Dan Boone, Wooten
Hugh Caldwell, Wilmington
Pat Davis, TJCOG
Eric Farr, USCOE
Tom Fransen, DWR
Don Freeman, CFRA
Tom Glenn, Durham
Leila Goodwin, Cary
Andy McDaniel, DWQ
Sydney Miller, DWR
David Nash, Fayetteville
Mick Noland, Fayetteville
Paul Peterson, Malcolm Pirnie
William Schepel, CFRA
Tom Speight, Fayetteville
Richard Stahr, Malcolm Pirnie
Ruth Swanek, CH2M Hill
Rodney Tart, Harnett
Heather Thomas, Sanford

Jordan Lake Operation

- DWR should consider tying the water quality pool return period to the water supply pool return period when determining the reliability of the water quality pool and drought management planning.

USGS Report

- 7Q10 at Lillington is 530 cfs.
- 21% of the days prior to Jordan operations show a losing reach between the dam and Lillington.
- 25% of the days after Jordan operations show a losing reach between the dam and Lillington.
- Most of the 7-day low flows at the dam occur in winter.
- Most of the 7-day low flows on the Deep and Cape Fear Rivers occur in summer.

Water Quality Modeling

- DWQ should present the results of their DO (dissolved oxygen) modeling as a range of values for each point of interest on the Cape Fear River. The range of values would be based on various environmental conditions (especially temperature) and how those conditions influence DO and water withdrawals.
- NPDES permit limits should be allowed to vary with increasing water withdrawals. For the baseline condition, assume maximum permitted flows and concentrations. For other model runs, any increase in discharge beyond the currently permitted limit would trigger a change in the NPDES limits to those limits recommended in the 2000 Cape Fear River Basinwide Water Quality Plan.

Drought Management Plan

- DWR and DWQ should add a number of model runs, varying Jordan releases to determine optimum release cutbacks and their impacts on downstream DO.

Next Steps

- DWR will compare the low flow results from MIKE BASIN at various points on the Cape Fear River with the USGS low flow report for those same points.
- DWR will develop a draft drought management plan for the Jordan Lake water quality pool and share it with the stakeholder group for review and comment.
- DWR will determine the reliability of the Jordan Lake water quality pool.
- USGS will publish their low flow report for the Cape Fear River Basin around January 2001.
- DWQ will model revise their draft methodology for modeling DO in the Cape Fear River and share it with the stakeholder group for review and comment.

P.O. Box 3729
Sanford, NC 27331-3729

City of Sanford

PHONE: (919) 775-8231
FAX: (919) 774-8179

LARRY B. THOMAS, P.E.
Director of Public Works

RECEIVED
MAR 9 2001
DIVISION OF
WATER RESOURCES

March 8, 2001

NC Environmental Management Commission

Re: Additional Documentation Requested by Commission Regarding Allowable Drafts from the Cape Fear River by the City of Sanford

Dear Commission Members:

At the public hearing held in Raleigh on March 5, 2001, we were requested to send documentation pertaining to restrictions on our allowable draft of water from the Cape Fear River. Please find attached additional correspondence pertinent to this issue.

If we can provide any additional information, please call me at (919)775-8231. Thank you for your assistance.

Sincerely,

Larry B. Thomas

Larry B. Thomas
Public Works Director
City of Sanford

LBT:fw

DRAFT

DRAFT Methodology for Estimating the Maximum Daily Water Withdrawal Rate From Five Predefined Points on the Cape Fear River Mainstem

December 2000
DWQ Modeling/TMDL Unit
AHM

Objective:

Establish preliminary estimates of the maximum allowable daily water withdrawal rate from five existing intake locations on the Cape Fear River mainstem. The five water intakes are those belonging to Sanford, Harnett County, Dunn, Fayetteville, and Wilmington/LCFWASA. Estimates generated from the methodology described below are intended for planning purposes. Changes in these estimates should be expected over time as our methodology and modeling tools improve.

Background:

The general consensus seems to be that water quality related issues will be the limiting factor restricting the amount of water that can be withdrawn from the river. At this time aquatic habitat is not believed to be a limiting factor given the augmentation of flows from Jordan Lake.

The impacts from stressors on water quality differ with changes in environmental conditions (e.g., stream flow, temperature, pollutant loading, etc.). The effect on water quality from withdrawals will also vary with these changing conditions. For example, as stream flows increase one would expect that more water could be withdrawn from the river without an appreciable impact on water quality as compared to the allowable amount of withdrawal at lower flows. With that in mind it should be recognized that this methodology is not designed to optimize/maximize the estimated amount of water that could be withdrawn from the Cape Fear mainstem.

Limiting condition restricting the amount of water which can be withdrawn:

The rate of water withdrawal will be limited by the set of environmental conditions and policy factors needed to ensure that water quality standards are met. If water quality standards are currently not being met and/or are predicted to not be met, then the limiting condition will be those sets of factors that result in minimal further excursions of the standards.

Low instream dissolved oxygen (DO) concentrations, effluent toxicity, and nutrient enrichment are water quality issues the DWQ is following in the Cape Fear River. One or more water quality issues could potentially be used to define a limiting condition. From the outset two important restrictions were placed on the methodology: first, due to time constrains an existing water quality modeling tool must be used, and second, NPDES permit limits will not be varied for this analysis, except for permitted wasteflow. These two restrictions prohibit the incorporation of toxicants and nutrients in the limiting condition. DWR staff will advise on appropriate increases in wasteflow with corresponding increases in withdrawals.

Proposed limiting condition:

The maximum daily rate of water withdrawal will be limited by the predicted instream DO concentration using DWQ's existing QUAL2E models. If necessary, modifications to the models will be made to reflect updates to 7Q10 flow estimates and NPDES permit limits. NPDES limits, with the exception of wasteflow, will not be adjusted with increases in withdrawals. Protection of the 5 mg/L DO standard will be the limiting factor. A baseline predicted DO condition will be set using the most current permitting and 7Q10 flow information. If the baseline condition already predicts DO standard violations then a small further decrease in the DO sag point will be allowed. A maximum further depression of 0.1 mg/L has been suggested.

DRAFT

Model runs:

Buckhorn to L&D#3 model - note that the Sanford withdrawal is upstream of the upper model boundary. Therefore, the effect of the Sanford withdrawal will be simulated as a reduction in the headwater flow to the modeled area.

Type 1 model run: One at a time, for each withdrawal point, the diversion will be increased incrementally until the limiting condition is reached in order to assess the sensitivity of the model to the geographic location of the intake. These model runs are for informational purposes only and would not necessarily be used to estimate maximum allowable withdrawals. Type I runs would be performed as time allows.

Type 2 model run: For each intake point an equal rate of withdrawal will be input into the model, and the predicted DO compared to the limiting condition. If the limiting condition has not been reached then each withdrawal will be increased an equal amount until the limiting condition is reached. Incremental increases in the withdrawal rate could be expressed as absolute volumes over time or as a percentage increase over a baseline withdrawal.

Type 3 model run: Using guidance received from DWR staff and the forthcoming Cape Fear basin water supply plan, the rate of withdrawal will be varied between intakes to reflect differences in projected need. Varying rate increases between withdrawals would be allowed until the limiting condition is reached.

Other types of model runs may also be considered.

L&D#3 to L&D#1 model - The feasibility of using the L&D#3 to L&D#1 model to estimate maximum allowable withdrawals at the Wilmington/LCFWASA intake will be evaluated given the proximity of the intake to the lower model boundary.

Since the two QUAL2E models are not linked more time will be required to compare the affects on the lower Cape Fear River after each upstream model run. Therefore, one option under consideration is to run the Buckhorn to L&D#3 model first and estimate a maximum allowable withdrawal for each intake, then use the output to set the headwater conditions for the L&D#3 to L&D#1 model.

North Carolina Department of Environment and Natural Resources
Division of Water Resources

Jordan Lake Allocation Process
Stakeholder Group

AGENDA

October 2, 2000

1:00	Introductions and Meeting Objectives	Sydney Miller
1:10	Present the Current Situation	Tom Fransen
1:30	Brainstorm Withdrawal Issues	Group
2:30	Break	
2:45	Determine Withdrawal Constraints	Group
3:45	Determine Next Steps • Schedule Next Meeting	Group
4:00	Adjourn	

North Carolina Division of Water Resources
1611 Mail Service Center, Raleigh, NC 27699-1611
Telephone 919-733-4064
http://www.ncwater.org

Jordan Lake Allocation Process
Cape Fear River Withdrawals
Work Group

Meeting Summary
October 2, 2000

Participants

Dan Boone, Wooten
Pat Davis, TJCOG
Eric Farr, USCOE
Tom Fransen, DWR
Don Freeman, CFRA
Tom Glenn, Durham
Leila Goodwin, Cary
Bill Kreutzberger, CH2MHILL
Andy McDaniel, DWQ
Jim Mead, DWR
Sydney Miller, DWR
David Nash, Fayetteville
Mick Noland, Fayetteville
Paul Peterson, Malcolm Pirnie
Mike Richardson, Wilmington
Tom Speight, Fayetteville
Rodney Tart, Harnett
Kurt Taube, LCFWASA
Heather Thomas, Sanford
Sheila Thomas-Ambat, DWR
Allan Williams, Greensboro
Tony Young, DWR

Jordan Lake Operation

- Target at Lillington is 600 cfs ± 50 cfs.
- Target based on early era WWTP technology.
- Water released from water quality pool is not to be used for water supply (true?).
- Withdrawals above Lillington gage affect Jordan release.
- Need better data and instrumentation?
- Need updated Jordan Lake drought management plan.
- ~9 hour lag time between release at Jordan Dam and change in flow at Lillington.

Small Hydropower Dams on Deep River

- E.g., Carbonton and Moncure
- Affect Jordan releases.
- Make it difficult for Corps to meet the Lillington target, especially at low flows.
- Affect Lillington flows by ± 200 cfs.
- Need for better hydropower management?
- Need for better data and instrumentation?

Buckhorn Dam

- "Losing Reach" between Jordan Dam and Buckhorn Dam?
- CP&L Cape Fear Plant
  – average 1998 withdrawal was 206 mgd, 281 mgd during 6/98-9/98
  – more than 99% is returned

- Install USGS gage at Buckhorn?
  – reduce reaction time for Corps
  – improve reliability of Lillington target
  – relatively expensive, requiring acoustic technology
- Monitoring wells for groundwater data?

Cape Fear River

- Allowable withdrawals from Jordan Dam to Lock and Dam #1?
  – Deficit projections depend upon allowable withdrawals.
- Are small dams like Buckhorn really run-of-river?
- Equity – withdrawals above Lillington v. below Lillington
- Cape Fear River low flow profile
  – USGS Low Flow Report available in ~1 month.
- Water shortage response plans/drought index
- Water quality limitations, especially mid-basin

Withdrawal Criteria & Standards

- Allowable Withdrawal = Maximum Withdrawal During Low Flow Conditions
- Low Flow Conditions = 7Q10
  – NPDES based on 7Q10 (DWQ)
  – Instream flow based on Withdrawal > 20% of 7Q10 triggering SEPA (DWR)
  – Green Book based on minimum flow of record (DEH)
  – 7Q10 based on regulated flows, or pre-Jordan Dam?
- Consider maximum day and average day withdrawal? **[Did we lay this to rest with our decision about the definition of allowable withdrawal?]**
- Backwater considerations?
- Consider discharge relative to intake?
- Consider existing NPDES limits?
  – Improved, dynamic DWQ model is more than 1 year away.
- Consider amount of consumptive loss?
- Consider whether withdrawal is upstream or downstream of Lillington?

Tasks

- USGS – Provide Low Flow Profile for Cape Fear River.
- DWQ – Determine NPDES limits on withdrawals along Cape Fear River.
- DWR – Provide Jordan Lake contracts, project authorization, etc.
  – Determine flexibility of water quality release uses.
  – Provide draft Allowable Withdrawal methodology.
- DWR/COE – Determine factors to increase reliability of Lillington target.
- Next Meeting – 31 October 2000, 10:00 AM to 2:00 PM.

My name is Kimberly Van Borkulo. I am a landscape architect and live here in Fayetteville.

I ask for others to join me in requesting a permanent cap on Cape Fear/Neuse inter-basin water transfer at current levels and stricter water conservation measures in the Neuse River watershed.

There is a carrying capacity to all ecosystems. There is also a carrying capacity to human settlements. Development in Apex and Cary is coming close to capacity. No government or political official living in Wake County wants to bear the bad news to their residents.

Fact is, the State of North Carolina has an obligation to all of its counties to weigh fairly, the needs and yes, the natural resource limits, of its developments. North Carolina Division of Water Resources has already created an artificial water shed, and postponed the inevitable, by allowing 16 million gallons of water to be siphoned from Cape Fear farm fields to fill Apex swimming pools. Such a policy backed us into a corner, and now its a must-pay obligation.

Meantime, more building permits were issued. Like an unquenchable summer thirst, Wake County wants 11 million more gallons, for a total of 27 million gallons. The water will be taken from Cape Fear hospitals, factories, and kitchen sinks to water grass in Cary.

Meantime, more building permits will be issued. Where, I ask? You say, where the water goes. I ask you to support development where the water is. Without doubt there are adverse impacts in moving 27 million gallons out of the watershed: economic – political - recreational – tourism.

Ecological impacts are also a serious concern. All western states, but New Mexico, have provided some means to protect minimum in-stream flows. Colorado now legally recognizes protection of stream ecosystems as a valid use of Colorado water. If the water goes, how do we improve Cape Fear water level management to protect spawning fish? If the water goes, how can over-sedimentation in the basin be controlled? If the water goes, how do you build a leisure industry on river recreation?

In addition, according to the National Ground Water Association there is a relationship between ground water and surface water. Many lakes and streams are "windows" to the water table. If the water goes, how can ground water impacts be managed? The Association warns with a lack of water "adequate time is needed to allow replenishment of underlying ground water reservoirs (aquifers); also such areas must be properly managed in order to prevent water-soluble waste products stored in these areas from infiltrating and polluting the underground supply."

Stricter water conservation measures must be adopted for the Neuse River Basin. According to the Boulder Colorado Civic Forum " Unfortunately, much of the water that is treated for drinking ends up being used on landscaping. For many years, it was estimated that roughly half of the total treated water was used on lawns and landscapes, and most of that water was used in the summer months when peak demand was highest. This is especially important, given that the size of a water treatment plant is determined by how high the peak demand is." As to water usage, they state: "the 50/50 split between indoor and outdoor uses still holds true for single-family homes, the total for all users is now thought to be closer to 66% indoor use and 34% outdoor. The reason for this change is twofold: 1) urban in-fill, resulting in less area available for outdoor watering; and 2) conservation. If Colorado can do it, why can't North Carolina? We should require water savings and install high performance shower heads, faucet aerators, and low-flow toilets in homes, and quickly repair any leaks that occur.

Water is a limited resource, so it is vial that we all work together to maintain it and use it wisely. Conservation can provide the water, but laws must protect the use of water. I ask for others to join me in requesting a permanent cap on inter-basin water transfer at current levels between the Cape Fear and Neuse River basins, and stricter water conservation measures along the Neuse River watershed.

Subject:
Date: Wed, 7 Mar 2001 15:57:53 -0500
From: Dickie Vinent <dickie.vinent@faypwc.com>
To: "'tom.fransen@ncmail.net'" <tom.fransen@ncmail.net>

I have been in the business of protecting water quality for over 25 years in the Fayetteville area. My major responsibility is to provide clean water back into the Cape Fear River and provide suitable sites for land application of sludges, "Biosolids", in Cumberland County. Here in Cumberland County, it is my objective to provide downstream users the best wastewater treatment and sludge utilization possible. I understand the upstream user concerns about the importance water, however, with their massive growth the wastewater treatment facilities have generated large amounts of sludges that Cary cannot even handle in their county or back yard. So guess where some of Cary's biosolids are going? You guessed it! Cumberland County of all places. The majority is being utilized in Harnett County as well as some on land owned by The Town of Cary which is the land where their Southside wastewater facility is built. It's a shame that Cary has to pay higher hauling costs instead of looking for a more economical way of utilizing their biosolids. I wonder where the water plant residuals are going? Cumberland County???????

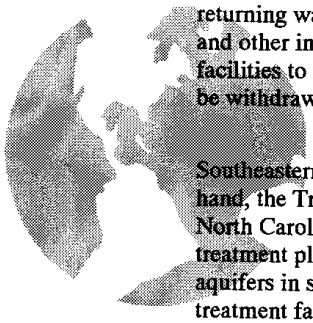
All I'm trying to say is we should all work together and not have the perception that one is getting over on the other. Please require the users of Jordan Lake's water to return it from where it was generated. Interbasin transfer is wrong and should not be allowed.

Dickie Vinent
Public Works Commission
Treatment Facilities Manager
(910) 223-4712

William J. Warfel
1673 Banbury Dr
Fayetteville, NC 28304
March 6, 2001

Mr. Tom Fransen
Division of Water Resources
DENR
1611 Mail Service Center
Raleigh, NC 27699-1611

Dear Mr. Fransen:



Allowing Triangle area cities to withdraw water from the Cape Fear and returning water to the Neuse is a bad idea that should never happen. Cary, Apex, and other interested towns should act responsibly by building wastewater treatment facilities to return that water to the Cape Fear. Until that happens, no water should be withdrawn.

Southeastern North Carolina is one of the poorest regions of this state. On the other hand, the Triangle is one of the wealthiest, with Cary being perhaps the wealthiest North Carolina community. They can afford to do what's right by building the treatment plant and leaving the river flow as it is. As you know, many of the aquifers in southeast NC are showing strain. Elizabethtown already has plans for a water treatment facility. The time may come when our area needs the water that some want to give to Cary, Apex and the other Triangle communities.

In addition, and perhaps more importantly, we don't know the true environmental consequences of this action. In effect, we are changing a natural process by diverting the flow of the river, and I fear harm will be done to the ecosystem.

Please reject this proposal.

William J. Warfel

Subject: (no subject)
Date: Wed, 7 Mar 2001 18:56:55 EST
From: HSSSLSAC@aol.com
To: Tom.Fransen@ncmail.net

On the matter of the proposed interbasin transfer, I want my comments to be part of the record of the public hearing held 3/6/01 in Fayewtteville.

DO NOT PERMIT ANY ADDITIONAL TRANSFER OF WATER FROM JORDAN LAKE TO CARY, APEX AND RALEIGH UNLESS THEY WILL RETURN THAT WATER TO THE CAPE FEAR RIVER BASIN.

DO NOT GRANT ANY ADDITIONAL WATER TO THEM FROM JORDON LAKE UNTIL THEY ARE PREPARED TO DO THAT.

Henry L. Warwick
7012 NC Hwy 87 S
Fayetteville, NC 28306

Subject: Comment concerning the proposed increase in the IBT
Date: Fri, 9 Mar 2001 16:43:44 -0500
From: dweaver@co.new-hanover.nc.us
To: Tom.Fransen@ncmail.net
CC: bcaster%NHC@co.new-hanover.nc.us,
aoneal@co.new-hanover.nc.us

I echo the March 5 written comments made by Mr. Kurt Taube, Executive Director for the Lower Cape Fear Water and Sewer Authority concerning the proposed IBT. The EMC should include in its certification of the Round Two Allocation the three conditions stated in Mr. Taube's letter, particularly the requirement for the allocation certification to be temporary rather than permanent. There appears to be continuing conflict concerning the data base used for analysis.

Thank you for the opportunity to comment.

Subject: Proposed Transf From Cape Fear River Basin to Neuse River
Date: Wed, 7 Mar 2001 16:31:08 EST
From: Calbwells@aol.com
To: Tom.Fransen@ncmail.net

Mr. Fransen, please include the following comments in the record of the public hearing held in Fayetteville on March 6, 2001.

I oppose the proposed transfer of water. The NCEMC should not permit any additional transfer of water from Jordan Lake to Cary, Apex and Raleigh unless they will return that water to the Cape Fear River Basin. Such action would be grossly unfair to the downstream communities in the Cape Fear River Basin.

Sincerely,
Calvin B. Wells
200 Litchfield Place
Fayetteville, NC 28305

Subject: Interbasin Water transfer
Date: Wed, 7 Mar 2001 21:59:03 -0500
From: "Charles West" <kandcwest@earthlink.net>
To: <Tom.Fransen@ncmail.net>

On the matter of the proposed interbasin water transfer, I want my comments to be part of the record of the public hearing held 3/6/01 in Fayetteville.

DO NOT PERMIT ANY ADDITIONAL TRANSFER OF WATER FROM JORDAN LAKE TO CARY, APEX AND RALEIGH UNLESS THEY WILL RETURN THAT WATER TO THE CAPE FEAR RIVER BASIN.

DO NOT GRANT ANY ADDITIONAL WATER TO THEM FROM JORDAN LAKE UNTIL THEY ARE PREPARED TO DO THAT.

Sincerely,

Charles B. West
429 Edinburgh Dr.
Fayetteville, NC 28303

Subject: Interbasin Water Transfer
Date: Wed, 7 Mar 2001 22:00:22 -0500
From: "Charles West" <kandcwest@earthlink.net>
To: <Tom.Fransen@ncmail.net>

On the matter of the proposed interbasin water transfer, I want my comments to be part of the record of the public hearing held 3/6/01 in Fayetteville.

DO NOT PERMIT ANY ADDITIONAL TRANSFER OF WATER FROM JORDAN LAKE TO CARY, APEX AND RALEIGH UNLESS THEY WILL RETURN THAT WATER TO THE CAPE FEAR RIVER BASIN.

DO NOT GRANT ANY ADDITIONAL WATER TO THEM FROM JORDAN LAKE UNTIL THEY ARE PREPARED TO DO THAT.

Sincerely,

Katie G. West
429 Edinburgh Dr.
Fayetteville, NC 28303

AM640 FM102.3
WFNC
NEWS TALK RADIO

1009 Drayton Road ▪ PO Box 35297 ▪ Fayetteville, NC 28303 ▪ 910-864-5222 ▪ Fax 910-864-3065

Interbasin transfer--come to meeting 3-6-01

At the risk of sounding like a broken record, this fact bears repeating. There is not much more important citizens of Fayetteville and Cumberland County can do for our community than to take the time and to make the effort to attend this evening's Environmental Management Commission's public hearing on the proposed interbasin transfer of water from the Cape Fear to the Neuse. Exploding Triangle communities like Apex and Cary want to divert upstream water from the Cape Fear, use it, clean it, and return it to the Neuse River basin, because that is easier and cheaper than doing the right thing. They conveniently overlook unfulfilled past pledges to return treated water to the Cape Fear River basin, first by the year 2000, then by 2001, and now by 2010. Do those cities think we are simply downstream dunderheads who have not noticed the broken promises or do they feel their burgeoning growth so "entitles" them to Cape Fear River water that they can disregard the hundreds of thousands of downstream residents, each and every one of us who likes fresh, clean, and plentiful water just like newly-minted Triangle residents? If you attend the public hearing, you should know that Triangle cities already take water from the Cape Fear. What they want now is 11-million gallons a day more of it and a longer period before they MUST return it to the Cape Fear River basin, treated and ready to flow downstream. They cite studies showing no environmental consequences and that there is plenty of water for all, but it is significant that those studies were paid for by the municipalities which want the water, making them suspect at best, tainted at worst. You

should also know that eight of the seventeen members of the EMC list addresses in the Triangle area. Only one member of that powerful body, Franklin Clark of Fayetteville, lives downstream from the Triangle, and his term expires in July.

That is the situation as this crucially-important public hearing approaches this evening from 5 until 7 PM in Shaw Auditorium on the campus of Fayetteville State University. Crowds of citizens concerned enough to turn out DO make an impression, and Triangle area residents had their say yesterday. It is up to those of us in this community to let EMC members know how strongly we feel today.

AM640 FM102.3 WFNC NEWS TALK RADIO

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Interbasin transfer--not without replacement 2-28-01

The emotional reaction is usually the first Cape Fear River area residents have when they learn about the Triangle area's designs on additional water from the Cape Fear River basin. No way, we say with vigor. Just because a neighbor is short shoes or food or shelter, he is not entitled to take ours simply because he needs them. And just because Triangle communities like Cary and Apex are growing like gangbusters with people coming into North Carolina who need to drink water and install sprinkler systems in their yards does NOT entitle them to divert water from the Cape Fear River basin and return it to the Neuse River basin. Downstream indignation is heightened when we learn that Cary had said it would have its water issues resolved by this year. That indignation become righteous when we further discover that pipelines to discharge Cape Fear water into the Neuse basin are already under construction, prior to state approval of the transfer. The word "arrogance" comes immediately to mind.

Emotional arguments aside, though, legitimate physical concerns raise alarming possibilities. Less water flowing downstream in the Cape Fear means not only less water coming our way, but the quality of what water does come down could be compromised so that remaining water will have to be more thoroughly treated. That will be a direct expense to downstream communities and water users, including Cumberland County residents. In addition, allowing such a transfer does nothing to encourage Triangle communities to plan rather than to grab.

Are you concerned yet, maybe even angry? This community's golden opportunity to share our feelings with state regulators and members of the Environmental Management Commission is at a public hearing Tuesday from 5 to 7 PM in Shaw Auditorium on the campus of Fayetteville State University. It will be an occasion at which local residents, and lots of them, showing concern about the proposed interbasin transfer really may make a difference in the outcome. Mark your calendar and attend this meeting. Doing so is without question an investment in your own and this community's future. We can live without lots of things, but we cannot live without adequate and clean water.

Subject: Proposed water transfer from the CAPE Fear basin
Date: Wed, 7 Mar 2001 15:39:43 EST
From: Windywellons@aol.com
To: Tom.Fransen@ncmail.net

Please include my comments as part of the record of the public hearing held 3/6/01 in Fayetteville.

I am against any additional transfer of water from the Cape Fear basin to the cities of Apex, Cary and Raleigh until they are prepared to return that water to the Cape Fear basin.

John C. Williams III
168 Ellerslie Dr.
Fayetteville, N. C. 28303
910 868 4491