

Petition for Interbasin Transfer Certificate for Charlotte- Mecklenburg Utilities

*for the Increase in Interbasin Transfer from the
Catawba River Subbasin to the Rocky River Subbasin*

Prepared for
**Charlotte-Mecklenburg
Utilities**

Prepared by



Submitted to

**North Carolina
Environmental
Management
Commission**

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Acronyms/Abbreviations

ADD	average daily demand
CMUD	Charlotte-Mecklenburg Utilities
cfs	cubic feet per second
DENR	North Carolina Department of Environment and Natural Resources
DWQ	North Carolina Division of Water Quality
DWR	North Carolina Division of Water Resources
EA	environmental impact assessment
EMC	North Carolina Environmental Management Commission
FERC	Federal Energy Regulatory Commission
FONSI	Finding of No Significant Impact
fps	feet per second
ft	feet
IBT	interbasin transfer
JASO	July, August, September, October
MDD	maximum daily demand
mgd	million gallons per day
msl	mean sea level
NCEPA	North Carolina Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
RRR	Rocky River Regional
SC DHEC	South Carolina Department of Health and Environmental Control
SC DNR	South Carolina Department of Natural Resources
SNHAs	Significant Natural Habitat Areas
USGS	U.S. Geological Service
WRF	water reclamation facility
WSACC	Water and Sewer Authority of Cabarrus County
WTP	water treatment plant
WWTP	wastewater treatment plant

Executive Summary

Charlotte-Mecklenburg Utilities (CMUD) is requesting an increase from the grandfathered Interbasin Transfer (IBT) of 16.1 million gallons per day (mgd) to 33 mgd (maximum day basis). The proposed IBT is based on additional water withdrawals from Lake Norman and Mountain Island Lake in the source basin (Catawba River Subbasin). IBT will increase due to transfer of the water to the receiving basin (Rocky River Subbasin) via consumptive use in eastern Mecklenburg County and existing discharges at Mallard Creek Wastewater Treatment Plant [WWTP] and Water and Sewer Authority of Cabarrus County's [WSACC] Rocky River Regional (RRR) WWTP. CMUD is requesting a permitted IBT increase to 33 mgd, which will allow CMUD to meet projected water supply demands through the year 2030 in eastern Mecklenburg County. This IBT does not include transfers associated with water or wastewater service provided to the Goose Creek watershed in the Town of Mint Hill in Mecklenburg County.

Per the requirements of North Carolina General Statute 143-215.22I, an environmental evaluation was conducted to support the IBT Petition. An Environmental Assessment (EA) evaluated the direct, secondary, and cumulative environmental impacts of the IBT on the source and receiving basins.

In the source basin, storage in and flow through the Catawba-Wateree Project reservoirs, lost electrical generation, and reduced flow in the Catawba River immediately below the Wylie development would be the major resources directly affected. The indirect and cumulative impacts on fisheries and aquatic resources, water quality, threatened and endangered species and other resources would result primarily from changes in flow or lake levels. Operations of the Catawba-Wateree Project reservoirs were modeled using Duke Power's reservoir operations model during average, dry, and drought year conditions. The estimated change in lake levels and flows that would result from the proposed CMUD withdrawals during the entire year and during the season of lowest flows (July-August-September-October [JASO]) were simulated.

The model results indicated that there will be no changes in the surface water elevations of Lake Norman, Mountain Island Lake, or Lake Wylie due to the proposed increased IBT. Under normal and drought inflow conditions, Duke Power would manage the lakes and its power generation to offset increased water withdrawals to maintain the minimum release requirements and operating lake surface elevations. Direct impacts on water supply, water quality, wastewater assimilation, fish and wildlife resources, navigation, recreation, or hydroelectric power generation are not expected since there will be no major changes in the hydrology of the system due to the increased withdrawal. The IBT will not require additional permitted wastewater discharges or any construction in either the source or receiving basins.

There are no secondary impacts on water supply related to growth due to the transfer of water from the source basin. However, the IBT will provide additional water supply to support additional growth and development in the receiving basin. Mitigation measures presented in this IBT Petition are expected to mitigate secondary impacts related to growth and development. The proposed IBT will not result in significant cumulative impacts in either the source or receiving basins.

Requested Action

1.1 Requested Action

Charlotte-Mecklenburg Utilities (CMUD) is requesting an interbasin transfer (IBT) certificate from the North Carolina Environmental Management Commission (EMC) for an increase in their IBT from 16.1 million gallons per day (mgd) (calculated based as the grandfathered amount based on capacity to transfer as of July 1, 1993) to 33 mgd. The proposed IBT is based on expansion of the existing water withdrawals from the source basin (Lake Norman and Mountain Island Lake within the Catawba River Subbasin), and transfer of the water to the receiving basin (Eastern Mecklenburg County within the Rocky River Subbasin) via consumptive use and existing discharges in the receiving basin (Mallard Creek Wastewater Treatment Plant [WWTP] and Water and Sewer Authority of Cabarrus County's [WSACC] Rocky River Regional (RRR) WWTP).

The IBT calculation is based on projected growth through 2030 and existing wastewater treatment facilities in the receiving basin. This IBT does not include transfers associated with water or wastewater service provided to the Goose Creek watershed in the Town of Mint Hill in Mecklenburg County.

This IBT petition provides supporting documentation as required by North Carolina General Statute 143-215.22I; more detailed documentation of the environmental impacts of the requested action are contained in the *Environmental Assessment* (EA) (CH2M HILL, 2001) submitted to the State Clearinghouse on August, 2001. Appendix A contains the Finding of No Significant Impact (FONSI) for the EA.

1.2 Background

Lake Norman, Mountain Island Lake, and Lake Wylie, which are part of the Catawba River basin and are located partially in Mecklenburg County, are the final three lakes in a series of seven hydropower impoundments along the Catawba River in North Carolina. The impoundments are owned by Duke Power. Mountain Island Lake and Lake Wylie were built between 1904 and 1928, and Lake Norman was completed in 1967. All three lakes are extensively used for power generation and recreation, as well as water supply. Table 1-1 summarizes the lake characteristics.

Lake Norman is the largest and most upstream of three reservoirs on the Catawba River in Mecklenburg County and was used as the water supply source for the towns of Davidson, Huntersville, and Mooresville. It recently became a source for the CMUD (a City of Charlotte Department), which supplies water to the City of Charlotte and most of Mecklenburg County.

Mountain Island Lake is the smallest of the three reservoirs and is fed by releases from Lake Norman. It was the only water supply source for the City of Charlotte through CMUD until the recent completion of the intake from Lake Norman; however, Mountain Island Lake is still the main CMUD water supply source. Lake Wylie is the southernmost lake in

TABLE 1-1
 Characteristics of Lake Norman, Mountain Island Lake, and Lake Wylie

Characteristic	Lake Norman	Mountain Island Lake	Lake Wylie
Year Completed	1967	1923	1904-1928
Drainage Area (sq. miles)	1793	1860	3020
Average Depth (feet)	34	16	23
Maximum Depth (feet)	120	30	92
Normal Pool Elevation (ft msl)	760	647.5	569.4
Maximum Drawdown (feet)	15	10	10
Shoreline Length (miles)	520	61	330
Surface Area (sq. miles)	51	5	19
Volume (billion gallons)	356.1	18.7	90.5

Mecklenburg County, forming the boundary to York County, South Carolina, and is the water supply source for the City of Rock Hill, South Carolina.

There are three water treatment plants (WTPs) that supply Charlotte and most of Mecklenburg County with potable water: Franklin, Vest, and North Mecklenburg. Due to continued growth and new facilities (i.e., the new intake and North Mecklenburg WTP and the expansion of the Franklin WTP), water withdrawal has or will increase from Lake Norman and Mountain Island Lake in the Catawba River Basin.

Four out of five of CMUD's WWTPs discharge back into the Catawba River Basin. The fifth, CMUD's Mallard Creek WWTP, is located in northeast Mecklenburg County and discharges to Mallard Creek in the Yadkin-Pee Dee River Basin. Additional CMUD wastewater is treated at the Water and Sewer Authority of Cabarrus County's (WSACC) RRR WWTP, which discharges to the Rocky River. Both of these WWTPs discharge into the Rocky River Subbasin in the Yadkin-Pee Dee River Basin. The locations of the WWTPs are shown on the map of the study area (see Figure 1).

Water use in CMUD's service area, including the portion in the Rocky River Subbasin, is increasing. As water use in the Rocky River Subbasin increases, CMUD has recently increased its use of wastewater treatment facilities in that basin by transferring flows to the RRR WWTP through a contractual arrangement with WSACC and expanding the Mallard Creek WWTP. The additional use and discharge of water in the Rocky River Subbasin (through existing permitted capacities) will result in an increase in CMUD's IBT from the Catawba River Subbasin to the Rocky River Subbasin.

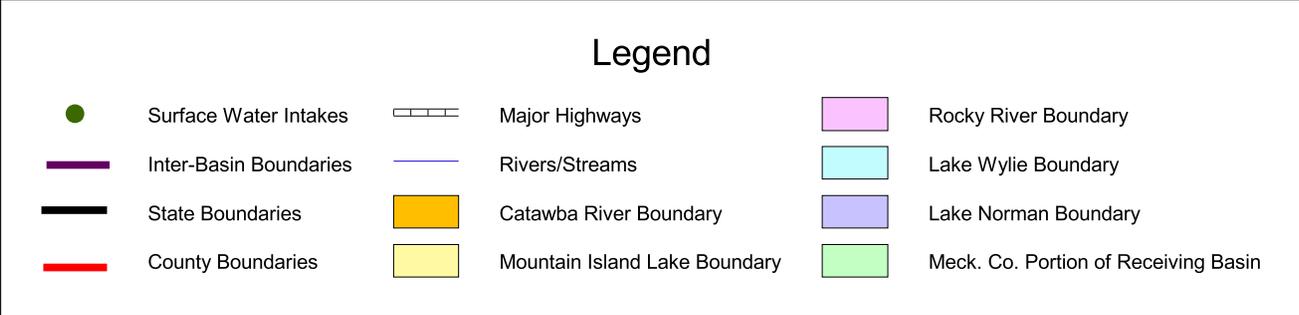
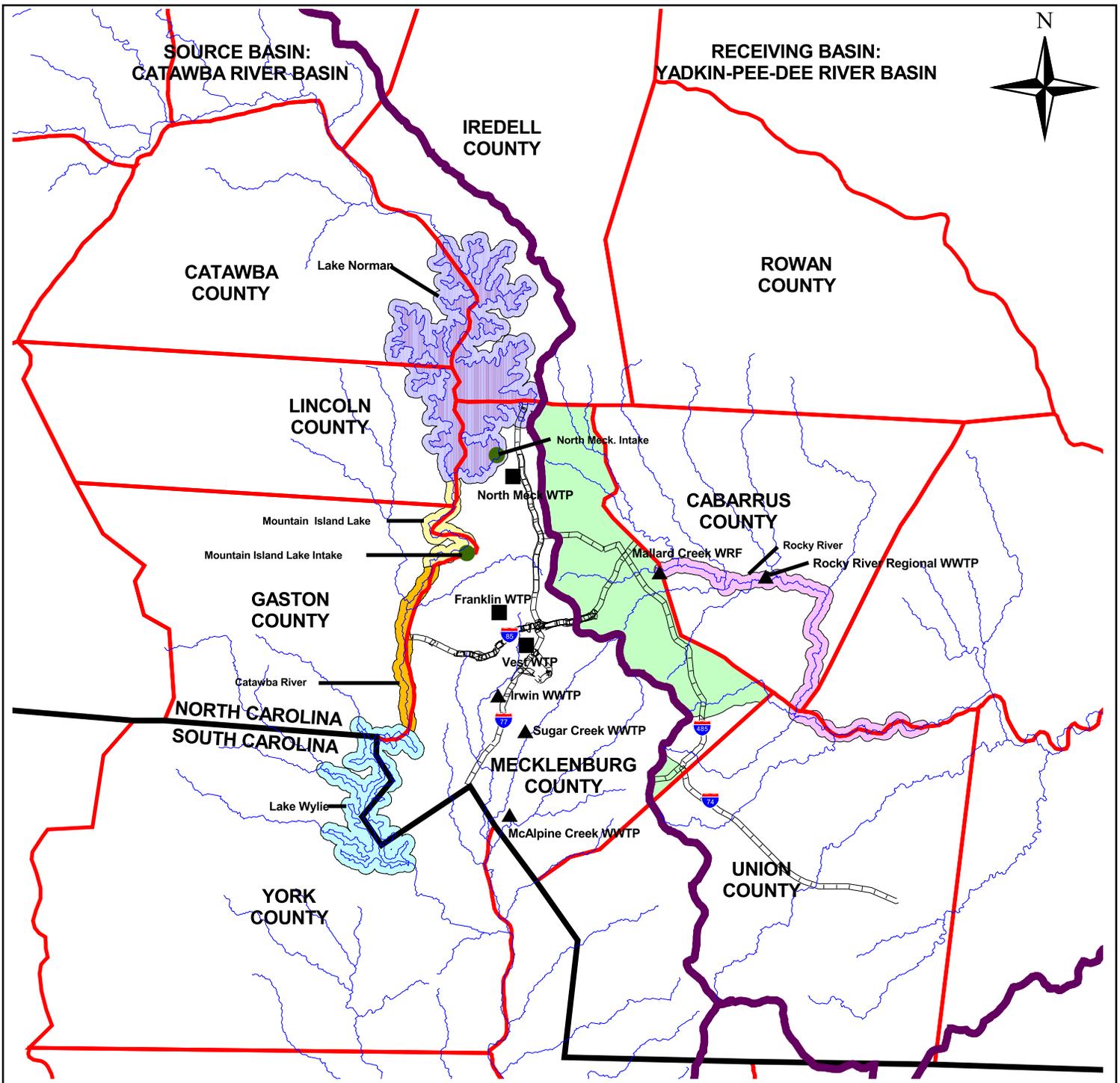


Figure 1: Project Study Area Map
CMUD IBT EA Study Area
Charlotte, NC



1.2 Project Description

CMUD is requesting an IBT of 33 mgd (based on 2030 needs) from the EMC. The proposed IBT involves transfer of water from the Catawba River Subbasin (source basin) to the Rocky River Subbasin (receiving basin), as shown in Figure 1 and described below.

- Catawba River Subbasin (source basin): Lake Norman, Mountain Island Lake, Lake Wylie, and the Catawba River from Lake Norman to the Wylie Dam.
- Rocky River Subbasin (receiving basin): The Mecklenburg County portion east of the ridge line with the exception of the Goose Creek watershed. The study area includes Mallard Creek from the WWTP discharge point downstream to the confluence of the Rocky River proceeding along the Rocky River to the intersection with NC 205.

The IBT associated with future water service into the Goose Creek watershed in Mecklenburg County is being addressed separately. Thus, the entire Goose Creek watershed is outside the study area of this project. The requested IBT of 33 mgd does not include transfers associated with the Goose Creek watershed

CMUD's current water supply system serves approximately 95 percent of Mecklenburg County with plans to supply 100 percent by 2020. Approximately 70 percent of Mecklenburg County is in the Catawba Basin, while the remaining 30 percent is in the Yadkin-Pee Dee Basin; therefore, a portion of the water that is withdrawn from the Catawba Basin is actually supplied to residents of Mecklenburg County in the Yadkin-Pee Dee Basin.

Some of the water that is supplied from the Catawba Basin to the Yadkin-Pee Dee Basin in Mecklenburg County remains in the Yadkin-Pee Dee Basin due to consumptive uses such as irrigation and on-site wastewater disposal (septic) systems. The remainder of this water is directly discharged to the Rocky River Subbasin as treated wastewater from the Mallard Creek WWTP and the RRR WWTP. The RRR WWTP primarily serves Cabarrus County but also receives some Mecklenburg County flows under a contractual agreement with WSACC. The Mallard Creek WWTP serves primarily Mecklenburg County customers.

The greater Charlotte metropolitan region has enjoyed a healthy economy for most of this century, resulting in steady population growth and economic development. Based on land use projections, it is predicted that similar growth patterns will continue and will increase the demand for water and wastewater services. Population and water demand projections are presented in Section 3. The IBT associated with the increased withdrawal from the Catawba River Subbasin and the increasing flows to the Rocky River Subbasin is expected to be 32.8 mgd (rounded to 33 mgd) maximum day in 2030. This IBT amount does not include transfers associated with the Goose Creek watershed.

SECTION 2

Summary of IBT Certification Process

In 1998, CMUD initiated the IBT Certification process, in consultation with the Division of Water Resources (DWR), by developing a Scoping Document related to the contents of the IBT Petition. In early 1999, in compliance with North Carolina General Statute 143.215.22I, the development of an EA was initiated to examine the impacts of the proposed IBT and for use in the certification process.

The EA process has included involvement, input, and comment from federal and state agencies, local municipalities, other stakeholders, and the public. Initial comments from this initial public involvement phase were received in early 1999, including comments from the South Carolina Department of Natural Resources (SC DNR) and the South Carolina Department of Health and Environmental Control (SC DEHC). In July 1999, a Draft EA was introduced to the North Carolina DENR for review. Subsequently, several correspondence and meetings between the Petitioner and the resource agencies took place since the second half of 1999 to early 2001. These efforts culminated in submittal of the final EA to DWR in April 2001 and the introduction of the EA to the State Clearinghouse in August 2001.

A summary of the comments from resource agencies, stakeholders, and the public from the scoping process through the completion of the EA is presented in Appendix B.

SECTION 3

Evaluation Considerations

For ease of review, this section is organized according to the items the EMC is required to evaluate according to North Carolina General Statute 143-215.22I.

3.1 Need for Proposed IBT

3.1.1 Population Projections

The Mecklenburg County population projections as presented in Table 3-1 are based largely on Charlotte Chamber of Commerce projections through 2010. While these projections are slightly higher than projections by others, past Chamber estimates have most accurately matched recent population levels. Projections beyond 2010 more closely match long-term projections by the Mecklenburg County Planning Commission. Starting with 1997 U.S. Census data, the projections represent about a 2.6 percent annual increase through 2010, decreasing to 1.3 percent in 2030. It is also assumed that 100 percent of the County population will be served by CMUD by 2020.

TABLE 3-1
Projected Mecklenburg County Population and Population Served by CMUD

Year	Projected Mecklenburg County Population	Percent Served	Population Served
1997	613,310	95%	584,000
2000	662,000	96%	636,000
2010	830,000	98%	813,000
2020	968,000	100%	968,000
2030	1,101,000	100%	1,101,000

Source: Charlotte Chamber of Commerce projections through 2010, transitioned to Mecklenburg County Planning Commission projections in 2030 cited in CH2M HILL (2000).

Completion of the I-485 loop around Charlotte is expected to spur growth in the northeast region of Mecklenburg County. This will increase the percentage of CMUD customers in the Rocky River Subbasin from the current 16 percent to about 28 percent in 2030.

3.1.2 Water Demand Projections

The CMUD raw water demand projections presented in Table 3-2 are based on population projections. The projections take into account added residential and nonresidential customers, as well as regular bulk sales to the Carowinds amusement park.

TABLE 3-2
CMUD Raw Water Demand Projections

Year	ADD (mgd)	MDD (mgd)
2000	102.8	154.1
2010	125.9	188.8
2020	146.0	219.1
2030	163.5	245.2

Source: Based on population estimates from Table 3-1.

ADD = Average Daily Demand
MDD = Maximum Daily Demand
mgd = million gallons per day

3.1.3 Need for Additional Water Supply

The intake facilities are permitted by the Federal Energy Regulatory Commission (FERC) for a maximum instantaneous withdrawal rate of 108 mgd from Lake Norman and 165 mgd from Mountain Island Lake (i.e., both intakes in the Catawba River Basin). Currently the combined maximum daily withdrawal rate is 273 mgd. Duke Power is submitting an application to FERC on behalf of CMUD requesting an increase in the Mountain Island Lake withdrawal from 165 mgd to 330 mgd (instantaneous maximum) to meet projected demands through 2030 in Mecklenburg County.

The County operates three major WTPs. The current capacity of the North Mecklenburg WTP is 18 mgd; there is no raw water storage at this facility. CMUD has plans to increase the capacity of the North Mecklenburg facility. Franklin and Vest WTPs have capacities of 144 and 24 mgd, respectively. Raw water storage for these two plants total 350 mgd. Taking into account pumping practices during off-peak hours and raw water storage, currently CMUD has the capacity to meet average daily demands (ADD) of 145 mgd.

As previously mentioned, CMUD's current water supply system serves approximately 95 percent of Mecklenburg County with plans to supply 100 percent by 2020. Approximately 70 percent of Mecklenburg County is in the Catawba River Basin, while the remaining 30 percent is in the Rocky River Subbasin; thus any increased water demands in eastern Mecklenburg County will result in an IBT.

3.1.4 Reasonableness of IBT Request

Based on the water demand projections for the Catawba River Subbasin and the estimated wastewater discharge to the Rocky River Subbasin, the IBT calculation is presented in Table 3-3. The following assumptions apply:

- Customer consumptive use includes in-basin water uses such as irrigation and septic systems and is assumed to be 22 percent of raw water withdrawal based on discussions with DWR staff. WTP losses of 1.4 percent are included in total consumptive use estimates.

- In 2000, 85 percent of CMUD’s water supply goes to users within the Catawba River Subbasin; this falls to 75 percent in 2030. The remaining water is supplied only to CMUD customers in the Mecklenburg County portion of the Rocky River Subbasin.

TABLE 3-3
Interbasin Transfer Water Balance Table (Maximum Day Basis)

Year	Water Withdrawal From Catawba Basin	Consumption		Estimated Wastewater Discharge ¹		Total Return to Catawba River Subbasin ²	IBT
		Catawba River Basin	Rocky River Basin	Catawba River Basin	Rocky River Basin		
2000	152.9	30.2	5.1	108.7	8.9	138.9	14.0
2010	184.3	34.4	8.1	126.5	15.2	161.0	23.3
2020	213.9	38.2	11.3	146.2	18.3	184.3	29.5
2030	239.4	42.2	13.1	164.4	19.7	206.6	32.8

Note:

¹ Estimated wastewater discharge represents the amount of water withdrawal that is discharged as wastewater. It does not include the impacts of inflow and infiltration on actual wastewater discharge amounts.

² Total Return to Catawba River Subbasin = Catawba River Consumption + Catawba River Wastewater Discharge

³ Interbasin Transfer = Water Withdrawal from Catawba – Total Return to Catawba

In order to allow some contingency for uncertainty in projected population growth or water demands, the requested IBT is 33 mgd, based on a calculated amount of 32.8 mgd. The IBT calculation is based on projected growth through 2030 and existing wastewater treatment facilities in the receiving basin. As indicated previously, this IBT does not include transfers associated with water or wastewater service provided to the Goose Creek watershed in Mecklenburg County.

3.2 Alternatives to the Proposed IBT

Alternatives to the proposed interbasin transfer are discussed below. The three alternatives considered are:

1. No action
2. Obtain water from the Rocky River Subbasin
3. Discharge water to the Catawba River Subbasin

Table 3-4 summarizes maximum day water use, wastewater discharge, and interbasin transfer amounts for the proposed and alternative scenarios in 2030. These estimates do not include future growth in the Goose Creek watershed. Each alternative is assumed to be potentially feasible and incorporates consideration of physical and environmental constraints based on current available information.

TABLE 3-4
Maximum Day Water Use, Discharge, and Interbasin Transfer (mgd) for CMUD Alternatives in 2030

Alternative	Catawba Water Use	Rocky River Water Use	Catawba WW Discharge ¹	Rocky River WW Discharge ¹	Interbasin Transfer ²
Proposed Action	240	0	165	20	33
No Action	223	0	165	9	16
Obtain Water from Rocky River	223	17	165	20	16
Increase Discharge to Catawba	240	0	182	3	16

Note:

¹ Discharge represents the portion of the water used that is discharged to the wastewater system, and is not necessarily the same as actual WWTP discharges.

² Interbasin Transfer includes a consumptive use portion in the receiving basin.

3.2.1 No Action Alternative

Under the no action alternative, CMUD will not provide additional water/sewer services or increase bulk water sales to customers within the Rocky River Subbasin. Therefore, as shown in Table 3-4, CMUD's water use and wastewater discharge would decrease compared to the proposed IBT. The no action alternative would cost less, but revenue from water sales would also decrease. Though development in the area might be limited because of the lack of centralized water/sewer service, it is probable that growth will still occur that could be serviced by individual wells and on-site wastewater systems. Community water systems and package sewer plants could also allow growth. This sustained proliferation of septic tanks and small package plants will pose a detriment to water quality in many area streams. Septic tank failure can cross-contaminate groundwater. Bacterial contamination from septic tank effluent has been found to be a common occurrence in suburban and rural areas served by groundwater because the subsurface water is being used both as a source of drinking water and as a disposal medium for wastewater.

3.2.2 Obtain Water from Rocky River Subbasin Alternative

One option for CMUD is to develop a water supply source in the Rocky River Subbasin so that the interbasin transfer amount does not increase from the grandfathered amount of 16.1 mgd. This would require development of a water source to supply 17 mgd on an average annual basis. The site considered for this analysis is just upstream of the RRR WWTP with a drainage area of approximately 100 square miles. Planning level costs for constructing a similar-sized reservoir, the Little River Reservoir in Wake County, to supply 18 mgd are estimated to be about \$54 million. If this cost was prorated for the 17 mgd Rocky River Reservoir, the total cost for a Rocky River Reservoir could be expected to be about \$51 million (reservoir only, pumping and transmission costs depend upon length of pipeline). The Rocky River and its tributaries are not classified as water supply waters, so water supply watershed protection measures are not in place and there are numerous point source

discharges upstream of the potential reservoir site. Development of a new WTP would be more expensive than expanding the existing WTPs in the Catawba River Subbasin, and treatment costs would be higher since the Catawba River lakes are very high quality and are protected as water supply sources. The regulatory requirements for developing this source would be substantial.

Proposals for development of new impoundments for water supply in rapidly urbanizing watersheds have faced significant regulatory requirements and created considerable public controversy. The Randleman Lake project in the Deep River portion of the Cape Fear River Basin has faced significant regulatory and public hurdles. Concerns have focused around adequate protection of public health with an urban/urbanizing watershed to loss of rural land. These issues are exacerbated by the fact that this area has never been identified as a potential water supply watershed and there has been no effort to protect the watershed for this purpose. In contrast, the Little River Watershed in Wake County (mentioned above) has been protected through local ordinances and state stream classification as a water supply source since the mid-1980s. The Little River reservoir is not planned to be developed until after 2010.

3.2.3 Discharge Water to Catawba River Subbasin Alternative

For comparison purposes it is assumed that CMUD would substantially expand the McAlpine WWTP as an alternative to using WWTPs in the receiving basin, and a new regional facility is not constructed in the Rocky River. WWTP expansion costs would be about the same and perhaps more expensive due to the many generations of existing facilities at McAlpine WWTP. Transmission and pump station costs for 17 mgd (estimated required maximum month capacity under this alternative) would be about \$10.5 million. SC DHEC has expressed concerns with DENR about nutrient levels in the Catawba Basin—specifically the levels of phosphorus from dischargers in the Sugar Creek Basin. Recently, SC DHEC has administratively appealed National Pollutant Discharge Elimination System (NPDES) permits issued for the McAlpine, Sugar and Irwin WWTPs because of concerns regarding phosphorus. Proceedings of this appeal are on-going.

3.2.7 Conclusions of Alternatives Analysis

All of the considered alternatives will result in significant environmental impacts. The proposed IBT is considered the most feasible alternative.

3.3 Present and Future Impacts on Catawba River Subbasin (Source Basin)

This section summarizes the findings of the EA regarding the present and future impacts within the Catawba River Subbasin on the following:

- Water supply needs of municipalities, industries, and the agricultural sector
- Wastewater assimilation
- Water quality
- Fish and wildlife
- Navigation
- Recreation

3.3.1 Water Supply

Duke Power has stated that, as CMUD's withdrawals and IBTs increase, they expect to operate the reservoirs of the Catawba-Wateree Project within the same elevation ranges that they have been historically operated within. This limits the potential impacts of the proposed increase in IBT to the cumulative reservoir outflows and power generation.

The results of reservoir operations modeling indicate that CMUD water withdrawals would not substantially affect average pool elevations or magnitude of water level fluctuations in any of the Catawba-Wateree Project reservoirs, even during drought conditions. The largest potential effect is on Lake Wylie since water withdrawals occur upstream of Lake Wylie and the majority of return wastewater flows come back into the Catawba River through Sugar Creek, downstream of the Lake Wylie dam. Since the total CMUD withdrawal is projected to not have a significant effect, the reduction resulting from IBT is also insignificant.

During a drought situation CMUD would be following its Water Shortage Response Plan, which includes either voluntary or mandatory conservation measures depending on the severity of the drought. The results of the evaluations previously discussed do not consider conservation measures customarily implemented in a drought period which tend to reduce water use rates below the average. Therefore, the expected impacts on lake surface elevations and cumulative reservoir outflows during a drought would be less severe than those previously presented.

The proposed transfer amount of 33 mgd (maximum day) represents 13 percent of CMUD's future maximum day water use. Therefore, the potential cumulative impact of the proposed water transfer on the Catawba-Wateree lake system is considered minor. The proposed transfer will not result in significant adverse impacts related with water availability for other existing and future users of water in the source basin.

There are no secondary impacts on water supply related to growth due to the transfer of water from the source basin. There are no significant cumulative impacts in the source basin directly related to the transfer of water.

3.3.2 Wastewater Assimilation

There are no expected significant direct impacts in the wastewater assimilation capacity in the source basin as the result of the transfer of water from Mountain Island Lake. The hydrology of the system will not be affected in any major manner due to the proposed transfer. Therefore, the assimilative capacity of the surface waters in the source basin is not expected to change due to the proposed transfer of water. In addition, DWQ discourages lake dischargers.

There are no secondary impacts on water quality related to growth due to the transfer of water from the source basin. There are no significant cumulative impacts in the source basin directly related to the transfer of water.

3.3.3 Water Quality

Direct impacts in the water quality of surface waters in the source basin are not expected because there will not be any major changes in the hydrology of the system due to the increased withdrawal. Since the hydrology of the system will not be affected in any major manner due to the proposed transfer, water quality is not expected to be affected in Lake

Norman, Mountain Island Lake, Lake Wylie, nor in the other surface waters of the study area in the source basin.

As previously mentioned, there are no secondary impacts on water quality related to growth due to the transfer of water from the source basin. There are no significant cumulative impacts in the source basin directly related to the transfer of water.

3.3.4 Fish and Wildlife Resources

As discussed in Section 3.3.1, an analysis conducted by Duke Power under normal and drought conditions has indicated that there will be no changes in the surface water elevations of Lake Norman, Mountain Island Lake, or Lake Wylie due to the proposed IBT. The FERC application for the additional withdrawal from Mountain Island Lake as part of this IBT concluded that changes in Catawba River flow and lake elevations due to the increase in average annual withdrawals would be insignificant (CMUD, 1999). No significant changes to river flows, lake elevations, or system hydrology will occur in the three lakes.

Therefore, the IBT is not expected to significantly impact fish, wildlife, or aquatic species in the source basin. Only under more pronounced drought conditions will the surface water elevations upstream of the Mountain Island Dam decrease moderately; however, this moderate effect is not anticipated to be significant in terms of impacts on wildlife or aquatic resources in the source basin.

As discussed in the FERC application for the increased withdrawal from Mountain Island Lake associated with the IBT (subject to a separate EA), there has been some wildlife concerns in the past regarding fishery resources being subject to entrainment and impingement on intake screens. The concern is that resident fish eggs not attached to rock substrata or vegetation would float with the currents and be susceptible to entrainment. In addition, larval fish have only limited swimming abilities, and larval fish emerging along the reservoir shoreline in the proximity of the intake may be subject to entrainment also. The FERC application concludes that during normal operations, water will be withdrawn from the lake through a combination of four cells, up to the maximum requested rate of 330 mgd, at intake velocities below 0.5 feet per second (fps), which is the maximum velocity preferred by NC Wildlife Resources. The FERC application concludes that even under drought conditions, the approach velocities for all four cells will be below 0.5 fps (CMUD, 1999). The increase in maximum water withdrawal rate requested in the current application would not change the protective level of the intake in Mountain Island reservoir for fisheries resources. This is because the design of the intake and traveling screens was based on the maximum withdrawals now being requested. Design velocities would always be less than 0.5 feet per second, which is below the swimming velocity of most fish (EPRI, 1986), and is below North Carolina and U.S. Fish and Wildlife Service (USFWS) guidelines for maximum approach velocities

The proposed IBT does not require the construction of additional water intake structures in Mountain Island Lake. Any proposed pumping stations and conveyance lines associated with implementing the transfer will be permitted separately under appropriate state and federal programs and their fish, wildlife, and sensitive species impacts evaluated under a separate NCEPA or NEPA process.

With no significant changes to lake elevation, lake and basin hydrology, or water quality in the source basin, the IBT project will not have any significant direct impact on fish, aquatic, wildlife, or sensitive resources within the source basin. No secondary impacts are expected.

3.3.5 Navigation

No direct or indirect impacts of the proposed IBT on navigation in the receiving basin are expected.

3.3.6 Recreation

The IBT will not significantly alter the availability of water to the source basin to serve existing and projected land uses in the source basin. The IBT will not, when considered with other water withdrawal projected from the reservoir system, cause significant cumulative elevation changes in any of the project lakes, nor will water quality in any of the water bodies change substantially. Minimum releases of water from the various reservoirs in the chain will not change, even under severe drought conditions. No land uses, public areas, or recreational sites will be flooded or drained with the transfer. The project will therefore not change the existing recreational use in the source basin.

3.3.7 Hydroelectric Power Generation

Direct impacts of the proposed interbasin transfer on hydroelectric power generation in the Catawba River subbasin are not expected to be significant. The proposed interbasin transfer of 33 mgd (maximum day) in 2030 represents approximately 13% of the CMUD's maximum day demand in 2030. Therefore, any potential impact on hydroelectric power generation is due to increased water withdrawals and not on the interbasin transfer. On behalf of CMUD, Duke Power is requesting from the FERC an increase in the permitted water withdrawals from Mountain Island Lake from 165 mgd to 330 mgd (instantaneous maximum). This increase will allow CMUD to meet projected demands through 2030 in Mecklenburg County. Duke Power has stated that, as CMUD's withdrawals and interbasin transfers increase, they expect to operate the reservoirs of the Catawba-Wateree Project within the same elevation ranges that they have been historically operated within. This limits the potential impacts of the proposed increase in withdrawal to the cumulative reservoir outflows and power generation. The IBT contribution to these potential impacts is minor.

3.4 Present and Future Impacts on the Rocky River Subbasin (Receiving Basin)

This section summarizes the findings of the EA regarding the present and future impacts within the Rocky River Subbasin on the following:

- Water quality
- Wastewater assimilation
- Fish and wildlife
- Navigation
- Recreation
- Flooding

A summary of measures to mitigate adverse impacts is included in Appendix C.

3.4.1 Water Quality

Based on consultations with U.S. Geological Service (USGS), DWQ, and DWR, the additional flow in the receiving basin will result in a total stream flow of approximately 47 cfs in the Rocky River (below the confluence with Crooked Creek) under 7Q10 flow conditions. Current 7Q10 stream flow at this point of the Rocky River is estimated to be 21 cfs. The additional flow will bring the stream flow in the Rocky River closer to desirable stream flows designed to maintain aquatic habitat. Based on a regression equation developed by DWR to determine the minimum flow for a stream in the Piedmont which exhibits moderate aquatic habitat, and for which no continuous gage record exists, the recommended minimum stream flow to maintain aquatic habitat in the Rocky River (below Crooked Creek) is 58 cfs. According to guidance provided by DWR and consultations with Mr. Mead of DWR, the Rocky River near Crooked Creek is considered within the Piedmont region for application of the equation. cursory visual inspection of this section of the Rocky River by CH2M HILL staff indicated that the stream provides moderate aquatic habitat.

The ratio of the additional wastewater (26 cfs) to the drainage area of the Rocky River (683 square miles), below Crooked Creek, is less than 0.4. DWR has asserted, based on studies conducted in Piedmont streams (DWR, 1987), that floodwater carrying capacity, streambank erosion, and fish habitat need not be considered in detail for NCEPA documentation or for NPDES permit decisions when the aforementioned ratio is less than 0.40.

Direct impacts related to water quality and streambank erosion due to an increase in stream flow are not expected to be significant. Additional growth and development in the receiving basin may impact water quality, stormwater runoff, frequency and intensity of flooding, and land use. Mitigation measures for secondary impacts related to growth and development are presented in Appendix C.

3.4.2 Wastewater Assimilation

Primary impacts to water quality from the IBT originate from the operation of wastewater treatment facilities. However, these facilities have been already permitted and the IBT will not result in additional permitted capacities. Existing NPDES permits were issued to protect instream water quality. The permitting process for each of these facilities has complied with the NCEPA requirements. DWQ's antidegradation policy requires that only the alternative that causes the least amount of environmental damage can be permitted under the NPDES program. Additional growth and development in the receiving basin may impact water quality, stormwater runoff, frequency and intensity of flooding, and land use. Mitigation measures for secondary impacts related to growth and development are presented in Appendix C.

3.4.3 Fish and Wildlife Resources

The IBT itself will not have any direct impacts on natural communities, Significant Natural Habitat Areas (SNHAs), fisheries, or sensitive species and their habitats in the receiving basin since no construction is planned with the IBT.

However, there may be secondary impacts on fish and wildlife resources through increased growth and development, which may be facilitated by the proposed IBT. Additional growth and development in the receiving basin may impact water quality, stormwater runoff, frequency and intensity of flooding, and land use. Mitigation measures for secondary impacts related to growth and development are presented in Appendix C.

3.4.5 Navigation

No direct or indirect impacts of the proposed IBT on navigation in the Rocky River Subbasin are expected since streamflows in the Rocky River Subbasin are not expected to change significantly. No expansion of existing WWTPs or construction of new WWTPs is planned within the receiving basin.

3.4.6 Recreation

The proposed IBT will not have any direct or indirect impacts on recreation in the Rocky River Subbasin. Increased wastewater as a result of the proposed IBT will be within existing permit limits and will not significantly affect recreational resources along the receiving stream corridors. No recreational lands will be subject to additional threats of flooding as a direct result of the proposed IBT.

3.4.7 Flooding

Direct impacts related to flooding due to an increase in stream flow are not expected to be significant. Again, the permitted NPDES flows will handle the proposed IBT flow amounts. Average annual stream flow in the Rocky River, downstream from Crooked Creek, is expected to increase from 663 cfs to approximately 690 cfs at permitted flows, or about 4 percent. The expected increase is minor and well within the historical stream flow variability based on a flow duration analysis conducted in conjunction with the Raleigh Office of USGS. For this analysis, stream flow variability for the Rocky River below Crooked Creek is assumed to be similar to that at the Norwood gage station. The analysis estimated that flows in the Rocky River, below Crooked Creek, historically exceed 690 cfs twenty percent of the time and 1,500 cfs ten percent of the time. The one-year flow event in the Rocky River was estimated at about 6,000 cfs; therefore, the potential flow increase is less than 0.5 percent of the one-year flow event. The proposed IBT will not have any direct impacts on flooding in the Rocky River Subbasin. Increased wastewater discharges into as a result of the proposed IBT will be within existing permit limits and will not significantly affect streamflows and flooding along the receiving stream corridors.

However, there may be secondary impacts within the receiving basin related to growth and development which may potentially increase both stormwater runoff from construction activities and impervious surface area and result in a higher risk of flooding. A summary of measures to mitigate adverse impacts is included in Appendix C.

3.5 Other Considerations

3.5.1 Regional Water Supplier

CMUD currently provides and plans to continue to provide the City of Charlotte and the six other towns in Mecklenburg County with finished drinking water. Therefore, CMUD is a regional water supplier.

3.5.2 Reuse and Water Conservation

In an effort to minimize discharges to surface waters, decrease use of potable water (thereby reducing the need for transferring water across basin boundaries), reduce peak demand for potable water, and use treated wastewater as a valuable resource, CMUD has been aggressively pursuing opportunities for water reuse. At their Mallard Creek water

reclamation facility (WRF), CMUD is permitted to reuse up to 3 mgd of reclaimed water (treated wastewater) for irrigation purposes. This was the first facility permitted for conjunctive use (i.e., both discharge and reuse) of reclaimed water under the revised rules for water reclamation developed by the DWQ in 1996. CMUD is continuing to promote opportunities for reuse in the IBT project area by proposing to construct the Three-County WRF with a substantial portion of the effluent reused rather than discharged into the Rocky River.

In 1986, the Charlotte City Council granted authority for the City Manager to invoke mandatory water conservation, and CMUD developed a Water Shortage-Drought-Emergency Response Plan. The plan consists of voluntary and mandatory procedures, which are instituted when finished water demands approach supply, treatment, or distribution capacities for five (voluntary procedures) or ten (mandatory procedures) consecutive days with no weather breaks predicted. According to DWR, voluntary and mandatory measures can be expected to reduce water use by 5 to 15 percent and 15 to 30 percent, respectively.

The voluntary conservation procedure requests that non-essential watering be conducted by residents only on an odd or even day of the week, which corresponds to the house number. A six-step process is implemented to notify Mecklenburg County citizens of the voluntary conservation procedure that should be followed, and a brochure with additional water conservation tips is to be distributed. The Water Distribution Division will also begin working water system priority leaks within 48 hours and emergency leaks immediately.

When CMUD recognizes that conditions requiring mandatory conservation procedures exist, a Notice of Declared Water Distribution Crisis must be posted by the City Manager 12 hours in advance of the mandatory measures taking effect. The mandatory conservation procedures include a system-wide ban on non-essential irrigation (excluding that essential to businesses, golf courses, greenhouses, etc.). The same notification procedure applies; however, violations will be issued for non-compliance. The first violation within 24 hours will result in a warning, and the second violation will result in a penalty.

CMUD is currently taking the following measures to reduce water consumption rates:

- There are conservation rates in effect which dictate that high water use results in higher cost as opposed to giving preference to high quantity residential and commercial users.
- A major element of CMUD's water conservation efforts will be wastewater reclamation. A project is currently underway to reclaim water at Mallard Creek WWTP.
- CMUD has developed an extensive public education and information program, including Water Watch, which was developed to keep customers informed about water demands and the utility's capacity to deliver finished water throughout the distribution system without adverse impacts to system pressures

The strategy behind CMUD's efforts is to focus on incentives and public education rather than on ordinances.

SECTION 4

Compliance and Monitoring Plan

The proposed compliance and monitoring plan for the requested CMUD IBT certificate includes the following elements, which are described in the sections below:

1. IBT Calculation
2. Reporting

The details of monitoring and compliance will be specified in a Compliance and Monitoring Plan approved by DWR.

4.1 IBT Calculation

CMUD will calculate the daily IBT using a methodology developed in conjunction with DWR staff. The methodology is based on the guidance developed by DWR for estimating IBT amounts as part of the Local Water Supply Planning process. Table 4-1 provides an example of the calculations that will be submitted.

Consumptive use for each day is assumed to be the difference between total water use and total wastewater discharged, or zero if discharge is greater than potable water use. This may underestimate consumptive use in the winter months (when water use is typically lower than wastewater discharge), but the effect will be to slightly overestimate the resulting IBT amount. When discharge is greater than water use, the portion of raw water withdrawal that is discharged as wastewater in each basin is assumed to be proportional to the actual wastewater discharges in that basin. In effect, this is assuming that the same degree of inflow and infiltration occurs in the sewer system in each basin. These assumptions will not impact evaluation of compliance with the requested IBT certificate, since the maximum IBT is expected to occur in the summer.

The portion of consumptive use that occurs in the source basin will be estimated as the portion of the water service area in the source basin, and will be updated annually to reflect changes in the development of the service area.

TABLE 4-1
Sample Daily Calculations for Interbasin Transfer¹

Date	Withdrawal from Catawba Basin (mgd)	Consumptive Use (mgd)		Wastewater Discharged (mgd)		Total Return to Catawba Basin (mgd)	Interbasin Transfer (mgd)	IBT as % of Grandfathered Amount ²
		Catawba Basin	Rocky River Basin	Catawba Basin	Rocky River Basin			
6/1	139.31	57.69	9.39	68.33	3.90	126.02	13.29	83%
6/2	150.65	66.04	10.75	70.35	3.50	136.39	14.25	89%
6/3	149.97	67.48	10.99	66.80	4.70	134.28	15.69	97%
6/4	110.61	32.50	5.29	68.72	4.10	101.22	9.39	58%
6/5	108.20	30.80	5.01	68.09	4.30	98.89	9.31	58%
6/6	104.81	22.28	3.63	74.48	4.42	96.76	8.05	50%
6/7	117.78	33.11	5.39	75.68	3.60	108.79	8.99	56%
6/8	122.77	40.52	6.60	71.45	4.20	111.97	10.80	67%
6/9	133.63	52.07	8.48	68.18	4.90	120.25	13.38	83%
6/10	142.47	60.23	9.80	67.34	5.10	127.57	14.90	93%
6/11	141.19	63.70	10.37	63.62	3.50	127.32	13.87	86%
6/12	144.77	68.49	11.15	60.53	4.60	129.02	15.75	98%
6/13	137.82	53.29	8.68	71.05	4.80	124.34	13.48	84%
6/14	135.65	49.45	8.05	74.95	3.20	124.40	11.25	70%
6/15	120.06	36.28	5.91	72.67	5.20	108.95	11.11	69%
6/16	123.38	42.51	6.92	68.24	5.70	110.75	12.62	78%
6/17	126.49	46.78	7.61	67.10	5.00	113.88	12.61	78%
6/18	126.76	48.79	7.94	64.83	5.20	113.62	13.14	82%
6/19	124.87	41.24	6.71	71.21	5.70	112.45	12.41	77%
6/20	124.43	43.90	7.15	67.88	5.50	111.78	12.65	79%
6/21	135.60	54.00	8.79	67.91	4.90	121.91	13.69	85%
6/22	134.81	51.81	8.43	68.87	5.70	120.68	14.13	88%
6/23	141.49	58.97	9.60	67.52	5.40	126.49	15.00	93%
6/24	142.61	61.75	10.05	65.20	5.60	126.95	15.65	97%
6/25	135.05	57.41	9.35	62.60	5.70	120.01	15.05	93%
6/26	142.37	60.52	9.85	66.29	5.70	126.81	15.55	97%
6/27	129.63	45.49	7.40	71.14	5.60	116.63	13.00	81%
6/28	120.53	35.80	5.83	72.70	6.20	108.50	12.03	75%
6/29	110.51	24.46	3.98	76.37	5.70	100.83	9.68	60%
6/30	111.10	28.33	4.61	72.86	5.30	101.19	9.91	62%
Minimum							8.05	50%
Maximum							15.75	98%
Average	129.64	47.86	7.79	69.10	4.90	116.95	12.69	79%

1. from June 2000

2. Percentage of daily IBT to permitted amount under grandfathered IBT of 16.1 mgd.

4.2 Reporting

At the end of each calendar year, the daily IBT calculations will be summarized in an annual report to DWR. The annual report will document the maximum day IBT amount for that year. The distribution of consumptive uses between the source and receiving basins will be reviewed and modified to reflect changes in the development of the service area. The Annual Report will also document compliance with any conditions, if applicable, that the EMC includes in the IBT certificate.

Once an annual report indicates that a daily maximum IBT has exceeded 80% of the IBT specified in the certificate, CMUD will begin monthly reporting to DWR during the next calendar year. At the end of each month, CMUD will report IBT calculations and document the maximum IBT that occurred during that month. CMUD will also continue to submit annual reports that review the distribution of consumptive uses between the source and receiving basins based on service area development in the previous year, and document compliance with any interbasin certificate conditions, if applicable.

SECTION 5

Drought Management Plan

Lake Norman and Mountain Island Lake are part of the Catawba River Basin and are part of eleven hydropower impoundments in the Catawba-Wateree Project. The impoundments are owned and managed by Duke Power under license from the FERC. Lake levels are managed to provide for power generation, flood control, water supply (for CMUD), and secondarily to provide recreational opportunities. Duke Power manages the lake levels according to the “target levels” in [Table 5-1](#), which are presented as a percentage of the normal (full) pool elevation. The normal pool elevation for Lake Norman is 760 feet msl and its maximum drawdown is 15 feet. The normal pool elevation for Mountain Island Lake is 647.5 feet msl and its maximum drawdown is 10 feet. The maximum drawdown for each lake represents the minimum lake level required by Duke Power for power generation.

TABLE 5-1
Target Level for Lake Norman and Mountain Island Lake¹

Month	Target Operating Range for Lake Norman	Target Operating Range for Mountain Island Lake
January	94 - 96%	96%
February	92 - 94%	96%
March	92 - 94%	96%
April	94 - 96%	96%
May	96 - 98%	96%
June	98%	96%
July	98%	96%
August	98%	96%
September – November	97 - 98%	96%
December	96 - 97%	96%

Note:

¹ Target operating range is presented as a percentage of normal (full) pool.

Duke Power owns and manages four surface water impoundments upstream of Lake Norman and Mountain Island Lake including Lake James, Lake Rhodhiss, Lake Hickory, and Lookout Shoals Lake.

During drought conditions, Duke Power can release some storage in these upstream impoundments to ensure adequate water supply in Lake Norman and Mountain Island Lake and to maintain minimum downstream flows. This was the case during the severe drought of 1999 and 2000 when flows in the Catawba River exceeded the minimum release from Lake Wylie of 411 cfs required by Duke’s FERC license. The minimum downstream flows for the impoundments in the Duke Catawba-Wateree Project are presented in [Table 5-2](#).

TABLE 5-2
Minimum Flow Requirements for Duke's Catawba Wateree Project

Development (Reservoir)	Minimum Continuous Flow (cfs)	Minimum Average Daily Flow (cfs)
Lake James	25	66
Lake Rhodhiss	40	225
Lake Hickory	40	261
Lookout Shoals Lake	60	278
Lake Norman	80	311
Mountain Island Lake	80	314
Lake Wylie	-	411
Fishing Creek Lake	-	440
Great Falls Lake	-	444
Rocky Creek Lake	-	445
Lake Wateree	-	446

Currently, CMUD does not have an adopted drought management plan. CMUD is in the process of completing a Water Conservation Plan. Development of a drought management plan would require the cooperation of Duke Power since CMUD's water supplies are only two of eleven impoundments managed by Duke Power. Due to the complexity of the Catawba-Wateree system, Duke Power uses a reservoir operations model, a proprietary version of the commercially available CHEOPS (Computer Hydro-Electric Operations and Planning Model Software) model, to manage the lakes.

The model was calibrated specifically for the Catawba-Wateree Hydroelectric Project by Duke using detailed engineering and operations data for the project and historical flow records from available flow gauges in the basin. The Catawba-Wateree operations model accounts for inflows (streamflows) and outflows (withdrawals, generation, and indirectly, evaporation) for each reservoir in the project. The model contains detailed data for storage-area-volume relationships, reservoir elevation constraints, operating rules, turbine and generator efficiency curves, travel times and paths.

The complexity of the operation and management of the Catawba-Wateree Project do not allow for a simple monitoring of CMUD's available raw water supply capacity. Cooperation by Duke Power would be needed in order to implement an effective drought management plan.

However, CMUD has developed the Water Watch Index to provide customers with a measure of the water supply capacity. The Water Watch Index is updated daily based on water demands and the delivery capacity of the distribution system. Therefore, the index was developed to primarily to keep customers informed about water demands and the utility's capacity to deliver finished water throughout the distribution system without

adverse impacts to system pressures rather than a measure of raw water supply capacity. The Water Watch Index includes the following alert levels:

- **STABLE:** Demand for water is manageable. Thanks for your conservation
- **SERIOUS:** Water use is very high. Please minimize nonessential water use
- **CRITICAL:** Water use is too high. Eliminate nonessential water use
- **MANDATORY:** Mandatory water restrictions are in effect and will be enforced.

Water Watch Index for Friday June 22, 2001



Mandatory conservation measures could be instituted if the water supply situation becomes critical. Depending on the severity of the problem, mandatory restrictions could limit or forbid lawn watering, car washing, filling swimming pools or other specified non-essential outdoor use during certain days and times. Those who violate a City water conservation ordinance would receive a fine for each recorded event/offense. Depending on the severity of the problem, landscapers and some other businesses that rely on water may be allowed to continue operation under certain circumstances. The first and only time that mandatory conservation restrictions ever issued was in 1986.

SECTION 6

References

- Charlotte-Mecklenburg Utilities Department (CMUD). 1999. FERC Application for Increase in Withdrawal Rate from Mountain Island Lake. Prepared by CH2MHILL.
- CH2M HILL. 2001. Environmental Assessment for Charlotte-Mecklenburg Utilities for Increase in Interbasin Transfer from the Catawba River Subbasin to the Rocky River Subbasin. Raleigh, North Carolina.
- EPRI (Electric Power Research Institute). 1986. Assessment of Downstream Migrant Fish Protection Technologies for Hydropower Application. Palo Alto, California.
- North Carolina Division of Water Resources (DWR). 1987. Potential Effects of Proposed Wastewater Discharges to Middle Creek on Flooding, Streambank Erosion, and Fish Habitat. Raleigh, NC.
- North Carolina Office of State Planning. 1999. County Growth Projections – 2010 – 2020. Web site: <http://www.ospl.state.nc.us/demog/projbdm1.html>
- South Carolina Department of Health and Environmental Control (SC DHEC), 1996. Watershed Water Quality Management Strategy: Catawba-Santee Basin. Technical Report No. 002-96. Columbia, SC

APPENDIX A

Finding of No Significant Impact (FONSI)

Close 10-07-01

FINAL

MITIGATED FINDING OF NO SIGNIFICANT IMPACT

**CHARLOTTE-MECKLENBURG UTILITIES
PROPOSED INCREASE IN INTERBASIN TRANSFER
FROM THE CATAWBA RIVER BASIN TO THE ROCKY RIVER BASIN**

**RESPONSIBLE AGENCY: NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES**

**CONTACT: TOM FRANSEN
DIVISION OF WATER RESOURCES
1611 MAIL SERVICE CENTER
RALEIGH, NORTH CAROLINA 27699-1611
(919) 715-0381**

August 20, 2001

MITIGATED FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Project Applicant: Charlotte-Mecklenburg Utilities

Summary Project Description: Charlotte Mecklenburg Utilities (CMUD) is requesting an interbasin transfer (IBT) certificate from the North Carolina Environmental Management Commission (EMC) for an increase in their transfer amount from 16.1 million gallons per day (mgd) to 35 mgd. The proposed IBT is based on the existing water withdrawals from the source basin (Mountain Island Lake within the Catawba River Sub-basin, and transfer of the water to the receiving basin (Eastern Mecklenburg County within the Rocky River Sub-basin via consumptive use and existing discharges in the receiving basin (Mallard Creek Wastewater Treatment Plant [WWTP] and Rocky River Regional WWTP). The IBT will not lead to expansions of permitted discharges at either of the WWTP locations in the receiving basin. This Environmental Assessment (EA) provides supporting documentation for the IBT certificate petition.

Background and Procedural History: Pursuant to the Regulation of Surface Water Transfers Act [G.S. 143-215.22I(f1)], the Department is required to prepare an environmental assessment (EA) for petitions for an interbasin transfer certificate. The determination of whether an environmental impact statement shall also be required is made in accordance with provisions of Article 1 of G.S. 113A. Within the Department, the Division of Water Resources is the responsible agency for interbasin transfer requests.

After reviewing scoping comments, the Division determined that a mitigated EA was the appropriate environmental review document. Under a mitigated EA, all significant impacts must be mitigated to a level of insignificance through identified mitigation measures. The Division will recommend to the EMC that some of the mitigation measures be included in the certificate as enforceable permit conditions.

Following public review of the FONSI/EA, the Applicant will present its petition requesting an increase in interbasin transfer to the EMC. The Division will also present its recommendations. The EMC will then hold a public hearing on the proposed transfer. A final decision will be made at the next full EMC meeting following the public comment period and preparation of a hearing officer's report.

The environmental assessment (EA) found no direct impacts that would result from the proposed transfer. Direct impacts that may result from future infrastructure projects such as water and sewer lines will be assessed through separate environmental reviews of those projects. The EA identified secondary and cumulative impacts due to growth in the receiving basin as the primary significant environmental impacts. These impacts include water quality impacts, wetland impacts, impacts to threatened mussel populations, habitat fragmentation, and loss of open space.

Mitigation Measures: The Division of Water Resources will recommend to the EMC inclusion of a number of conditions in the IBT Certificate for the implementation of long-term mitigation of secondary and cumulative impacts. The certificate should also include provisions for a compliance and monitoring plan to track progress on meeting the proposed conditions. The plan would also specify requirements for reporting actual maximum daily transfer amounts. The following items are under consideration for inclusion in the IBT certificate. Note that the specific permit language may be modified from the text shown.

Require the County to evaluate the feasibility of each element of the Surface Water Improvement and Management Program (SWIM) on an annual basis. For those elements that are deemed feasible, the County should continue to seek funding from its Board of County Commissioners to fund the SWIM program to continue implementing the Phases outlined in Section 6.2.1.2 of the EA.

- Require the County and the Town of Mint Hill to consider the conclusions of WRC's Goose Creek watershed study when complete. Mecklenburg County and Mint Hill should provide information to WRC on which recommendations they will pursue adopting and which recommendations are infeasible and why.
- Require Mecklenburg County and the City of Charlotte to continue the stakeholder process to investigate water quantity control from single-family development and water quality control for all development. To accomplish this end, the stakeholder group should consider evaluating the feasibility of single-family detention and recommending ordinance revisions based on technical, political, long-term maintenance, cost, and benefits related to the proposed ordinance changes.

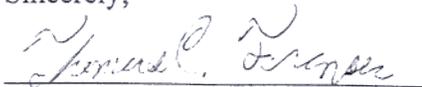
In addition to the permit conditions listed above, Mecklenburg County, the City of Charlotte, and the Towns of Cornelius, Huntersville, Davidson and Mint Hill have implemented, proposed and /or committed to a number of mitigation measures designed to avoid and minimize any potentially significant adverse environmental impacts. These measures include but are not limited to the following:

- 1 Mecklenburg County has adopted the Phase I strategy of the Surface Water Improvement and Management program (SWIM). The goal of the nine-part strategy is for all county streams to be suitable for prolonged human contact and supportive of aquatic life.
- 2 All towns within Mecklenburg County have adopted stream buffer requirements under Part 3 of the SWIM Phase I strategy. Buffer widths range from 30 to 100 feet and apply to all streams with a drainage area of 100 acres or more. Some of the local jurisdictions have adopted more stringent requirements.
- 3 Mecklenburg County is implementing water quality modeling under Part 5 of the SWIM Program strategy. The County is working with the Town of Huntersville to establish a watershed management strategy for McDowell Creek based on the results of the model. Following the pilot, the County plans to extend this effort to the entire county.

4. Towns within Mecklenburg County have adopted land use policies which include provisions for open space preservation, stormwater control, sedimentation and erosion controls, growth boundaries, and tree preservation among others.
5. The Goose Creek subbasin in Mecklenburg County is removed from the area to be served by the IBT. A moratorium on the installation of new IBT water lines into Goose Creek subbasin is in effect until the impacts of additional growth urban growth on the endangered species are fully evaluated.
6. Mecklenburg County and the Town of Mint Hill commit to participate in the Goose Creek watershed protection initiative and to cooperate with the NC Wildlife Resources Commission to secure funding for riparian buffer acquisition in Goose Creek (particularly within Mecklenburg County).
7. Mecklenburg County commits to consider incorporation of a number of recommendations from the Voices and Choices initiative in the county's environmental protection programs, as appropriate.
8. Mecklenburg County commits to pursue its existing county-wide comprehensive watershed management programs and work with Towns on land use planning. This effort may include working with local land trusts and other natural preservation groups along with large landowners to implement voluntary forest and agricultural preservation plans. Mecklenburg County will continue to evaluate the possibility of using other measures besides typical BMPs to protect sensitive aquatic species, including land use controls, alternative land use scenarios and land acquisition. Also, local zoning ordinances could be amended to create zoning districts that prohibit typical suburban sprawl-type subdivisions, and encourage "smart growth."
9. Mecklenburg County commits to pursue funding for watershed restoration. This effort includes working with the North Carolina Wetlands Restoration Program to identify potential stream restoration sites within Mecklenburg County and using wetland impact fees generated from projects within Mecklenburg County on county stream restoration.

Each of the foregoing mitigation measures is described in more detail in the environmental assessment (EA) supporting the requested interbasin transfer. The Applicant's proposed mitigation measures have adequately addressed identified concerns regarding potentially significant adverse environmental impacts. The Division of Water Resources has determined that the analysis of the potential environmental impacts set forth in the EA and mitigative measures set forth above support a finding of no significant impact such that preparation of an environmental impact statement will not be required. This decision is based upon information in the attached EA and review by governmental agencies. This FONSI completes the environmental review record, which is available for inspection at the State Clearinghouse.

Sincerely,



Thomas C. Fransen
Division of Water Resources

APPENDIX B

Resource Agency and Stakeholder Comments

TABLE B-1
Resource Agencies

Resource Agencies Contacted	Date of Comment Submittal	Concerns Addressed in Letter (attached)	Section of EA Where Concerns are Addressed
Mecklenburg County Department of Environmental Protection	Phone call:	May 3, 1999	None. See attached phone record
	Letter dated:	November 19, 1999	MCDEP concurs with the EA findings and mitigation plan
North Carolina Department of Environment and Natural Resources: Division of Parks and Recreation	Letter dated:	April 30, 1999	List of rare species; impacts on species of concern, secondary impacts; mitigation plan
	Memorandum dated	August 16, 1999	
	Telephone Record dated:	September 20, 1999	
North Carolina Department of Environment and Natural Resources: Division of Pollution Prevention	Letter dated:	May 12, 1999	No concerns submitted
North Carolina Department of Environment and Natural Resources: Division Water Quality	Informational documents received		General analysis of secondary impacts; mitigation plan; project description; IBT calculations
	Memorandum dated:	August 16, 1999	
	Telephone Record dated:	September 15, 1999	
North Carolina Department of Environment and Natural Resources: Division of Water Resources	Scoping document development		Scoping Document attached
	Meeting Summary dated:	September 23, 1999	
North Carolina Department of Environment and Natural Resources: Office of the Secretary	Memorandum dated:	August 23, 1999	Forwarded comments from DWQ (8-16-99), DPR (8-16-99) and WRC (8-9-99)

TABLE B-1
Resource Agencies

Resource Agencies Contacted	Date of Comment Submittal		Concerns Addressed in Letter (attached)	Section of EA Where Concerns are Addressed
North Carolina Wildlife Resources Commission	Letter dated:	April 23, 1999	Impacts on species of concern, recreation, and fisheries; direct/indirect impacts; alternatives; water conservation; Three-County facility	2.3; 3.1.2; 3.2.2; 3.1.3; and Sections 4, 5 & 6
	Memorandum dated:	August 9, 1999		
	Telephone Record dated:	September 14, 1999		
South Carolina Department of Health and Environmental Control: Bureau of Water	Letter dated:	May 10, 1999	Lake surface elevations; downstream flow releases, nutrients	3.1.4; and 5
	Email dated:	June 1, 1999		
South Carolina Department of Natural Resources	Letter dated:	May 7, 1999	Printouts of species occurrences	3.1.3
US Department of Interior: Fish and Wildlife Service	No submittal		No concerns submitted. See attached phone record	
US Department of Interior: Fish and Wildlife Service ¹	Letter dated:	March 12, 1999	Species of concern; Three-County facility; secondary impacts	2.3; 3.1.3; 3.2.3; and Sections 4, 5 & 6
North Carolina Department of Environment and Natural Resources: Division of Water Quality	Letter dated:	May 10, 2000	Letter of concurrence	
North Carolina Wildlife Resources Commission	Letter dated:	August 1, 2000	Proposed mitigation	Section 6; Response letter from CMUD dated 12/7/00 in Appendix B
North Carolina Department of Environment and Natural Resources: Office of the Secretary	Letter undated:	January 29, 2001 (received)	Goose Creek – address secondary impacts through proposed Three County WRF and eliminate from this EA	Goose Creek IBT removed from EA; IBT request reduced. All sections of EA updated.
North Carolina Wildlife Resources Commission	Letter dated:	March 26, 2001	Letter of concurrence	
North Carolina Department of Environment and Natural Resources:	Letter dated:	March 30, 2001	Letter of concurrence	

TABLE B-1
Resource Agencies

Resource Agencies Contacted	Date of Comment Submittal	Concerns Addressed in Letter (attached)	Section of EA Where Concerns are Addressed
Division of Parks and Recreation			

¹ Contacted for the proposed Three-County Water Reclamation Facility project

APPENDIX C

Summary of Local Regulations and Programs for Mitigation of Adverse Impacts

The IBT certificate request is one of many planned activities that are a response to the rapid growth in the project area, rather than the cause of such growth. Nevertheless, because such projects facilitate the urban growth that is occurring, it was determined that the scope of this EA would include the indirect and cumulative impacts associated with the development that will be facilitated by the proposed IBT increase. Table C-1 summarizes the local regulations and programs that will mitigate the potential indirect and cumulative impacts discussed in Section 3 above. This discussion of the measures to mitigate adverse impacts can also be found in Section 6 of the EA (CH2M HILL, 2001).

TABLE C-1
Summary of Existing Programs and the Environmental Resources They Protect

Program or Regulation	Wetlands	Land Use	Fish & Wildlife	Sensitive Species	Water Quality	Air Quality	Ground -water	Noise	Toxics
Sect. 404	X	X	X	X	X				
Sect. 401	X	X	X	X	X				
NFIP	X	X	X	X	X				X
WRP	X		X	X	X				
Archaeological Protection		X							
Farmland Preservation		(X)	(X)						
Stormwater	X		X	X	X				X
Erosion / sed.	X	X	X	X	X				
SSO Regs.	X	X	X	X	X		X		X
CWMTF	(X)	(X)	(X)	(X)	(X)				
Groundwater		X					X		X
Land Conserv. Incentives	(X)	(X)	(X)	(X)	(X)				
Voices & Choices	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
SWIM	(X)	(X)	(X)	(X)	(X)				(X)
Sec 319	(X)	(X)	(X)	(X)	(X)				
Greenways	(X)	(X)	(X)	(X)	(X)				
Adopt-a-Stream	(X)		(X)	(X)	(X)				
Haz. Mitig.	X	X	X	X	X				X

Water Reclamation	X		X	X	X	X	X
Drought Management	X	X	X	X	X		X
Cornelius	X		X	X	X		
Huntersville	X	X	X	X	X		
Davidson		(X)					
Mint Hill					(X)		

Note:

X = Demonstrates clear environmental benefits, (X) = Shows potential for environmental benefits (program not mandatory/ regulation not yet adopted)

In addition, the following mitigation measures were developed to enhance existing and proposed environmental protection regulations at the local level. The proposed measures were developed to complement the existing environmental protection regulatory framework. The discussion of existing regulatory and non-regulatory mitigation indicates that there are numerous rules and programs that have been or are being adopted to protect the natural resources of the study area from the effects of urbanization. This comprehensive suite of environmental regulations and programs is found to be quite adequate overall in mitigating the secondary impacts of the proposed action. Therefore, only a limited number of measures to complement this mitigation are provided. These measures, in combination with existing and proposed regulations and programs support an overall EA and FONSI under NCEPA for the project.

Water and Sewer Line EA/EIS Conditions

Subsequent EA and EIS documents for water and sewer conveyance systems in the receiving basin should contain the following elements to adequately address potentially significant primary/direct impacts:

1. Locations, types, extent, and importance of wetlands and SNHAs in the water or sewer line alignment and proposed construction zone and analysis of projected impacts to wetlands from proposed direct construction impacts.
2. If determined to be necessary, completion of a Wetlands Avoidance and Mitigation Plan through the formation of a workgroup composed of local, state, and federal government agencies and the project consultant. This plan should look at local regulatory and non-regulatory actions that could be taken to supplement existing efforts and adequately reduce the level of wetland impacts from the project.
3. Since projected land uses for the County were not available in GIS format at this time, future EA and EIS documents for water and sewer line projects should contain this information coupled with existing land uses or land cover data for each proposed utility line project and its service area. This analysis should include a discussion of how the project complies with local plans and zoning and is consistent with planned land uses for the area. GIS data coverages of projected land use for Mecklenburg County is currently in the process of being digitized.
4. Acreage and types of sensitive aquatic or terrestrial species or their habitats that may be lost or degraded because of construction or operation of the water or sewer line, with analysis of what can be done to avoid or offset these impacts. Alternative alignments and utility designs should be proposed to mitigate significant impacts to sensitive

species or habitats. Particular attention should be given to the Crooked Creek watershed, and suspected locations of other sensitive species that could be impacted by construction of the utilities.

5. Specific design and operational guidance that will be used to avoid system failures and toxic spills into surface waters should be provided, with specific attention given to avoiding sewage releases, sewage overflows and leaks during power outages, storm events and accidental breaks in the lines, equipment and pump stations. Specific attention must be given to methods designed for any project activities in proximity to Crooked Creek and other sensitive habitats identified to reduce the probability for spills within those sensitive areas.

Enhancing and Strengthening Local Government Regulations & Programs

As shown in Table C-1, the existing programs and regulations in place at the federal, state and local levels mitigate to a great extent the impacts of land use on water quality, wetlands, sensitive aquatic and terrestrial species, and fish and wildlife habitat. In addition, our evaluation shows an exceptionally strong commitment from Mecklenburg County to address many of the significant environmental impacts predicted from urbanization of the project area. Section 6.3 of the EA describes the commitment made by Mecklenburg County in addressing secondary impacts of the IBT. Table C-2 provides a summary of the monitoring plan for implementing proposed additional mitigation efforts committed by Mecklenburg County.

TABLE C-2
Mitigation Monitoring Plan

Mitigation Measure	Implementation	Timing of Action	Lead Agency Responsible for Completing Measure	Agency to Monitor and Enforce
Consider adopting a number of Voices and Choices recommendations at the local level, as appropriate	Mecklenburg County's Board of Commissioners holds a session to hear presentations from the County staff who were a part of the Voices and Choices process. Board of Commissioners recommends feasibility analysis for the implementation of a number of recommendations.	Board of Commissioner's session and feasibility analysis recommendation may occur after Voices and Choices meetings in March 2001	Mecklenburg County	NC Division of Water Resources
	Status: Proposed			
Continue to pursue watershed county-wide management approach with added emphasis on land use planning	Mecklenburg County SWIM staff coordinates and improves cooperation among Engineering, MCDEP, Stormwater Services, Parks and Recreation, CMUD and Planning Commission to address water quality issues; and explore the revision of projected land uses with the goal of incorporating "smart growth" concepts and open space preservation programs to protect environmental resources.	Specific "smart growth" and open space concepts are prioritized in discussions of coordination and cooperation efforts of Part 7 of the SWIM Phase 1 Strategy during the first half of 2000.	Mecklenburg County	NC Division of Water Resources
	Status: Ongoing			
Continue to pursue watershed county-wide management approach with added emphasis on stream restoration	Mecklenburg County staff works with North Carolina Wetlands Restoration Program to identify restoration sites in the County and use wetland impact fees generated within Mecklenburg County to restore county streams	Discussions with Wetlands Restoration Program staff continue. Potential restoration sites are in the process of being identified and progress should occur during 2001.	Mecklenburg County	NC Division of Water Resources
	Status: Ongoing			