

Interbasin Transfer (IBT) Compliance and Monitoring Plan for Transfers of Water from the Catawba and Yadkin Basins to the Rocky River Basin

Prepared for:

City of Concord

City of Kannapolis

Submitted to:

North Carolina Division of Water Resources

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1.0 Introduction

On January 10, 2007, the North Carolina Environmental Management Commission (EMC) granted an interbasin transfer (IBT) Certificate to the Cities of Concord and Kannapolis (Cities) in the amount of 20 million gallons per day (mgd) on a maximum day basis. The transfer amount is divided in equal parts between the Catawba and Yadkin River Basins. The Certificate includes 7 conditions that the Certificate holders must meet in order to maintain compliance with the Certificate. The Certificate conditions state:

- 1. If at any time any legal requirement that (a) governs the operation of the hydroelectric facilities in the Catawba River basin currently licensed as Federal Energy Regulatory Commission (“FERC”) Project No. P-2232 or in the Yadkin-Pee Dee River basin currently licensed as FERC Project Nos. P-2206 and P-2197 and (b) governs or affects water use and/or quality, substantially differs from the actual or anticipated FERC license conditions or other legal requirements upon which the analysis underlying this Certificate is based, such as changes to minimum flow requirements or drought mitigation measures, the Commission may reopen and modify this Certificate to ensure continued compliance with G.S. ch. 143, art. 21, part 2A.*
- 2. The Cities shall implement drought management measures that become more stringent as drought conditions increase in severity. The Cities shall implement measures corresponding to the most severe level of drought existing in either the Catawba or Yadkin River basins. Prior to transferring any water under this Certificate, the Cities shall submit a plan to the Division of Water Resources (“Division”), for the Division’s approval for implementing this condition. The plan shall include a demonstration that each of the Cities has legal authority and adequate resources to implement the drought management measures specified in this condition. The Cities shall not transfer any water to any other jurisdiction (regardless of the origin of that water) unless that jurisdiction agrees to be bound by this condition in full. The drought management measures shall be at least as stringent as the measures in Attachment A to this Certificate, which is incorporated herein:*

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3. *If the Division determines that the Cities are no longer cooperating with each other for the implementation of this Certificate, the Division may, in consultation with the Cities and considering the proportionate 2035 projected needs of each of the Cities, allocate the certified transfer amount between the Cities. Within three months of any such allocation, each of the Cities shall submit a plan to the Division, for the Division's approval, which shall assure that the Certificate amounts will not be exceeded.*
 4. *Within four months of the effective date of this Certificate, the Cities shall develop and submit to the Division for the Division's approval, a compliance and monitoring plan for reporting at least annually: (a) maximum daily transfer amounts based on data derived from water meters, (b) a demonstration of compliance with certificate conditions, and (c) drought management activities.*
 5. *If the Commission determines that the record on which this Certificate is based, including the revised Final Environmental Impact Statement ("FEIS") or the analysis on which the FEIS is based, is substantially in error or if new information becomes available, that clearly demonstrates that any Finding of Fact (including those regarding environmental, hydrologic, or water use impacts) pursuant to G.S. § 143-215.22I(f) was not or is no longer supported or is materially incomplete, the Commission may reopen and modify this Certificate to ensure continued compliance with G.S. ch. 143, art. 21, part 2A.*
 6. *No later than twenty years from the date of this Certificate, and then at twenty year intervals, the Cities shall, with direction from the Division and after solicitation of input from and consultation with interested stakeholders (notice to stakeholders shall be distributed in accordance with G.S. § 143-215.22I(d)(2)-(3)), submit a written report to the Commission (a) summarizing transfers for the previous twenty years; (b) discussing any new or revised facts that suggest that the record was substantially in error or that the environmental impacts associated with activities pursuant to this Certificate are substantially different from those projected impacts that formed the basis for the findings of fact and this Certificate; (c) summarizing all actions taken to address actual or potential drought conditions; (d) recommending any changes to this Certificate (including under Condition 5) or any plans pursuant to this Certificate that may be necessary to assure compliance with G.S. ch. 143, art. 21, part 2A; (e) detailing consultation with interested stakeholders; and (f) certifying compliance with this Certificate. The report shall be signed by an officer of each city that is responsible for compliance with this Certificate. The Cities shall make the report available to all interested stakeholders.*
 7. *This Certificate does not exempt the Cities or any other entity from compliance with any other requirements of law. For example, if a Capacity Use Area is designated under the provisions of the Water Use Act of 1967, G.S. § 143-215.11 et seq. in the Catawba, Yadkin or Rocky river basins the Cities and other entities*

shall comply with any implementing rules and the Commission may reopen and modify this Certificate to ensure compliance.

Condition No. 4 requires that the Certificate holders develop an IBT Compliance and Monitoring Plan in cooperation with the North Carolina Division of Water Resources (DWR) prior to transfer of any water under this Certificate. The Certificate states that the Compliance and Monitoring Plan include methodologies and schedules for reporting the following information to DWR:

- Maximum daily transfer amounts derived from water meters.
- Compliance with Certificate conditions
- Drought Management Activities

This Compliance and Monitoring Plan for the Cities is organized as follows:

- Interbasin Transfer Monitoring
- Compliance with Certificate Conditions
- Drought Management Activities Reporting

The methodologies and schedules for monitoring and reporting interbasin transfer amounts and compliance with Certificate conditions are outlined in the sections below. Also, the Cities maintain an existing 6 mgd interbasin transfer from Second Creek (South Yadkin River Basin) that has been grandfathered by the EMC. This IBT, although not part of the Certificate, will be monitored under the scope of this Compliance and Monitoring Plan.

2.0 IBT Infrastructure

Current water supplies for the Cities are from reservoirs located near the headwaters of the Rocky River Subbasin and Second Creek, located in the South Yadkin River Subbasin. The City of Concord's current raw water supplies include Lake Howell (Coddle Creek Reservoir) operated by the Water and Sewer Authority of Cabarrus County (WSACC), as well as Lake Concord and Lake Fisher. The City of Kannapolis' raw water supply, Kannapolis Lake, has a limited watershed of approximately 10 square miles. However, Kannapolis Lake is supplemented with raw water transfers from Lake Howell (Rocky River Basin) and Second Creek (South Yadkin River Basin). The transfer from Second Creek has a grandfathered IBT of 6 mgd. From this total water supply the Cities of Concord and Kannapolis service not only their own jurisdictions but also the Towns of Midland, Harrisburg, and Mt. Pleasant all within Cabarrus County. Kannapolis also sells a small amount of finished water to Landis, but because the Town of Landis discharges to the Yadkin River Basin, this is not considered an IBT. The water service area for the Cities is displayed in Figure 1.

The most recent drought, which ended for these watersheds in the spring of 2003, caused the Cities to pursue water distribution system improvements through interconnections with the Cities of Charlotte (< 5 mgd), Albemarle (< 2 mgd) through Stanly County, and

Salisbury (< 2 mgd) to increase available supply during emergency conditions (Figure 2). IBT that occurs from the Charlotte-Mecklenburg Utilities (CMU) interconnections utilizes unused permitted IBT capacity from CMU and is a short-term arrangement until a longer-term contract can be negotiated based on the new Certificate for Concord and Kannapolis. The Salisbury and Albemarle interconnections are currently limited to less than 2 mgd to be in compliance with IBT statutes. The following section outlines the specifics on each of the existing and planned interconnections that convey water from the Catawba and Yadkin River basins to the Cities water distribution system.

2.1 Existing/Planned IBT Interconnections

2.1.1 Connections with Charlotte-Mecklenburg Utilities (CMU)

CMU has existing water supply intakes on Lake Norman and Mountain Island Lake, both within the Catawba River basin, permitted by FERC with capacities of 108 and 330 mgd, respectively. Water from the Lake Norman intake is treated at the North Mecklenburg Water Treatment Plant (WTP) and distributed to northern Mecklenburg County customers, including customers in the Rocky River Subbasin. CMU has a network of existing pump stations and water mains serving the area and an existing Certificate that allows the transfer. Water from Mountain Island Lake is treated at the Franklin and Vest WTPs and distributed to customers throughout the remainder of CMU's service area. The following connections to the Concord System exist along the Mecklenburg County/Cabarrus County line:

- Connections from Mountain Island Lake intake/Franklin WTP
 - CMU 1 (Figure 2 - Map Reference ID): US Highway (Hwy) 29 near the Lowe's Motor Speedway - existing 12" CMU water main connected to an existing 12" Concord water main
- Connections from the Lake Norman intake/North Mecklenburg WTP
 - CMU 2: Clarke Creek Parkway - existing 12" CMU water main connected to an existing 12" Concord water main
 - CMU 3: Eastfield Drive - existing 16" CMU water main connected to an existing 16" Concord water main
 - CMU 4: NC Hwy 73 - existing 16" CMU water main that CMU has built near the County line planned for connection with the City of Concord.

The capacity of these available connections to transfer finished water is approximately 3.5 mgd from the Mountain Island Lake intake/Franklin WTP and approximately 24 mgd from the Lake Norman intake/North Mecklenburg WTP. Therefore, infrastructure capacity to transfer the 10 mgd of water from the Catawba River Basin to the Rocky River Subbasin currently exists utilizing the existing or close proximity of connections between Concord and CMU systems.

2.1.2 Connection with the City of Salisbury

The City of Kannapolis water system is connected to the City of Salisbury system along US Hwy 29 at Beaver Street in the Town of Landis (Salisbury 1 - Figure 2 Map Reference ID). The City of Salisbury has a 24" water main and pump station that transfers water to Landis via a connection to an existing 16" water main owned by Kannapolis. The City of Salisbury

has an existing intake on the Yadkin River immediately upstream of the confluence with the South Yadkin River. This intake has a capacity of 50 mgd. Water is treated at the City's water plant. While the existing contract between Kannapolis and the City of Salisbury is for less than 2 mgd, this transmission line has a current capacity of about 6.5 mgd.

2.1.3 Connection with the City of Albemarle

The City of Albemarle has intakes on Tuckertown Reservoir and Badin Lake, which are permitted by FERC. These intakes are currently approved for withdrawals of 6.5 and 12 mgd, respectively. The Tuckertown intake has a capacity of 11 mgd and can be easily upgraded to 32 mgd through the addition of another raw water transmission line from the intake to the WTP. The City of Albemarle currently provides water service to Stanly County through a water main that serves Oakboro and Locust. A 16" water main has been extended near the Stanly County/Cabarrus County Line and is available for connection to the City of Concord system to serve Midland and southern Cabarrus County (Albemarle 1 - Figure 2 MAP Reference ID). The 16" water main extension is planned for connection via an 8" water main of 9,200 feet that can provide approximately 1.5 to 2 mgd. Up to about 6.5 mgd could potentially be transferred through the existing 16" Stanly County water main, but significant system improvements would be required to the system if more than 2 mgd were to be provided to Concord.

Figure 2 displays the existing connection locations that will be utilized under the Certificate. The Map IDs used to reference each transfer point are described in Table 1.

TABLE 1: SUMMARY OF INTERBASIN TRANSFERS TO THE CITIES OF CONCORD & KANNAPOLIS
Compliance & Monitoring Plan for the Cities of Concord & Kannapolis

Map ID	Connection Location	Existing/Available	Transfer Capacity ¹	Source Basin
CMU 1	US Hwy 29	Existing (Supply to Concord)	3.5 mgd	Catawba River Basin
CMU 2	Clark Creek Pwy	Existing (Supply to Concord)	Combined 24 mgd	Catawba River Basin
CMU 3	Harris Rd.	Existing (Supply to Concord)		
CMU 4	NC Hwy 73	Proposed (Supply to Concord)		
Salisbury 1	Beaver St.	Existing (Supply to Kannapolis)		
Second Creek	Raw water	Existing (Supply to Kannapolis)	1.99 mgd	South Yadkin River Basin
Albemarle 1	NC 24-27	Planned (Supply to Concord)	6.5 mgd	Yadkin River Basin

¹ Existing contracts for Salisbury and Albemarle are for less than 2 mgd. Existing contracts for CMU is 5mgd.

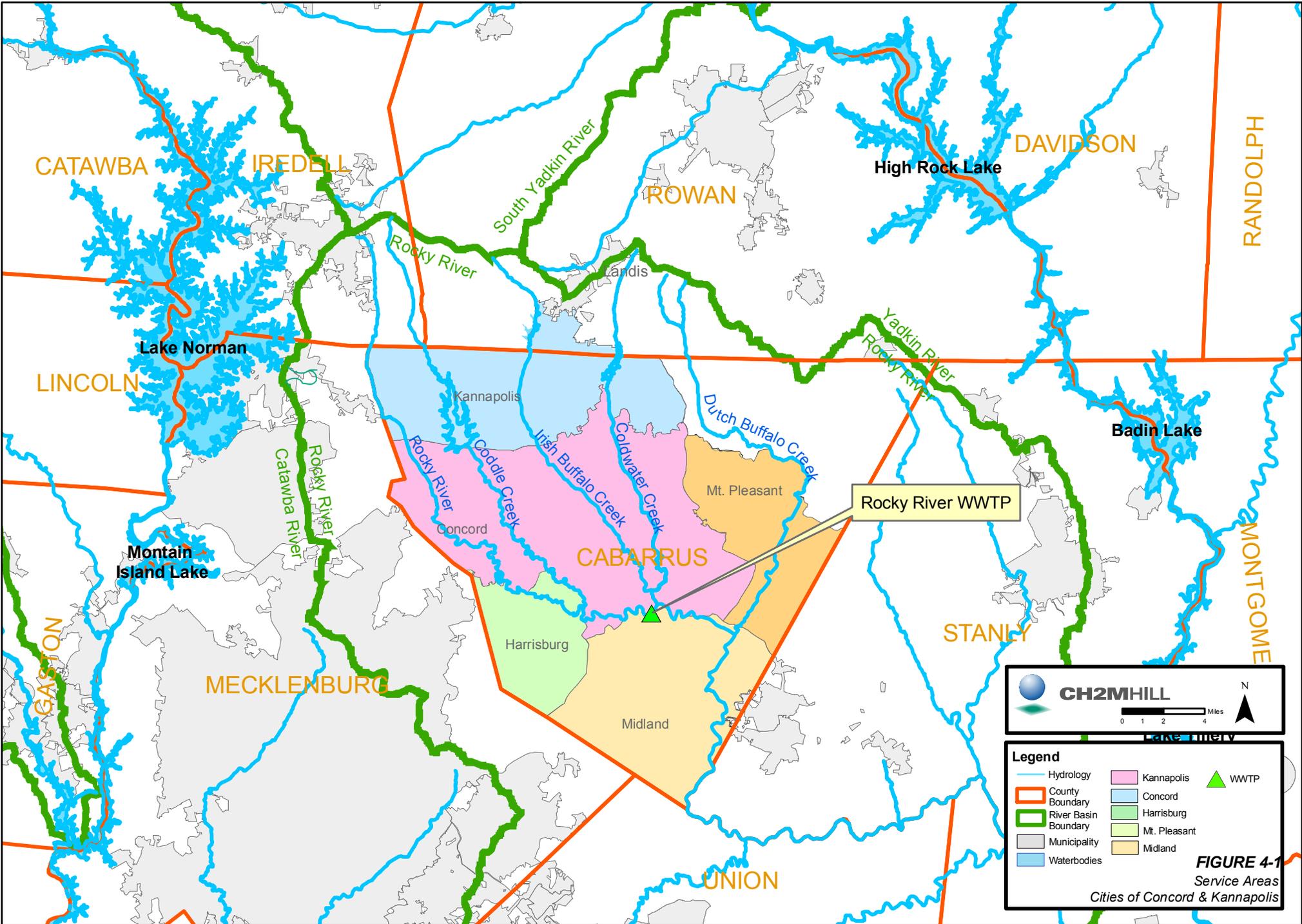
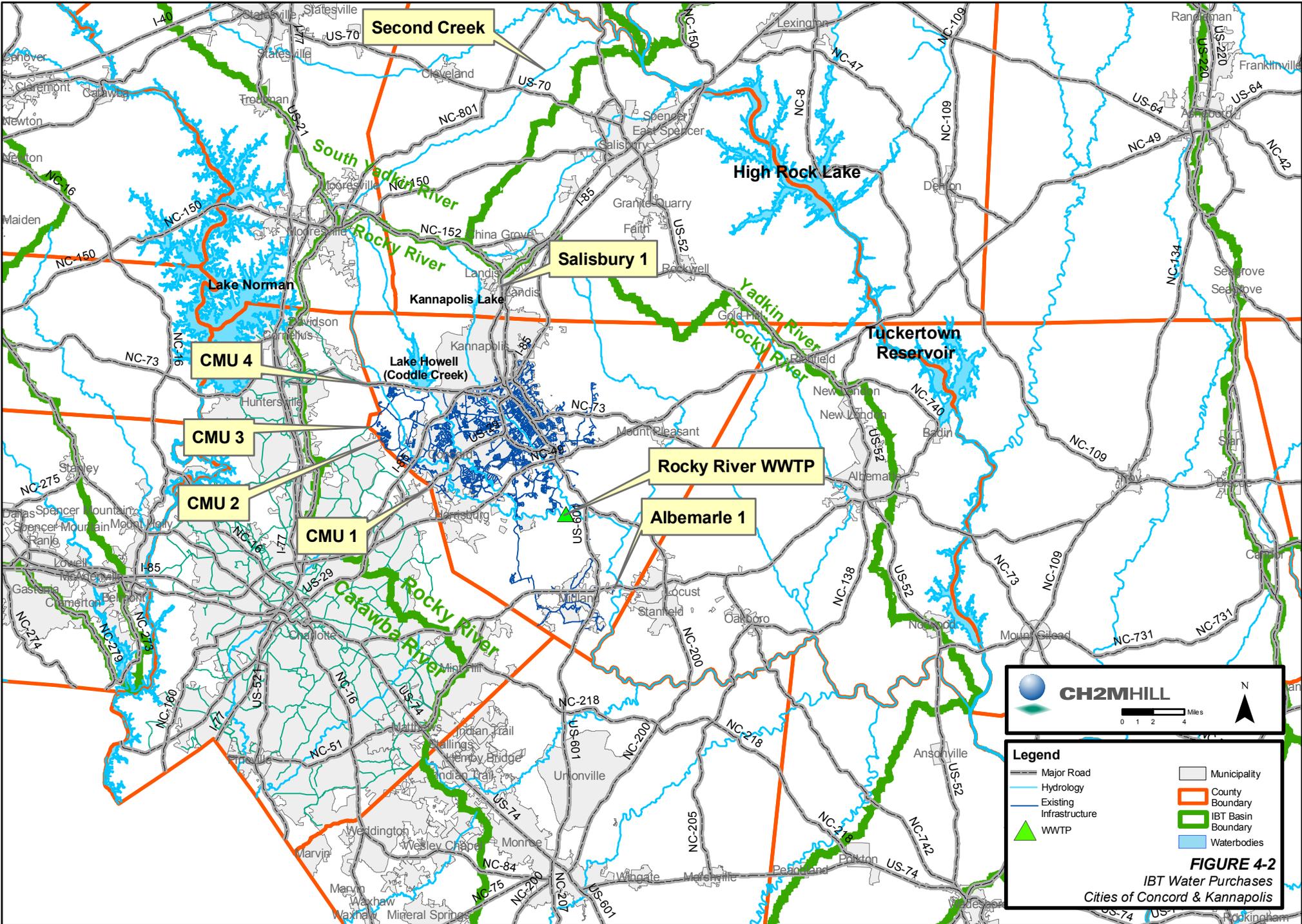


FIGURE 4-1
Service Areas
Cities of Concord & Kannapolis



CH2MHILL

0 1 2 4 Miles

N

Legend

- Major Road
- Hydrology
- Existing Infrastructure
- WWTP
- Municipality
- County Boundary
- IBT Basin Boundary
- Waterbodies

FIGURE 4-2
 IBT Water Purchases
 Cities of Concord & Kannapolis

2.2 Future Transfer

Plans and necessary contracts to transfer the water approved under the Cities' IBT Certificate have not been finalized. Therefore, this monitoring plan addresses current/planned transfers discussed above. This plan will be modified when contracts or changes to potential transfer locations are finalized.

3.0 IBT Monitoring

The amount of IBT will be monitored by the Certificate holders and reported to DWR to ensure compliance with the Certificate and its conditions. The combined IBT amount will be determined on a daily basis using meter data at the connection points of water purchase from the Catawba and Yadkin River basins. The sources of information and explanation of the calculations are detailed below:

Interbasin Transfer is the sum total of water received from the source basin and utilized in the receiving basin. Since the Cities have 100 percent of their service area within the Rocky River Subbasin, any water that is conveyed to this service area from the Catawba or the Yadkin-Pee Dee is 100 percent interbasin transfer.

IBT Totals per Basin are based on readings of master meters at interconnections with Charlotte-Mecklenburg Utilities, the City of Albemarle (planned), and the City of Salisbury water systems. Additionally, readings include withdrawals from Second Creek.

- **Total South Yadkin IBT** is the amount of water transferred from Second Creek.
- **Total Yadkin IBT** is the sum of water purchased from the Yadkin River basin from sources as outlined in Table 1.
- **Total Catawba IBT** is the sum of water purchased from the Catawba River basin from sources as outlined in Table 1.

IBT Percentage of MDD Transfer is the percent of the 10 mgd IBT maximum day limit per source basin, Catawba or Yadkin.

Table 2 provides an example (January, 2007 - April 2007) of the above described calculations for determining daily IBT amounts. A separate column will be included for the tracking of the grandfathered IBT from Second Creek in the South Yadkin River basin.

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Insert Table 2 (11x17 copy of IBT Tracking Spreadsheet)

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4.0 Compliance with Certificate Conditions

The Certificate granted to the Cities includes seven conditions which the Certificate holders must meet in order to maintain compliance with the Certificate. A summary of the conditions of the Certificate dated January 10th, 2007 along with current status of compliance for each is provided below.

Condition 1. (FERC Licensure)

If at any time any legal requirement that (a) governs the operation of the hydroelectric facilities in the Catawba River Basin currently licensed as Federal Energy Regulatory Commission (FERC) Project No. P-2232 or in the Yadkin Pee-Dee River basin currently licensed as FERC Project Nos. P-2206 and P-2197 and (b) governs or affects water use and/or quality, substantially differs from the actual or anticipated FERC license conditions or other legal requirement upon which the analysis underlying this Certificate is based, such as changes to minimum flow requirements or drought mitigation measures, the Commission may reopen and modify this Certificate.

As part of the IBT Annual Report, status updates on the FERC licenses for the hydroelectric projects in the Catawba and the Yadkin-Pee Dee will be included.

Condition 2. (Drought Management Plan)

Each Certificate holder shall prepare a Drought Management Plan. The Cities shall implement measure corresponding to the most severe level of drought conditions in either the Catawba or Yadkin River basins. The Cities shall not transfer any water to any other jurisdictions unless that jurisdiction agrees to be bound by this condition in full.

Currently, the Cities are updating their existing Drought Management Plan. The Cities will provide an addendum to the yearly IBT Compliance and Monitoring Report if the measures outlined within the Drought Management Plan are implemented as a result of drought conditions. A summary of the drought stage, trigger points that led to the need for the implementation of the drought mitigative measures, what measures were taken, and the effect of the measures on reducing daily consumption during the drought period will be included in the report.

Condition 3. (Disaggregation of IBT Amount)

If the Certificate holders discontinue their cooperative service agreement, then the permitted IBT amount will be allocated amongst the Certificate holders based on their projected 2030 needs.

The cooperative service agreements between the certificate holders remain in effect at this time, 2007.

Condition 4. (Compliance and Monitoring Plan)

In cooperation with the Division of Water Resources, the Certificate holders shall develop an IBT Compliance and Monitoring Plan.

At the end of each calendar month, Cities will determine the daily interbasin transfer amounts for that month and post this information on a website by the last business day of the following month. DWR and the public will be able to review and download the information from this website.

At the end of each calendar year, the Cities will submit an Annual IBT Report to DWR to summarize the monthly IBT information. The Annual IBT Report will be submitted by March 1st and will document the following information:

- 1. Maximum Daily IBT amounts for each source basin (compilation of monthly reports)*
- 2. Maximum daily amount that was transferred during that year for monitoring of compliance with Certificate*
- 3. Combined average daily system water use for the Cities service area*

Condition 5. (EMC Consideration of Impacts)

The EMC may reopen the Certificate and adjust existing or require new conditions to ensure detrimental impacts are mitigated if environmental impacts are found to be substantially different from those projected in the EMC's Findings of Fact.

This condition requires no action by the certificate holders.

Condition 6. (20-Year Certificate Evaluation)

In twenty years from the date of the Certificate, the Cities shall submit a written report to the EMC to include: (a) summary of transfers for the previous twenty years, (b) discussion of any changes to the environmental impacts assessment from IBT transfers, (c) summary of all actions to address actual or potential drought conditions, (d) recommendations for any changes to the Certificate, (e) details on consultation with interested stakeholders, and (f) certification of compliance with Certificate. This will continue at 20-year intervals.

A 20 year evaluation report will be submitted to DWR in 2027.

Condition 7 (Limit of Certificate)

The Certificate does not exempt the Cities from compliance with any other requirements of law.

This condition requires no action by the certificate holders.

In addition to meeting the conditions outlined in the Certificate granted January 10th, 2007, the Concord & Kannapolis IBT Environment Impact Statement dated October 2004 includes provisions for stormwater management and stream buffers. These ordinances adopted by each municipality are described below:

Stormwater Management and Stream Buffer Unified Development Ordinance

Cabarrus County and all of its municipalities have adopted development ordinances. Cooperative efforts between all municipalities within the County contributed to the development ordinances. Updates to the development ordinances are planned to address, and go beyond, Phase II Stormwater Rule requirements and protect natural resources.

Stormwater Quality Management and Discharge Control Ordinance. Each City has developed a version of the Stormwater Quality Management and Discharge Control Ordinance (Stormwater Ordinance). The City of Concord has developed and approved the use of a Stormwater Technical Standards Manual (Manual). These collaborative efforts will limit the impacts of development in the service areas of the Cities. Further details of the development ordinances include:

- Post-construction stormwater requirements that:
 - Require on-site stormwater management to attenuate runoff to pre-development levels at the 1-year 24-hour storm level
 - Require 85 percent total suspended solids removal by stormwater protection measures
 - Encourage the use of low-impact development techniques
- No net loss in floodplain storage within the 100-year floodplain
- Fill in the floodplain balanced by an equal cut
- Increase in stream buffer widths

Buffer Requirements. Within the development ordinances, the Cities have adopted a river/stream overlay district that establishes a 50-foot minimum buffer along both sides of all perennial streams. The following buffer specifications were adopted and implemented by both Cities:

- An undisturbed buffer of at least 50 feet shall be established along both sides of perennial streams, as measured from the top of the stream bank. Each ordinance also requires additional buffer width based on slope up to a maximum buffer width of 120 feet.
- Buildings or structures may not be placed within an additional 20 foot zone outside the buffer. This vegetated setback zone may be maintained by property owners.
- Intermittent streams are protected in accordance with the Phase II Stormwater Rules.
- When development is planned, streams will be determined on-site by a qualified professional to ensure proper application of stream buffer rules. Intermittent streams will be determined based on guidance developed by the DWQ. This provides a more accurate determination of stream type and location than the current method of using USGS topographic quadrangles.
- The buffers “shall be retained in their natural vegetated, re-vegetated or reforested state through the preservation of appropriate perennial vegetation in order to minimize soil erosion, reduce the velocity of overland stormwater flow, trap sediment and soil ...and limit other pollutants from entering the waterways.”

Under these rules, vegetated buffer widths are usually wider than the minimum 70 feet (50 feet plus 20 foot setback). The buffer width is increased by 4 times the average percent of slope of the area adjacent to the stream. This means the greater the slope, the wider the stream buffer.

4.1 Compliance Summary

A summary of compliance activities aligned with each condition of the Certificate are described in Table 3.

TABLE 3: REPORTING PLAN FOR CERTIFICATE CONDITIONS
Compliance & Monitoring Plan for the Cities of Concord & Kannapolis

Certificate Condition	Description¹	Comments
1	Federal Energy Regulatory Commission (FERC) Licensure	Annual IBT Report will include status updates on each of the FERC licenses for the hydroelectric projects in the Catawba and the Yadkin-Pee Dee that directly impact the Concord and Kannapolis's Certificate.
2	Drought Management Plan	One-time Submittal with revisions at DWR request
3	Disaggregation of IBT Amount	Reported to DWR when applicable
4	Compliance and Monitoring Plan	One-time Submittal with revisions at DWR request
5	EMC Consideration of Impacts	No reporting necessary
6	20-Year Certificate Evaluation	Actions will taken within set time frame, report submitted in 2027.
7	Limit of Certificate	Annual IBT Report will include any action necessary for the Cities to maintain all legal compliance in relation to their water supply.

1. Certificate conditions are included in Section 1.

Table 4 summarizes compliance activities associated with the Certificate granted to the Cities of Concord and Kannapolis.

TABLE 4: CERTIFICATE CONDITIONS SUMMARY
Compliance & Monitoring Plan for the Cities of Concord & Kannapolis

Certificate Conditions	Concord	Kannapolis	Harrisburg	Mt. Pleasant	Midland	Landis
Monitoring Plan & Report:						
Adopted			-	-	-	-
Implemented			-	-	-	-
Status			-	-	-	-
Drought Management Plan:						
Adopted						
Implemented						
Status						
Stream Buffers:						
Adopted						
Implemented						
Status						
Stormwater Management:						
Adopted						
Implemented						
Status						