

**2018 Annual Report on Interbasin Transfers  
for  
The Cities of Concord and Kannapolis**

Prepared for and by:

**City of Concord**



**City of Kannapolis**



Submitted to:

**North Carolina Division of Water Resources**

May 2019

# Executive Summary

The 2018 Annual Report on Interbasin Transfers (IBTs) for the Cities of Concord and Kannapolis (Cities) includes monitoring data for daily tracking of IBT amounts and documentation of compliance with all IBT Certificate conditions. Annual reports were previously prepared for calendar years 2007 through 2017 and are available on the North Carolina Division of Water Resources (NCDWR) website. The reports for earlier years can be found at the following website: <https://deq.nc.gov/node/82755>.

The North Carolina Environmental Management Commission (EMC) approved the Cities' IBT Certificate in January 2007 authorizing transfers of up to 10 million gallons per day (mgd) from the Catawba River Basin to the Rocky River Basin and 10 mgd from the Yadkin River Basin to the Rocky River Basin. Additionally, a grandfathered IBT of 6 mgd authorizes transfer from Second Creek, located in the South Yadkin River Basin, to the Rocky River Basin. The terms "Cities" and "Certificate Holders" are used interchangeably herein.

In 2018, the Certificate Holders complied with all conditions of their IBT Certificate. The Cities of Concord and Kannapolis had a maximum daily transfer from the Catawba River Basin of 4.58 mgd during 2018. The maximum daily transfer from the Yadkin River Basin was 3.52 mgd.

In 2018, the City of Kannapolis pumped water from Second Creek to Kannapolis Lake under its South Yadkin River Basin grandfathered IBT. The maximum daily transfer under the grandfathered IBT from the South Yadkin River Basin to the Rocky River Basin in 2018 was -0.20 mgd. The 2018 IBT daily transfers for Concord and Kannapolis are shown in Figure ES-1.

In addition, a settlement was reached in 2010 on a lawsuit filed by the Catawba River Foundation, Inc. and the Protect the Catawba Coalition. While this does not change the IBT Certificate or required reporting in any way, the Cities did agree to some operational conditions regarding the Catawba River Basin during times of drought.

**Table ES-1**

2018 IBT Average Annual & Maximum Day Demands for Concord and Kannapolis Service Areas

Year	Catawba River Basin			Yadkin River Basin			Second Creek <sup>c,d</sup> (South Yadkin River Basin)		
	Water Purchase (mgd)		IBT as % of Certificate <sup>a</sup>	Water Purchase (mgd)		IBT as % of Certificate <sup>b,c</sup>	Water Transfer (mgd)		IBT as % of Grand- fathered amount
	Average Annual	Max. Day	Max. Day	Average Annual	Max. Day	Max. Day	Average Annual	Max. Day	Max. Day
2018	0.02	4.58	45.79%	2.97	3.52	35.16%	-0.31	-0.20	-3.25%

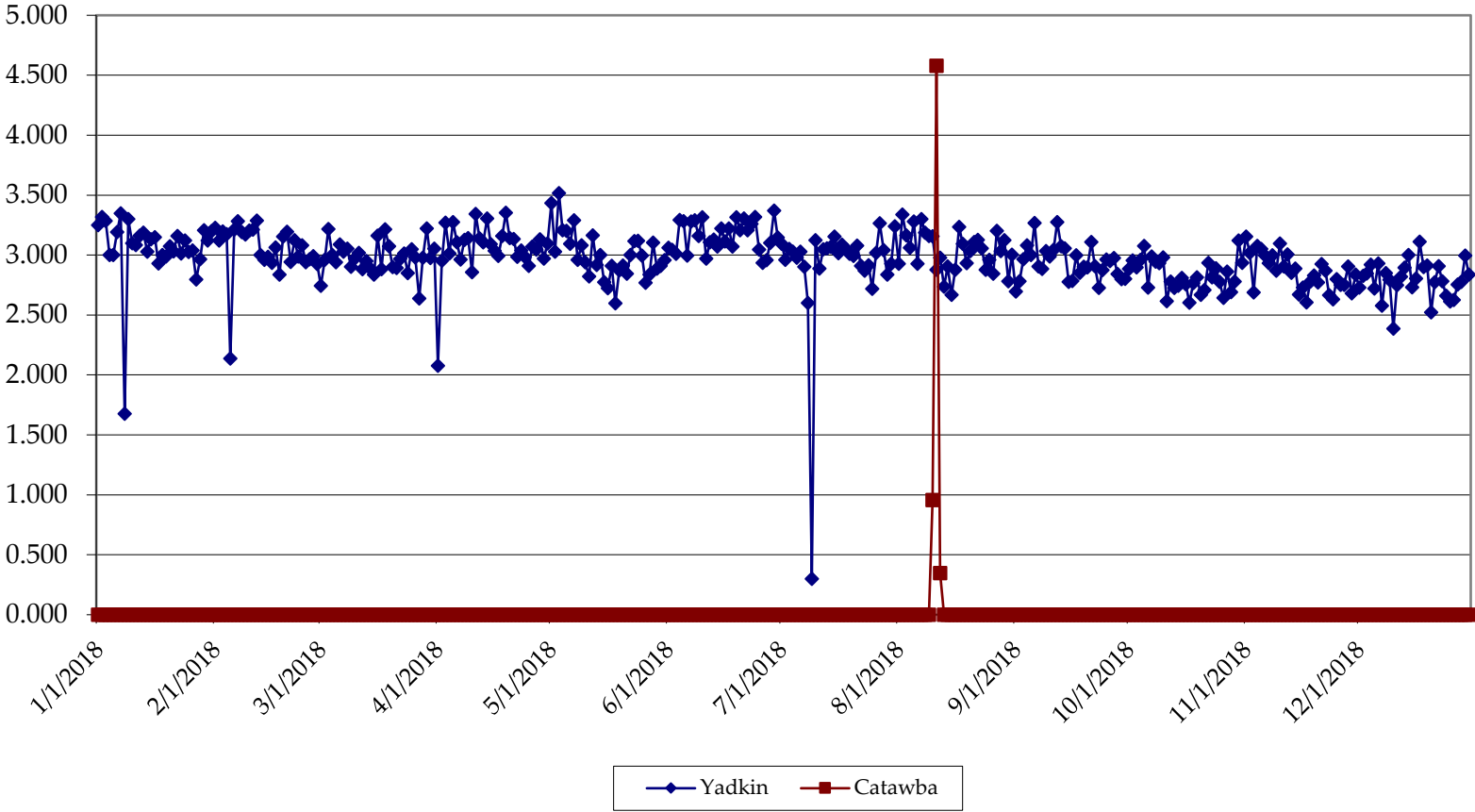
<sup>a</sup> Maximum Day IBT of 10 mgd from the Catawba River Basin.

<sup>b</sup> Maximum Day IBT of 10 mgd from the Yadkin River Basin.

<sup>c</sup> The grandfathered 6-mgd Maximum Day IBT limit from Second Creek (South Yadkin River Basin) into the Rocky River Basin is not included in the 10-mgd Maximum Day IBT limit for the Yadkin River Basin.

<sup>d</sup> There was no transfer from Second Creek, therefore these numbers are negative.

2018 Daily IBT Per Basin (mgd)



**Figure ES-1**  
2018 Daily Interbasin Transfers by Basin

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Daily Interbasin Transfer Amounts for 2018

# Acronyms and Abbreviations

DMAC	Drought Management Advisory Council
EMC	Environmental Management Commission
FERC	Federal Energy Regulatory Commission
IBT	Interbasin Transfer
LIP	Low Inflow Protocol
mgd	million gallons per day
NCDWR	North Carolina Division of Water Resources
WSRP	Water Shortage Response Plan
WTP	Water Treatment Plant

# 1.0 - Introduction

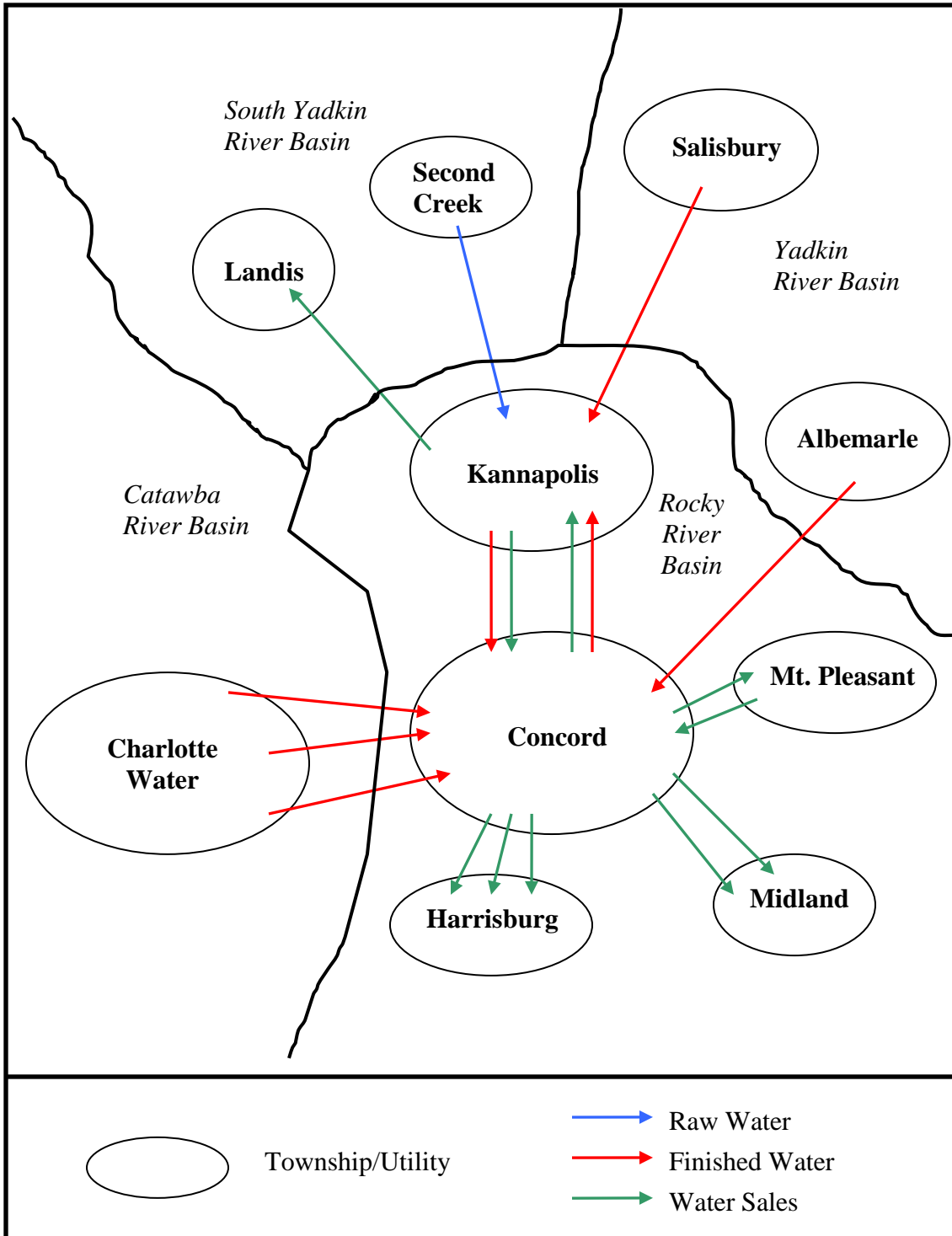
The Cities of Concord and Kannapolis (Cities) received an interbasin transfer (IBT) Certificate, which was originally approved on January 10, 2007, and signed into effect on January 25, 2007. The North Carolina Environmental Management Commission (EMC) has authorized transfers of up to 10 million gallons per day (mgd) from the Catawba River Basin to the Rocky River Basin and 10 mgd from the Yadkin River Basin to the Rocky River Basin. As a condition of the IBT Certificate, the Cities are required to produce an Annual Report that documents transfers over the past year. Annual reports were also prepared for calendar years 2007 through 2017 and are available on the North Carolina Division of Water Resources (NCDWR) website. The reports for earlier years can be found at the following website: <https://deq.nc.gov/node/82755>.

The Cities provide water to each other, various municipalities in the area (including: Mount Pleasant, Midland, Harrisburg, and Landis), and unincorporated areas of Cabarrus County. Concord owns and operates the water distribution system used by the Town of Midland. Charlotte Water and the City of Salisbury currently have contracts to provide water to the Cities from the Catawba and Yadkin River Basins, respectively.

The terms “Cities” and “Certificate Holders” are used interchangeably herein. Figure 1-1 illustrates the ability to transfer water among the Certificate Holders and all municipalities served by the Certificate Holders.

**Figure 1-1**

Water Connections of the Certificate Holders and All Municipalities Served by the Certificate Holders



## 2.0 - IBT Monitoring

### 2.1 - Service Area Water Demand

Table 2-1 presents 2018 annual average water production for the Certificate Holders based on finished water produced at the Hillgrove, Coddle Creek, and Kannapolis Water Treatment Plants (WTPs). It also shows finished water purchases from Charlotte Water, the City of Salisbury and the City of Albemarle, if they occurred. Additionally, Table 2-1 presents the 2018 annual average IBT (or water purchases) from each basin covered by the IBT Certificate and from Second Creek, from which transfers are authorized by a grandfathered IBT. In 2018, finished water production averaged 13.14 mgd, purchased IBT finished water averaged 0.02 mgd for Catawba River Basin, 2.97 mgd for the Yadkin River Basin and -0.31 mgd for Second Creek. The combined 2018 annual average water use for the Certificate Holders was 15.82 mgd.

**Table 2-1**

2018 Water Production or Purchases by River Basin

2018					
Certificate Holders	Annual Average Finished Water Produced <sup>a</sup> (mgd)	Annual Average Purchased Water (mgd)			Annual Average Combined Water Use (mgd)
		Catawba River Basin <sup>b</sup>	Yadkin River Basin	Second Creek	
Concord & Kannapolis	13.14	0.02	2.97	-0.31	15.82

<sup>a</sup> Water produced within Rocky River Basin; may include water from Second Creek transferred directly into Kannapolis Lake.

### 2.2 - Interbasin Transfers

Daily IBT amounts for the Certificate Holders are included in the Appendix. Data is provided for the period January 1, 2018 through December 31, 2018. The maximum day IBT from the Catawba River Basin during the calendar year 2018 was 4.58 mgd. This represents 45.79% of the permitted maximum day, 10 mgd IBT from the Catawba River Basin under the Certificate approved by the EMC in January 2007. The maximum day IBT from the Yadkin River Basin during the calendar year 2018 was 3.52 mgd. This represents 35.16% of the permitted maximum day, 10 mgd IBT from the Yadkin River Basin under the Certificate. There were transfers of water to Second Creek with a maximum day IBT -0.20 mgd, which represents -3.25% of the permitted maximum day, 6 mgd IBT from the South Yadkin River Basin under the grandfathered Certificate. Table 2-2 shows the IBT use for the Certificate Holders and the percentage of use from the Catawba and Yadkin River Basins.



**Table 2-2**

2018 IBT Average Annual & Maximum Day Demands for Concord and Kannapolis Service Areas

Year	Catawba River Basin			Yadkin River Basin			Second Creek <sup>c,d</sup> (South Yadkin River Basin)		
	Water Purchase (mgd)		IBT as % of Certificate <sup>a</sup>	Water Purchase (mgd)		IBT as % of Certificate <sup>b,c</sup>	Water Transfer (mgd)		IBT as % of Grand-fathered amount
	Average Annual	Max. Day	Max. Day	Average Annual	Max. Day	Max. Day	Average Annual	Max. Day	Max. Day
2018	0.02	4.58	45.79%	2.97	3.52	35.16%	-0.31	-0.20	-3.25%

<sup>a</sup> Maximum Day IBT of 10 mgd from the Catawba River Basin.

<sup>b</sup> Maximum Day IBT of 10 mgd from the Yadkin River Basin.

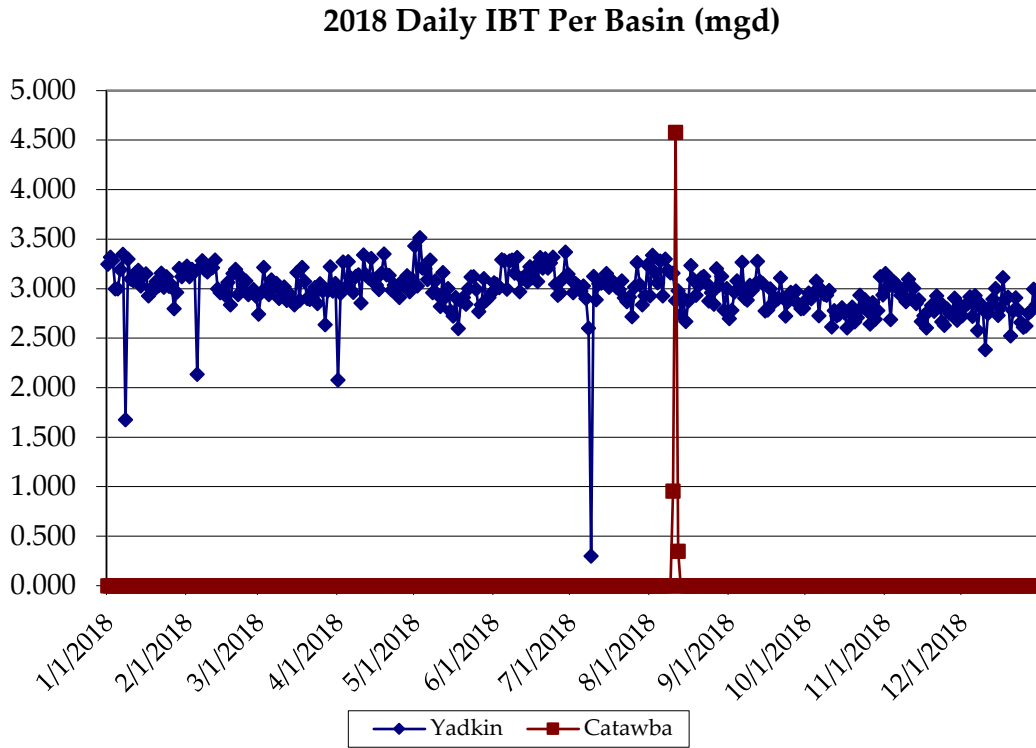
<sup>c</sup> The grandfathered 6-mgd Maximum Day IBT limit from Second Creek (South Yadkin River Basin) into the Rocky River Basin is not included in the 10-mgd Maximum Day IBT limit for the Yadkin River Basin.

<sup>d</sup> There was no transfer from Second Creek, therefore these numbers are negative.

Figure 2-1 displays the daily IBT amounts for water purchases from the Catawba and Yadkin River Basins.

**Figure 2-1**

2018 Daily Interbasin Transfers by Basin



### 3.0 - Other Related Information

In 2010, a settlement was reached in a lawsuit filed by the Catawba River Foundation, Inc. and the Protect the Catawba Coalition. While this does not affect the IBT Certificate, its conditions, or required reporting in any way, the Cities did agree to some operational conditions regarding the Catawba River Basin during times of drought.

During designated droughts beyond July 1, 2015, following either Low Inflow Protocol (LIP) or Drought Management Advisory Council (DMAC) Drought Stage declaration, the Cities have agreed to limit the Catawba River Basin IBT so that it corresponds to water use reduction goals. A summary of this agreement is presented in Table 3-1.

**Table 3-1**

Catawba River Basin IBT during Drought Conditions

LIP Stage or DMAC Drought Stage	Maximum Day Transfer (mgd)
0 / Abnormally Dry	10.0
1 / Moderate Drought	9.0
2 / Severe Drought	8.5
3 / Extreme Drought	7.0
4 / Exceptional Drought	6.0

## 4.0 - Compliance with Certificate Conditions

A summary of the conditions of the IBT Certificate approved on January 10, 2007 along with the current status of compliance for each is provided below. Language from the certificate is followed by actions for each condition.

### 4.1 - Condition 1 (Federal Energy Regulatory Commission [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.*

This condition requires no action by the Certificate Holders.

### 4.2 - Condition 2 (Drought Management Plan)

*Each Certificate Holder shall prepare a Drought Management Plan. The Cities shall implement measures 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.*

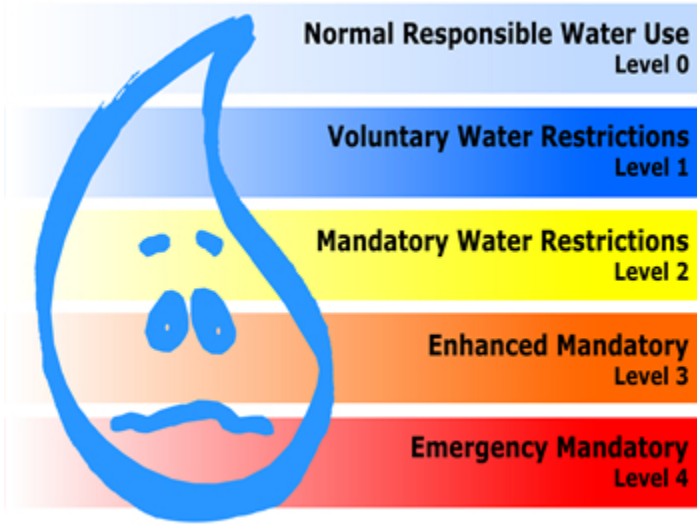
The Cities submitted the Drought Management Plan on July 31, 2007; comments were received on November 11, 2007, and the revised plan was submitted on January 8, 2008. The Drought Management Plan was incorporated into an updated Water Shortage Response Plan (WSRP) in 2010. The WSRP, prepared as a joint document for the Certificate Holders, is available on the NCDWR website at the following web address:

[http://www.ncwater.org/Water\\_Supply\\_Planning/Water\\_Shortage\\_Response\\_Plans/plan](http://www.ncwater.org/Water_Supply_Planning/Water_Shortage_Response_Plans/plan)

Table 4-1 shows Normal and Drought Stages 0-4, the names of each, the date the Catawba River Basin managers implemented Draft LIP actions in response to drought monitoring, the Yadkin-Pee Dee River Basin drought monitor, and the associated actions taken by the Cities.

Beginning in the winter of 2008, drought conditions in the state began to decrease, permitting an easing of drought restrictions for both the Catawba and Yadkin River Basins. Level 0, Normal Responsible Water Use, was in place from January 1 through December 31 of 2018 (Figure 4-1). Other outdoor water use conservation measures are encouraged but not required.

During the year, the Cities drought stages follow the drought stages of the Catawba-Wataree Water Management Group; hence the Cities stayed in Normal Responsible Water Use Level.



The Cities have agreements in place that include enforcement policies with other systems that purchase water from them.

**Table 4-1**

Concord and Kannapolis 2018 Normal and Drought Stages

2018 Period of Drought					
Drought Stage	Drought Monitor Classification	Catawba River Basin <sup>a</sup> (NC Drought Monitor)	Yadkin River Basin <sup>b</sup> (NC Drought Monitor)	Action by Cities	Cities' Actions Taken
	Normal	February 13 – December 31	February 13 – December 31		
0	Abnormally Dry	January 1 – February 12	January 30 – February 12		Voluntary conservation measures encouraged through public notification.
1	Moderate Drought		January 1 – January 29		
2	Severe Drought				
3	Extreme Drought				
4	Exceptional Drought				

<sup>a</sup> The Catawba River Basin is listed as the drought stage declared by the Catawba-Wateree Water Management Group.

<sup>b</sup> The Yadkin River Basin is listed as the highest classification within the basin at a given date. Portions of the basin may be in a lower category.

### **4.3 - 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 agreement between the Certificate Holders remained in effect throughout 2018.

The Cities and local municipalities cooperatively and effectively communicate and manage their respective water distribution systems. The Cities sell water to each other and reconcile billing monthly. Additionally, Concord owns and operates the water distribution system for Midland, providing water service to all Midland customers. Harrisburg purchases water from Concord, measured by six meters. Concord also provides water service to unincorporated areas of Cabarrus County. Mount Pleasant did not purchase water from the City of Concord in 2018. Further emphasizing the interconnected nature of the Cities and local municipalities, Kannapolis provides water to Landis, located in the South Yadkin River Basin, which is not subject to this IBT Certificate.

### **4.4 - 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.*

The Cities submitted the Compliance and Monitoring Plan on July 31, 2007. This plan was finalized in December 2007.

### **4.5 - 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. The EMC did not take action on this condition in 2018.

### **4.6 - 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.*

The IBT Certificate was approved on January 10, 2007 and signed into effect on January 25, 2007; therefore, the first 20-year certificate evaluation report will be completed in 2027.

## **4.7 - 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 Cities.

# **APPENDIX**

## **Daily Interbasin Transfer Amounts for 2018**













Map Code Source Basin	Water Transfer (MGD) to Rocky River Basin				Water Sales (MGD)		IBT Totals Per Basin				Interbasin Transfer											
	Salisbury 1		Albemarle 1		Charlotte 1-3		NOTE: All Wastewater discharge is to the Rocky River from RRWWTP, excluding water sales to Landis (subtracted from Total South Yadkin IBT).		South Yadkin		Yadkin		Catawba									
	South Yadkin	Yadkin	Yadkin	Yadkin	Catawba	South Yadkin	Yadkin	Yadkin	Catawba													
DATE	Raw Water to Kannapolis Lake from Second Creek	Salisbury Finished water Interconnection with Kannapolis	Finished water Interconnection with Concord	Albemarle Finished water Interconnection with Concord	Charlotte Water Interconnections with Concord	Kannapolis water sales to Landis	Finished water sales to Landis	Total South Yadkin IBT <sup>1</sup>	Total Yadkin IBT	Total Catawba IBT	Catawba	% of Permitted MDD Transfer	Yadkin	% of Permitted MDD Transfer	Grandfathered IBT from Second Creek - South Yadkin River Basin	% of Permitted MDD Transfer	IBT from Yadkin to South Yadkin River Basin	% of Permitted MDD Transfer				
11/29/2018	0.000	0.000	2.681	0.000	0.000	0.243	-0.243	2.681	0.000	0.000	0.000	0.000%	2.681	26.810%	-0.243	-4.050%	0.243	12.211%				
11/30/2018	0.000	0.000	2.837	0.000	0.000	0.197	-0.197	2.837	0.000	0.000	0.000	0.000%	2.837	28.370%	-0.197	-3.283%	0.197	9.899%				
12/1/2018	0.000	0.000	2.728	0.000	0.000	0.248	-0.248	2.728	0.000	0.000	0.000	0.000%	2.728	27.280%	-0.248	-4.133%	0.248	12.462%				
12/2/2018	0.000	0.000	2.827	0.000	0.000	0.249	-0.249	2.827	0.000	0.000	0.000	0.000%	2.827	28.270%	-0.249	-4.150%	0.249	12.513%				
12/3/2018	0.000	0.000	2.848	0.000	0.000	0.228	-0.228	2.848	0.000	0.000	0.000	0.000%	2.848	28.480%	-0.228	-3.800%	0.228	11.457%				
12/4/2018	0.000	0.000	2.919	0.000	0.000	0.242	-0.242	2.919	0.000	0.000	0.000	0.000%	2.919	29.190%	-0.242	-4.033%	0.242	12.161%				
12/5/2018	0.000	0.000	2.720	0.000	0.000	0.215	-0.215	2.720	0.000	0.000	0.000	0.000%	2.720	27.200%	-0.215	-3.583%	0.215	10.804%				
12/6/2018	0.000	0.000	2.931	0.000	0.000	0.249	-0.249	2.931	0.000	0.000	0.000	0.000%	2.931	29.310%	-0.249	-4.150%	0.249	12.513%				
12/7/2018	0.000	0.000	2.577	0.000	0.000	0.247	-0.247	2.577	0.000	0.000	0.000	0.000%	2.577	25.770%	-0.247	-4.117%	0.247	12.412%				
12/8/2018	0.000	0.000	2.850	0.000	0.000	0.255	-0.255	2.850	0.000	0.000	0.000	0.000%	2.850	28.500%	-0.255	-4.250%	0.255	12.814%				
12/9/2018	0.000	0.000	2.794	0.000	0.000	0.248	-0.248	2.794	0.000	0.000	0.000	0.000%	2.794	27.940%	-0.248	-4.133%	0.248	12.462%				
12/10/2018	0.000	0.000	2.385	0.000	0.000	0.266	-0.266	2.385	0.000	0.000	0.000	0.000%	2.385	23.850%	-0.266	-4.433%	0.266	13.367%				
12/11/2018	0.000	0.000	2.749	0.000	0.000	0.280	-0.280	2.749	0.000	0.000	0.000	0.000%	2.749	27.490%	-0.280	-4.667%	0.280	14.070%				
12/12/2018	0.000	0.000	2.818	0.000	0.000	0.295	-0.295	2.818	0.000	0.000	0.000	0.000%	2.818	28.180%	-0.295	-4.917%	0.295	14.824%				
12/13/2018	0.000	0.000	2.895	0.000	0.000	0.264	-0.264	2.895	0.000	0.000	0.000	0.000%	2.895	28.950%	-0.264	-4.400%	0.264	13.266%				
12/14/2018	0.000	0.000	3.001	0.000	0.000	0.238	-0.238	3.001	0.000	0.000	0.000	0.000%	3.001	30.010%	-0.238	-3.967%	0.238	11.960%				
12/15/2018	0.000	0.000	2.730	0.000	0.000	0.228	-0.228	2.730	0.000	0.000	0.000	0.000%	2.730	27.300%	-0.228	-3.800%	0.228	11.457%				
12/16/2018	0.000	0.000	2.805	0.000	0.000	0.219	-0.219	2.805	0.000	0.000	0.000	0.000%	2.805	28.050%	-0.219	-3.650%	0.219	11.005%				
12/17/2018	0.000	0.000	3.111	0.000	0.000	0.247	-0.247	3.111	0.000	0.000	0.000	0.000%	3.111	31.110%	-0.247	-4.117%	0.247	12.412%				
12/18/2018	0.000	0.000	2.899	0.000	0.000	0.249	-0.249	2.899	0.000	0.000	0.000	0.000%	2.899	28.990%	-0.249	-4.150%	0.249	12.513%				
12/19/2018	0.000	0.000	2.913	0.000	0.000	0.262	-0.262	2.913	0.000	0.000	0.000	0.000%	2.913	29.130%	-0.262	-4.367%	0.262	13.166%				
12/20/2018	0.000	0.000	2.522	0.000	0.000	0.243	-0.243	2.522	0.000	0.000	0.000	0.000%	2.522	25.220%	-0.243	-4.050%	0.243	12.211%				
12/21/2018	0.000	0.000	2.775	0.000	0.000	0.250	-0.250	2.775	0.000	0.000	0.000	0.000%	2.775	27.750%	-0.250	-4.167%	0.250	12.563%				
12/22/2018	0.000	0.000	2.907	0.000	0.000	0.247	-0.247	2.907	0.000	0.000	0.000	0.000%	2.907	29.070%	-0.247	-4.117%	0.247	12.412%				
12/23/2018	0.000	0.000	2.782	0.000	0.000	0.202	-0.202	2.782	0.000	0.000	0.000	0.000%	2.782	27.820%	-0.202	-3.367%	0.202	10.151%				
12/24/2018	0.000	0.000	2.660	0.000	0.000	0.244	-0.244	2.660	0.000	0.000	0.000	0.000%	2.660	26.600%	-0.244	-4.067%	0.244	12.261%				
12/25/2018	0.000	0.000	2.612	0.000	0.000	0.196	-0.196	2.612	0.000	0.000	0.000	0.000%	2.612	26.120%	-0.196	-3.267%	0.196	9.849%				
12/26/2018	0.000	0.000	2.625	0.000	0.000	0.205	-0.205	2.625	0.000	0.000	0.000	0.000%	2.625	26.250%	-0.205	-3.417%	0.205	10.302%				
12/27/2018	0.000	0.000	2.754	0.000	0.000	0.241	-0.241	2.754	0.000	0.000	0.000	0.000%	2.754	27.540%	-0.241	-4.017%	0.241	12.111%				
12/28/2018	0.000	0.000	2.776	0.000	0.000	0.195	-0.195	2.776	0.000	0.000	0.000	0.000%	2.776	27.760%	-0.195	-3.250%	0.195	9.799%				
12/29/2018	0.000	0.000	2.995	0.000	0.000	0.247	-0.247	2.995	0.000	0.000	0.000	0.000%	2.995	29.950%	-0.247	-4.117%	0.247	12.412%				
12/30/2018	0.000	0.000	2.838	0.000	0.000	0.198	-0.198	2.838	0.000	0.000	0.000	0.000%	2.838	28.380%	-0.198	-3.300%	0.198	9.950%				
12/31/2018	0.000	0.000	2.853	0.000	0.000	0.242	-0.242	2.853	0.000	0.000	0.000	0.000%	2.853	28.530%	-0.242	-4.033%	0.242	12.161%				
<b>AVG 2018</b>	0.000	0.000	2.979	0.016	0.016	0.308	0.208	2.972	0.016	0.016	0.016	0.161%	2.972	29.721%	-0.308	-5.125%	0.278	13.956%				
<b>MAX 2018</b>	0.000	0.000	3.516	4.579	4.579	0.418	0.449	3.516	4.579	4.579	4.579	45.790%	3.516	35.160%	-0.195	-3.250%	0.454	22.814%				

<sup>1</sup> Transfers from Second Creek to Kannapolis Lake (South Yadkin Basin to Rocky River Basin) shall not exceed 6 MGD; positive numbers represent this direction of transfer as dominate  
Transfers from Kannapolis (via purchase from Salisbury) to Landis (Yadkin Basin to South Yadkin Basin) shall not exceed 2 MGD; negative numbers represent this direction of transfer as the dominate