

**TOWN OF WEAVERVILLE**

**AGENDA**

**Weaverville Community Room at Town Hall  
30 South Main Street, Weaverville, NC 28787**

**November 15, 2022 at 6:00 pm  
Town Council Regular Workshop**

**Remote Access Option for General Public via Zoom:**  
<https://us02web.zoom.us/j/85948891960> ;  
Meeting ID: 859 4889 1960

	<i>Pg.</i>	<i>Presenter</i>
1. Call to Order .....		Mayor Fitzsimmons
2. Staff Review of Action Plan .....	3	Town Staff
3. Review and Discussion of Summary of Options .....	21	Town Staff and Town Council
4. Staff Review of Ivy River Reliable Yield Study Proposal .....	22	Town Manager Coffey
5. Requested Town Council Action and/or Direction to Staff .....		Mayor Fitzsimmons
a. Decision on Interlocal Agreement with Mars Hill for Emergency Water		
b. Decision on proceeding with Woodfin Interconnection		
c. Decision on proceeding with Asheville Interconnection		
d. Decision on Ivy River Reliable Yield Study Proposal & Budget Amendment		
e. Direction on other information needed for decision on WTP Expansion		
6. Adjournment .....		Mayor Fitzsimmons

**WEAVERVILLE TOWN COUNCIL WORKSHOP MEETING – NOVEMBER 15, 2022, AT 6PM  
REMOTE ELECTRONIC MEETING LOGIN CREDENTIALS**

The Weaverville Town Council has elected to continue to provide the general public with remote electronic access to its regular monthly meetings.

This **NOTICE OF REMOTE ELECTRONIC MEETING** is provided to inform the public that the **Weaverville Town Council regular monthly workshop meeting on Tuesday, November 15, 2022, at 6:00 p.m. will be held as an in-person meeting (Council Chambers/Community Room at Town Hall, 30 South Main Street) with remote attendance by the general public allowed via Zoom.** For those members of the public wishing to attend remotely via Zoom the following information is provided.

**A virtual waiting room will be enabled and participants will be allowed entry into the meeting just prior to the start of the meeting. The instructions to access this meeting are:**

**To join the meeting by computer**, go to this link <https://us02web.zoom.us/j/85948891960>  
You may be asked for permission to access your computer's video and audio. If so, click "allow."  
You will then be asked for the Meeting ID which is: 859 4889 1960. You will first enter a virtual waiting room. The host will admit you into the meeting just prior to the start of the meeting.

**To join the meeting by phone**, call: (253) 215-8782 or (301)715 8592  
You will then be asked for the Meeting ID which is: 859 4889 1960 . There is no password for this meeting, so if asked for one just press the # button.

**To view the agenda and related materials**, please visit the Town's website at <https://www.weavervillenc.org>.

**Access to the Meeting Recording:** A recording of the meeting will be available for one or two months, depending on storage capacity, beginning about 24 hours after the meeting. To access the recording visit the Town's website at <https://www.weavervillenc.org> or the Town's YouTube channel at [https://www.youtube.com/channel/UckBK1doIGY\\_O6\\_vjiqimFUQ](https://www.youtube.com/channel/UckBK1doIGY_O6_vjiqimFUQ), or call the Town Clerk at (828)645-7116.

Patrick Fitzsimmons, Mayor  
11/10/2022

**ACTION PLAN FOR ADDRESSING RESOLUTION WATER SYSTEM RECOMMENDATIONS APPROVED 06-27-2022**

ACTION STEP DESCRIPTION	RESPONSIBLE PARTY	RESOURCES NEEDED	TIMELINE	NOTES
<b>1. Implement the water supply system resiliency improvements as soon as possible.</b>				
A. Town staff is directed to proceed with the water supply resiliency improvements by determining cost estimates, attempting to secure grant and/or loan financing for the improvements (grant application pending), developing a financing plan, and to proceed with all necessary engineering, permitting, and bidding, and all other tasks necessary to have these needed improvements under contract as soon as practicable. <i>(per Resolution adopted 6-27-2022)</i>				
I. Determine whether the Town's DWSRF grant application is approved.	Withers-Ravenel (W-R)	\$5,000	Aug 2022	Grant application denied 8/15/2022; Revised application re-submitted.
II. Appeal or re-apply for DWSRF grant in Fall 2022.	W-R	\$0	Sept 2022	Completed; Application submitted 9/30/22.
III. Approve amended contract with W-R for final design and permitting.	Council, Staff, W-R	TBD	Nov 2022	Pending; Staff awaiting W-R draft of revised engineering proposal.
IV. Begin design and DEQ permitting process.	Staff, W-R, DEQ	TBD	2023	Final design and permitting by W-R.
V. Begin implementation of improvements in resiliency plan.	W-R, Staff	\$1,294,900	2023	
<b>2. Develop a more conservation-minded water rate structure.</b>				
A. Town Staff is directed to include consideration of rate structures or methods that encourage water conservation in the water rate study that is to be conducted during FY2022-2023 with recommendations and implementation not later than FY2023-2024. <i>(per Resolution adopted 6-27-2022)</i>			No later than FY 2023-2024	
I. Determine the need for a consultant to assist with water rate model.	Staff, Council, W-R	TBD	Sept 2022	Pending.
II. Development of new water rate model.	Staff, TC, Consultant	TBD	Spring 2023	
III. Town Council approval of new water rate model.	Town Council	\$0	June 2023	
IV. Implementation of new water rate model.	Staff	TBD	July 2023	
<b>3. Apply for federal/state grant funds in conjunction with the Town of Marshall in order to aid in the expansion of the Town's Water Treatment Plant and a more regional approach to public water.</b>				
A. Town Staff is directed to work with the Town of Marshall on a joint application for the Fall 2022 federal and/or state grant funding cycle to seek funding for the water treatment plant expansion which will provide for a regionalized approach to public water availability, and to engage WithersRavenel, the Town's consulting engineers, to assist with this process. <i>(per Resolution adopted 6-27-2022)</i>	Land of Sky Regional Council, Town Council, Staff, Town of Marshall		2022 Fall grant cycle	
I. Meeting of Mayors and Managers of stakeholder jurisdictions.	Mayors, Managers	\$0	Nov 2022	Meeting scheduled for 11/15/22.
II. Determine possible grant opportunities and application deadlines.	LOSRC, Towns	\$0	Jan 2023	
III. Contract with engineering firm to complete application(s).	Town Council	TBD	TBD	

**ACTION PLAN FOR ADDRESSING RESOLUTION WATER SYSTEM RECOMMENDATIONS APPROVED 06-27-2022**

ACTION STEP DESCRIPTION	RESPONSIBLE PARTY	RESOURCES NEEDED	TIMELINE	NOTES
IV. Begin implementation of improvements.	W-R, Staff	TBD	TBD	
<b>4. Establish a water line connection to Mars Hill in order to provide Weaverville with emergency water and negotiate an emergency water supply for both towns.</b>				
A. Town staff is directed to implement the needed improvements to allow the Mars Hill/Weaverville water line to be reversible in order to flow water from Mars Hill to Weaverville in the event of an emergency, and to begin staff-level negotiations for a new intergovernmental agreement with Mars Hill regarding the purchase of emergency water. <i>(per Resolution adopted 6-27-2022)</i>				
I. Determine costs associated with bi-directional water project (allowing water both directions).	Staff, W-R	\$0	Sept 2022	Completed.
II. Prepare draft interlocal agreement with Mars Hill on emergency.	Staff	\$0	Oct 2022	Completed; Under review by Mars Hill staff.
III. Town Council decision to proceed with project.	Town Council	\$0	Nov 2022	11/15/22 Town Council workshop discussion.
IV. Governing bodies to approve interlocal agreement and set rates.	Town Council, Mars Hill	\$0	Nov 2022	11/15/22 Town Council workshop discussion.
<b>5. Connect the Town's water system to the Woodfin Water District and negotiate a supplemental and emergency water supply from Woodfin.</b>				
A. Town staff is directed to determine what improvements are needed to provide a water connection with the Woodfin Water District in order to gain access to emergency and/or supplemental water, and to begin staff-level negotiations for an agreement regarding the purchase of water. <i>(per Resolution adopted 6-27-2022)</i>				
I. Woodfin to confirm information on possible Wvl Interconnection	Staff, Woodfin Water	\$0	Oct 2022	Pending; Numerous staff meetings with Woodfin Water District in Oct/Nov with follow-up info requested.
II. Request cost estimate for project.	Staff	\$0	Oct 2022	Rough estimate as determined by Town staff.
III. Town Council decision regarding connection with Woodfin Water District.	Town Council	\$0	Nov 2022	11/15/22 Town Council workshop discussion.
IV. Begin design and DEQ permitting process.	Staff, DEQ	TBD	TBD	
V. Begin negotiation of agreement with Woodfin Water District.	Council, Staff, Woodfin	TBD	TBD	
VI. Implementation of project.	Staff	TBD	TBD	
<b>6. Reconfigure the Town's water system connection with the Asheville water system and negotiate a supplemental and emergency water supply from Asheville.</b>				
A. Town staff is directed to determine what is needed to provide a meaningful water connection with the City of Asheville in order to gain access to emergency and/or supplemental water, and to begin staff-level negotiations for a new intergovernmental agreement with Asheville regarding the purchase of water. <i>(per Resolution adopted 6-27-2022)</i>				

**ACTION PLAN FOR ADDRESSING RESOLUTION WATER SYSTEM RECOMMENDATIONS APPROVED 06-27-2022**

ACTION STEP DESCRIPTION	RESPONSIBLE PARTY	RESOURCES NEEDED	TIMELINE	NOTES
I. Preliminary staff conversations regarding water availability and cost estimates.	Staff, Asheville	\$0	July 2022	Completed; numerous staff discussions with City of Asheville Water representatives.
II. Asheville to confirm information on Avl Interconnection Document	Staff, Avl	\$0	Sept 2022	Completed; Confirmed by Avl staff via email.
III. Formal discussions with Asheville regarding technical requirements for interconnection.	Staff, Asheville	\$0	Sept 2022	Completed; Confirmed by Avl staff via email.
IV. Formal discussions with Asheville regarding cost of water for purchase by Weaverville.	Staff, Asheville	\$0	Oct 2022	Completed; Confirmed by Avl staff via email.
V. Staff report to Town Council regarding interconnection costs and improvements.	W-R, Staff, Council	\$0	Nov 2022	11/15/22 Town Council workshop discussion.
VI. Town Council decision regarding connection with Asheville.	Town Council	\$0	Nov 2022	11/15/22 Town Council workshop discussion.
VII. Begin design and DEQ permitting process.	Staff, DEQ	TBD	TBD	
VIII. Implementation of project.	Staff	TBD	TBD	
<b>7. Proceed with the Water Treatment Plant Expansion Project with the timing to be determined in the near future.</b>				
A. Town staff is directed to re-engage the consulting engineers, WithersRavenel, to determine a more appropriate project timeline, and possible project phasing, that accounts for grant cycle decisions.	Town Council	TBD	TBD	

# WATER SYSTEM INFORMATION – INTERCONNECTION WITH MARS HILL

October 2022

Over the last few months Town staff has been working with staff from the Town of Mars Hill to investigate the existing interconnection and determine what will be needed to establish a bi-directional flow between Weaverville's water system and the Mars Hill's water system, what that connection could yield in terms of emergency or supplemental capacity gained, and estimated costs. See footnotes, map, and photo attached for clarifying information, including footnote<sup>1</sup> for abbreviations used.

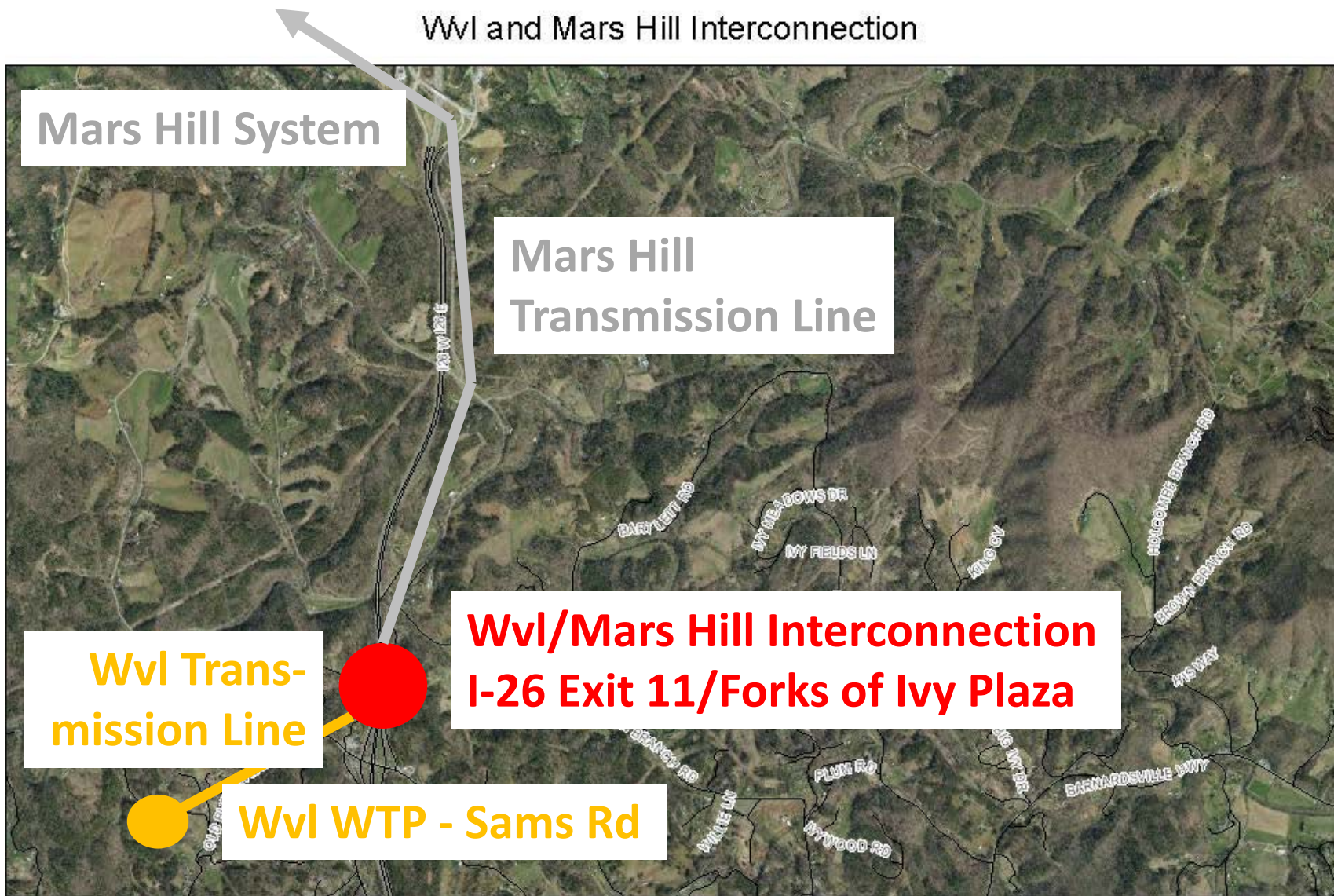
<b>Current Lines, Connection and Agreements</b>	<b>Source of Water</b> = 945-acre Municipal Watershed/Big Laurel Creek	
	<b>Connection Point</b> = Forks of Ivy Plaza [see map]; connection point includes a vault with bi-directional connections and meters [see photo]	
	<b>Weaverville Transmission Line</b> = connection point to WTP (transmission line currently is available to supply Mars Hill with emergency water);	
	Line Size = 8-inch diameter	Flow Pressure = approx. 145 psi <sup>2</sup>
	<b>Mars Hill Transmission Line</b> = connection point to Mars Hill system at Mars Hill Exit on I-26 (provides water to Mars Hill's water system)	
	Line Size = 8-inch diameter	Flow Pressure = approx. 225 psi <sup>2</sup>
<b>Emergency Water</b>	No capital improvements needed for a bi-directional flow of emergency water	
	Emergency water has never been requested or provided; except for testing and flushing of lines, water has not been flowed through the interconnection	
	No agreement currently in place for emergency water; Intergovernmental agreement requiring Wvl to provide 200,000 gpd of short-term emergency water to Mars Hill expired in 2015; <b>a new intergovernmental agreement and rate setting is needed;</b> Wvl staff has prepared a draft agreement and it is under review by Mars Hill staff	
<b>Supplemental Water</b>	No capital improvements needed for Wvl to receive or provide supplemental water	
	<b>Mars Hill does not have enough water capacity within its system to offer a reliable or permanent supplemental source of water to Wvl</b>	
	Mars Hill may request that Wvl provide Mars Hill with supplement water; that discussion is dependent upon Wvl's decision on the expansion of its WTP and Mars Hill may be willing to provide some monetary assistance with the WTP Expansion Project for a long-term commitment of supplemental water to Mars Hill	



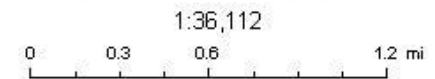
<sup>1</sup> As used herein: gpm = gallons per minute; gpd = gallons per day; psi = pressure per square inch

<sup>2</sup> Flow pressures verified by Weaverville Fire Marshal on 9/16/22; flow pressures fluctuate





November 2, 2022



**STATE OF NORTH CAROLINA  
COUNTY OF BUNCOMBE**

**INTERGOVERNMENTAL AGREEMENT  
BETWEEN THE TOWN OF WEAVERVILLE AND  
THE TOWN OF MARS HILL**

This **INTERGOVERNMENTAL AGREEMENT** is made and entered into this 1st day of January, 2023, by and between the Town of Weaverville, a municipal corporation organized and existing under the laws of the State of North Carolina (hereinafter referred to as “Weaverville”) and the Town of Mars Hill, a municipal corporation organized and existing under the laws of the State of North Carolina (hereinafter referred to as “Mars Hill”).

**WHEREAS**, municipalities are authorized to enter into joint undertakings as authorized by N.C. Gen. Stat. § 160A-461 and Article 20 of Ch. 160A of the N.C. General Statutes;

**WHEREAS**, Weaverville and Mars Hill each own and operate a water system in and around their respective municipal jurisdictions;

**WHEREAS**, an interconnection between the Weaverville and Mars Hill water systems was constructed around 2009 in order to allow Weaverville to provide Mars Hill with an emergency water during emergency situations;

**WHEREAS**, as constructed the interconnection provides a bi-directional flow of water between the Weaverville and Mars Hill water systems;

**WHEREAS**, Weaverville and Mars Hill both have an important public interest in having a short-term emergency water supply which could be provided through the existing interconnection should that need arise;

**WHEREAS**, both parties intend to proceed cooperatively in utilizing water resources and facilities to support their respective service areas during short term emergencies as defined herein;

**WHEREAS**, this Agreement establishes each party’s reciprocal commitment to provide short term emergency water to the other;

**NOW THEREFORE**, for and in consideration of the mutual covenants, terms, and conditions contained herein and accruing to the benefit of each of the parties hereto, the parties hereby agree to the following:

**EFFECTIVE DATE:** This Agreement shall become effective January 1, 2023. This Agreement is in place of, supersedes, and replaces any previously executed Interlocal agreement, contract, or memorandum of understanding on this subject, including specifically the Contract dated October 20, 2008.

**TERM:** This Agreement shall be in effect until terminated in accordance with the provisions of this Agreement. Either party may terminate this Agreement with or without cause upon 180 days’ advance written notice to the other party.

**TERMINATION:** Either party may terminate this Agreement for any reason, or for no reason, upon 180 days’ advance written notice to the other party. The Parties may also terminate this Agreement at any time by mutual agreement.



**SUSPENSION:** Either party may suspend this Agreement for cause if, in the reasonably exercised opinion of the Weaverville Water Director or the Mars Hill Water Director, the public health or safety would be endangered due to the continued delivery of water pursuant to this Agreement. Upon suspension of this Agreement, the suspending town will immediately provide written notice to the other party of the reason for the suspension. Subject to provisions for termination without cause, upon written notice of correction by the Director of the other party, the Director of the suspending party shall cease suspension unless, in the suspending Director's opinion accompanied by written notice to the other Director, there remains cause for suspension.

**AMENDMENTS:** This Agreement may be amended only by approval of the Weaverville Town Council and the Mars Hill Town Council.

**SHORT-TERM EMERGENCY WATER NEEDS DEFINED:** The parties hereto acknowledge and agree that this Agreement is for the provision of water for short term emergency purposes only. For the purposes of this Agreement, the following may constitute an emergency justifying a request for water delivery under this Agreement:

- a. Need for water due to water treatment capacity failure;
- b. Need for water due to a sudden loss of water pressure or interruption of water service in part of a distribution system due to a failure of infrastructure (with repairs anticipated to require more than 48 hours to repair);
- c. Need for water due to an unusual, significant, and unaccounted for increase in water demand resulting in low pressure or low water storage levels in the requestor's distribution system;
- d. Need for additional water supply due to a major fire demand;
- e. Need for a supplemental water source due to drought, for as long as a public notification of mandatory conservation restrictions exist and supplying water party has adequate water to supply;
- f. Need for supplemental water when the requestor's available daily water pumping and treatment capacity has reached 120% of the projected peak daily demand of the water system for more than five (5) days where daily demand is based upon the most recent water supply plan approved by the State of North Carolina;
- g. Other needs that in the opinion of the Water Director of both parties are sufficient for implementing a water transfer as governed by this Agreement.

Unless an extension is approved by the supplying Director, the commitment for temporary water supply shall not exceed the following time periods: (1) 24 hours following the extinguishment of a fire, (2) 30 days for all other emergencies.

**SHORT TERM EMERGENCY WATER COMMITMENT:**

During an emergency situation, Weaverville will commit to deliver treated water to Mars Hill in an amount that will not have a detrimental effect on Weaverville's water system or service to its existing customers, as determined by Weaverville's Water Director or the

Director's designee.

During an emergency situation, Mars Hill will commit to deliver treated water to Weaverville in an amount that will not have a detrimental effect on Mars Hill's water system or service to its existing customers, as determined by Mars Hill's Water Director or the Director's designee.

**LIMITATIONS ON SERVICE:**

The supplying of water as described herein is subject to all limitations provided by the supplying party's water policies.

At its sole discretion, the supplying party may temporarily reduce or terminate flow to the receiving party in the interest of public health and safety. In the event of interruption of service caused by line breaks, natural disasters and like events, the obligation of the supplier shall be to make sure repairs as reasonably as possible so that the delivery of water to the receiving party will not be unnecessarily interrupted nor the failure to deliver water prolonged for an unreasonable amount of time.

There is no obligation on the part of either town to institute water shortage protocols in order to provide the other with emergency water.

Nothing herein shall be construed as requiring the provision of water when doing so would unreasonably limit the capacity of the other town to serve its own customers.

Nothing herein shall be construed as requiring the provision of water when doing so would cause a violation of any federal, state, or local law, rule, or regulation.

**COST OF SERVICE:**

Except as provided herein, neither town will be obligated to provide the other with any fee or assessment related to water services, such as water system development fees, capacity depletion fees, meter fees, or minimum monthly charges.

All emergency water provided under this Agreement shall be metered in the normal manner and billed monthly for the duration of the delivery of water.

The receiving party shall pay to the supplying party a consumption charge calculated at the supplying party's emergency water rate, as established at the time of consumption. Weaverville's volume charge is based on units of 1,000 gallons. Mars Hill's volume charge is based on units of \_\_\_\_ gallons.

Each party shall have the right to adjust its wholesale water rate on an annual basis.

Failure to timely pay amounts when due shall be a breach of this Agreement. Failure to pay within 30 days of notice of non-payment will be cause for immediate termination of this Agreement without further notice to the defaulting party.

**CONNECTION POINT:**

Both parties recognize that the interconnection between the Weaverville water system and the Mars Hill water system is located at 901 Old Mars Hill Highway in the

unincorporated portion of Buncombe County, NC. This interconnection consists of a concrete vault containing a 3-inch meter serving Mars Hill, a 3-inch meter serving Weaverville, and other appurtenances, housed within a chain link security fence.

Each party has the right to test the meters at this connection point for accuracy and to calibrate, repair or replace meters or modify the metering assembly as needed for proper operation.

The water supplied at this interconnection shall be at a reasonably adequate and consistent pressure under average flow conditions to provide emergency water. It is acknowledged that at the time of execution of this Agreement the flow pressure on the Mars Hill line is approximately 225 psi and the flow pressure on the Weaverville line is approximately 145 psi, both of which are adequate to provide the other with emergency water.

The supplying party may at any time proposed improvements to the water system (such as a new booster pump or a pressure reducing valve), which increases or decreases the consistent pressure provided subject to the minimum pressure specified above, and must giving the receiving party advanced written notice before implementing such system improvements.

The parties estimate that the current cumulative capacity at this interconnection to be about 400,000 gallons of treated water per day. This estimate is not a limit on capacity should the interconnections prove capable of transferring more water between the two systems.

**DUTIES OF THE SUPPLYING PARTY:** The supplier shall at all times operate and maintain its system in a good state of repair to permit delivery of a dependable source of water for distribution to the receiving party's system, normal service interruptions excepted.

**DUTIES OF THE RECEIVING PARTY:** The receiving party shall install and maintain, at its sole expense, all necessary backflow devices as required by the supplying party. The supplier may inspect these devices and require the receiving party to test, repair, and replace them. The expense of repair and replacement of backflow devices shall be borne by the receiving party. Failure to repair or replace backflow devices within a reasonable time as determined by the supplying Director shall constitute endangerment of public health and safety for all purposes herein.

The receiving party shall be held liable for any detrimental backflow occurrence into the supplier's water system and the receiving party shall indemnify the supplier for all costs associated with a backflow occurrence resulting from the receiving party's negligent actions or omissions, if so proven.

**GENERAL PROVISIONS:**

1. This Agreement shall be subject to federal and state laws, rules, and regulations as they may from time-to-time be amended.

2. A party affected by any change in such laws, rules, or regulations, shall notify the other party within a reasonable time of any change affecting the rights and obligations under this Agreement.
3. Each party acknowledges that the receiving party is purchasing this water for resale to its customers. The supplying party implies no warranty or responsibility for water quality or quantity beyond the receiving party's connection.
4. The receiving party shall indemnify and hold harmless the supplying part, its officers, employees, and agents, from and against any damages, liabilities, judgments, fees (including reasonable attorney's fees and expert witness fees) or costs caused solely by the negligence, reckless, or willful misconduct of the receiving party, its employees or agents, in connection with this Agreement.
5. The supplying party shall indemnify and hold harmless the supplying part, its officers, employees, and agents, from and against any damages, liabilities, judgments, fees (including reasonable attorney's fees and expert witness fees) or costs caused solely by the negligence, reckless, or willful misconduct of the supplying party, its employees or agents, in connection with this Agreement.
6. This Agreement is not to be construed as creating any intended third-party beneficiaries and may only be enforced by the parties hereto and their successors and assigns.
7. This Agreement shall not be construed as a purchase of capacity in the water systems owned and operated by the supplying party nor shall this Agreement be deemed to be a dedication of capacity within such water systems solely to or for the benefit of the receiving party nor shall the receiving party be expected to pay any portion of the operation and maintenance costs of the supplier's water production system or distribution system or both, other than the payment of the purchase price of the water supplied under this Agreement. Modifications requested by the receiving party to facilitate the transfer of water shall be the responsibility of and be constructed at the expense of the receiving party.
8. This Agreement is between the Town of Weaverville and the Town of Mars Hill and shall not be construed as creating a contractual relationship between the party supplying water and any particular customer of the receiving party, nor shall any customer of the receiving party have any right or cause of action directly against the party supplying water because of this Agreement. Any such person is an incidental beneficiary and not an intended beneficiary of this Agreement.
9. This Agreement contains the entire agreement between the parties with respect to the subject matter hereof and there are no representations, warranties, covenants, or undertakings other than those expressed and set forth herein. None of the terms of this Agreement shall be waived or modified to any extent, except by written instrument signed and delivered by both parties.
10. This Agreement is executed in North Carolina and its provisions shall be construed in accordance with the laws of North Carolina. Exclusive venue for any action concerning construction or breach of this Agreement shall be in the courts of Buncombe County, North Carolina. Both parties hereby submit their persons to the jurisdiction of such courts for the purpose of any such action.

11. Except as otherwise provided in this Agreement, all notices and communications required to be sent pursuant to the terms of this Agreement shall be in writing and shall be delivered by hand delivery, certified mail, return receipt requested, or by Federal Express or similar overnight courier service, addressed as follows:

To Weaverville: Weaverville Town Manager  
P.O. Box 338  
Weaverville, NC 28787

Weaverville Water Director  
P.O. Box 338  
Weaverville, NC 28787

To Mars Hill: Mars Hill Town Manager  
P.O. Box 368  
Mars Hill, NC 28754

Mars Hill Water Director  
P.O. Box 368  
Mars Hill, NC 28754

All such notices and other communications, which are addressed as provided in this Paragraph, shall be effective upon receipt. The parties hereto may from time to time change their respective addresses for the purpose of notice to that party by a similar notice specifying a new address, but no such change shall be deemed to have been given until it is actually received by the party sought to be charged with its contents.

12. If any provision of this Agreement shall be declared invalid or unenforceable, the remainder of this Agreement shall continue in full force and effect.
13. The covenants contained in this Agreement, which by their terms require their performance after the expiration or termination of this Agreement, shall be enforceable notwithstanding the expiration or termination of this Agreement.
14. The exclusive remedy for the reduction or termination of water to be supplied under this Agreement shall be injunctive relief.
15. This Agreement may be executed in one or more counterparts, each of which shall be an original and all of which shall constitute one and the same instrument.
16. The captions or headings in this Agreement are inserted only as a matter of convenience and for reference and they in no way define, limit, or describe the scope of this Agreement or the intent of any provision hereof.
17. This Agreement is expressly non-assignable without prior written consent and approval by the non-assigning party. This Agreement may not be continued by a successor to either party without the written consent of the other party.
18. The individuals signing this Agreement personally warrant that they have the right and power to enter into this Agreement on behalf of their respective municipal corporations, to grant the rights granted under this Agreement, and to undertake the obligations set forth in this Agreement.

**IN WITNESS WHEREOF**, the parties hereto have caused this Intergovernmental Agreement to be executed in their respective names, the day and year first above written.

**TOWN OF WEAVERVILLE**

By: \_\_\_\_\_  
Patrick Fitzsimmons, Mayor  
Date:

Attested by:

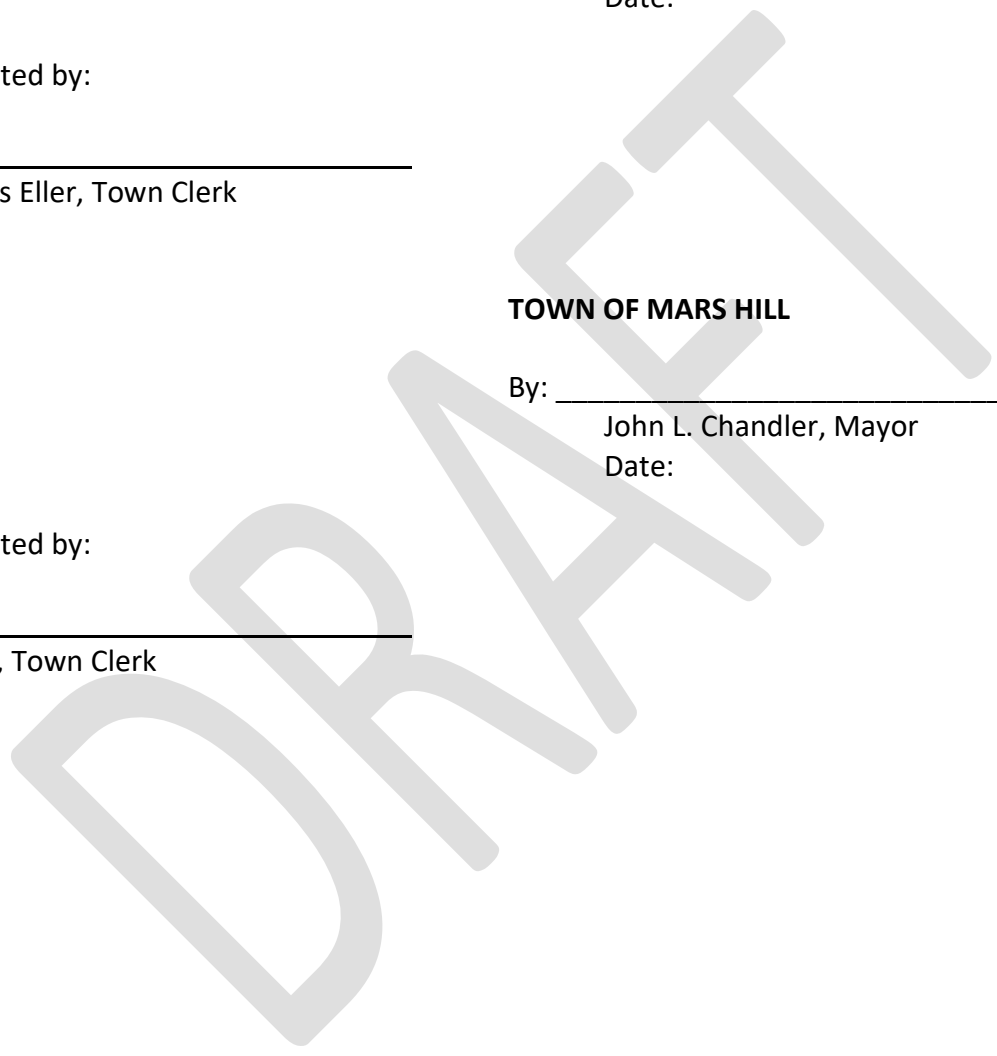
\_\_\_\_\_  
James Eller, Town Clerk

**TOWN OF MARS HILL**

By: \_\_\_\_\_  
John L. Chandler, Mayor  
Date:

Attested by:

\_\_\_\_\_, Town Clerk





# WATER SYSTEM INFORMATION – INTERCONNECTION WITH ASHEVILLE

September 2022

Over the last few months Town staff has been working with staff from the City of Asheville to determine what will be needed to re-establish the interconnection between the Town's water system and the Asheville's water system, what that connection could yield in terms of capacity gained, and estimated costs. See footnotes and maps attached for clarifying information, including footnote<sup>1</sup> for abbreviations used.

<p><b>Current Lines, Connections, and Agreements</b></p>	<p><b>Water Sources</b> – Bee Tree Creek Reservoir, N. Fork of Swannanoa River Watershed/Reservoir, Mills River and French Broad River</p>		
	<p><b>Connection Point</b> = Old Home Rd at Pine Burr Baptist Church [see map]; located on a small tract of land near Merrimon Avenue in Woodfin's town limits with very limited ability to expand; connection point includes a vault with connections and meters <sup>2</sup></p>		
	<p><b>Avl Transmission Line</b> = Elkwood Ave @ New Bridge Tire in Woodfin's town limits to connection point (transmission line supplies water to the connection point) [see map]; cast iron line built in the 1960s; line is in questionable condition and not a reliable source of water; hydraulics on this old line will continue to diminish over time <sup>2</sup></p>		
	Line Length = +/- 2 miles <sup>2</sup>	Line Size = 10-inch <sup>2</sup>	Flow pressure = +/-92 psi <sup>2</sup>
	<p><b>Wvl Distribution Line</b> = Dubose Hill Tank to Wvl Hamburg Mountain Tank (supplies water to Wvl system) [see map]</p>		
	Line Length = +/- 3 miles	Line Size = 8-inch	Flow pressure = +/-107-170 psi <sup>3</sup>
	<p>Interconnection was last operable in 2011; <b>interconnection is currently closed and locked; no intergovernmental agreement in place between Wvl and Avl</b></p>		
	<p><b>Avl representatives have advised that they will not approve the reestablishment of the interconnection without improvements to their transmission line and replacement of the vault (as described below).<sup>2</sup></b></p>		
<p><b>The Town is unable to obtain emergency or supplemental water from Avl unless a significant capital project is undertaken at the Town's expense.</b></p>			
<p><b>Emergency and Supplemental Water - up to 2 million gpd</b></p> <p><b>(Vault Replacement, Upgraded Avl Transmission Line, New Pump Station and Upgraded Wvl Distribution Line)</b></p>	<p>Vault Replacement (required by Avl – see above) <sup>2</sup></p>		
	<p>Upgrade +/- 2 miles of existing Asheville transmission line from 10-inch cast iron line to 16-inch ductile iron line from Elkwood Avenue to connection point (required by Avl to gain reliable capacity from Avl) <sup>2</sup></p>		
	<p>New Pump Station (needed to overcome pressure differential) and line; location TBD;</p>		
	<p>Upgrade +/- 3 miles of existing Wvl distribution line #2 to 12-inch line from connection point to Hamburg Mountain Tank (to gain and distribute capacity within Wvl);</p>		
	<p>4-5 year project which will include engineering, DEQ permitting, land and/or easement acquisition, DOT encroachment agreements, bidding, construction</p>		
	<p><b>Estimated total capital cost of upgrades = +/- \$17 million</b></p>		
	<p><i>Note: W-R Alternative #5 in the 2021 Draft PER assumed an upgrade of the existing Avl transmission line from a 10-inch to 12-inch line, but Avl is requiring a 16-inch line; rough estimate of cost difference of changing to a 16-inch line upgrade is included in the estimated total capital costs of upgrades above</i></p>		

<sup>1</sup> As used herein: gpm = gallons per minute; gpd = gallons per day; psi = pressure per square inch

<sup>2</sup> Data/information was reviewed and confirmed by David Melton and Chad Pierce of City of Asheville (email dtd 9/20/2022 and email dated 10/4/2022)

<sup>3</sup> Flow pressures verified by Weaverville Fire Marshal; flow pressures fluctuate due to pumping operations - occurs every day of the week with limited pumping on Sundays and Wednesday

# WATER SYSTEM INFORMATION – INTERCONNECTION WITH ASHEVILLE

September 2022

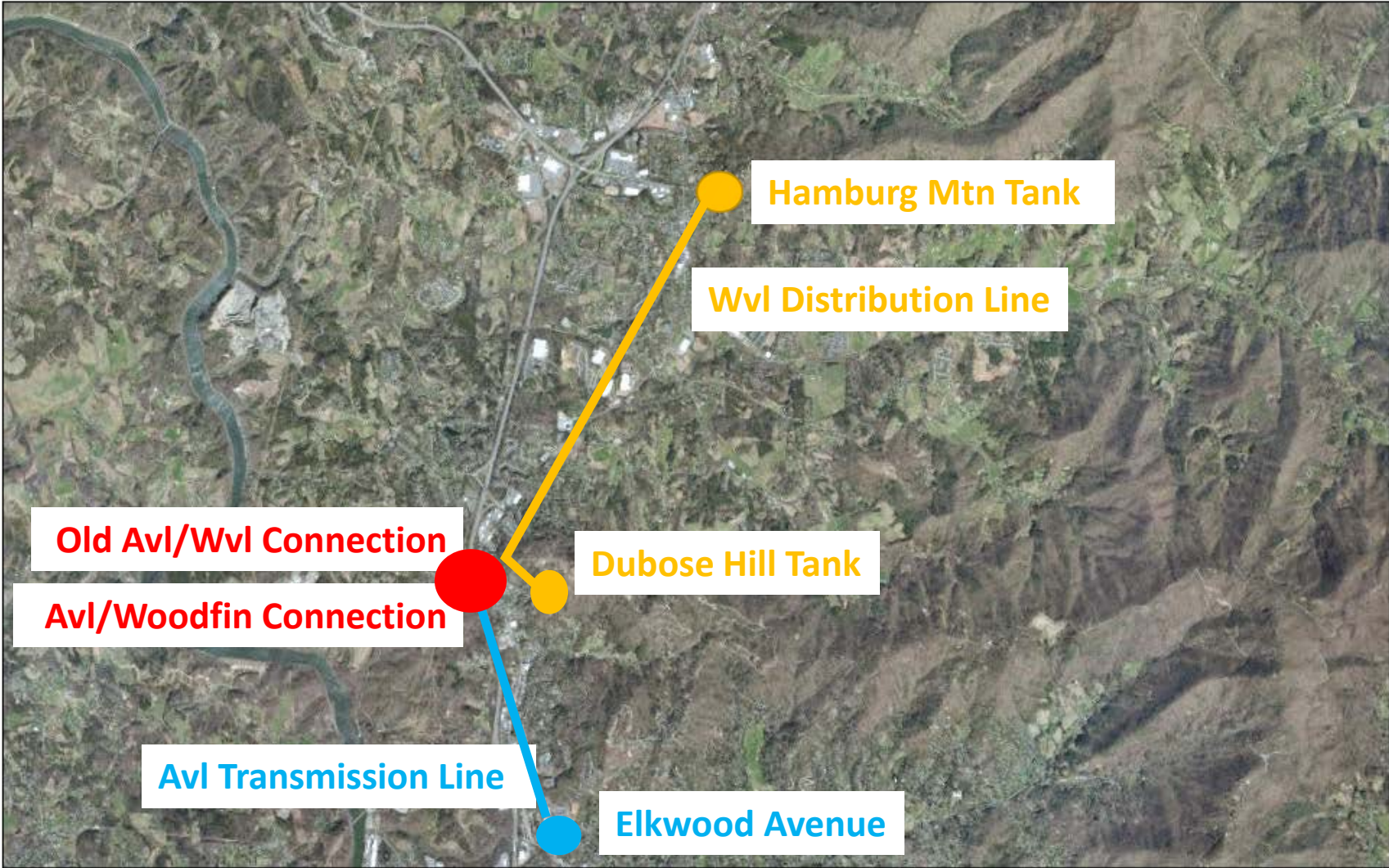
<b>Estimated Costs - Moderate Capacity Gained</b>	<b>Moderate capacity gained = 1.5 million gpd = double current capacity</b> <sup>2</sup>
	<b>Resulting Wvl capacity = 3.0 million gpd Town capacity</b>
	<b>Estimated costs to reserve/purchase up to 1.5 million gpd of water</b> <sup>2,4</sup> :
	<b>One-Time Development Fee (6-inch meter) = \$91,007.29</b>
	<b>Min Cost = \$27,847.50 per month minimum with no usage = \$334,170.00 per year</b>
	<b>Max Cost = \$104,311.40 per month with maximum usage</b> <sup>5</sup> = \$1,251,736.80 per year
	• Capacity Reserve Fee <sup>6</sup> = \$27,600.00 per month = \$331,200.00 per year
	• Meter Fee (6-inch) = \$247.50 per month = \$2,970.00 per year
	• Maximum Usage = 46.5 million gallons/month = \$76,463.90 = \$917,566.80/year
• [1,500,000 gpd x 31 days = 46,500,000 gp month/748 x \$1.23= \$76,463.90/month] <sup>6</sup>	
<b>Estimated Costs - Maximum Capacity Gained</b>	<b>Max capacity gained from Avl = 2 million gpd (will require an 8-inch meter)</b> <sup>2</sup>
	<b>Resulting Wvl capacity = 3.5 million gpd</b>
	<b>Estimated costs to reserve/purchase up to 2 million gpd of water from Avl</b> <sup>2,4</sup> :
	<b>One-Time Development Fee (8-inch meter) = \$196,015.69</b>
	<b>Min Cost = \$37,195.25 per month minimum with no usage = \$446,343.00 per year</b>
	<b>Max Cost = \$139,147.12 per month with maximum usage</b> <sup>5</sup> = \$1,669,765.44 per year
	• Capacity Reserve Fee <sup>6</sup> = \$36,800.00 per month = \$441,600.00 per yr
	• Meter Fee (6-inch) = \$395.25 per month = \$4,743.00 per year
	• Maximum Usage = 62 million gallons/month = \$101,951.87 = \$1,223,422.44/yr
• [2,000,000 gpd x 31 days = 62,000,000 gp month/748 x \$1.23= \$101,951.87/month] <sup>6</sup>	
<b>Emergency Water Only</b>  <b>(Vault Replacement and Upgraded Avl Transmission Line)</b>	Vault Replacement (required by Avl – see above) <sup>2</sup>
	Upgrade +/- 2 miles of existing Asheville transmission line from 10-inch cast iron line to 16-inch ductile iron line from Elkwood Avenue to connection point (required by Avl to gain reliable capacity from Avl) <sup>2</sup>
	3-5 year project which will include engineering, DEQ permitting, land and/or easement acquisition, DOT encroachment agreements, bidding, construction
	<b>Estimated total capital cost of upgrades = +/- \$14 million</b>
	Estimated costs for emergency water from Avl <sup>2</sup> :
	<b>One-Time Development Fee (6-inch meter) = \$91,007.29</b>
	• Meter Fee (6-inch) = \$247.50 per month = \$2,970.00 per year
• Usage = wholesale water rate (\$1.23 per 748 gallons [1 CCF]) + 10%	

<sup>4</sup> Purchase price of water and related fees are estimated based on City of Asheville rates and are subject to change

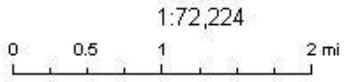
<sup>5</sup> Maximum usage assumes 31 days per month

<sup>6</sup> Monthly capacity reserve fee = \$184.00 per 10,000 gallons of daily water committed; wholesale consumption rate = \$1.23 per 748 gallons [1 CCF]<sup>2,4</sup>

Avl and Wvl Interconnection



September 28, 2022



# WATER SYSTEM INFORMATION – INTERCONNECTION WITH WOODFIN WATER DISTRICT

November 2022

Town staff has been working with Dr. Joe Martin of the Woodfin Water and Sewer District (Woodfin Water District) to determine what will be needed to re-establish the interconnection between the Town’s water system and Woodfin Water District’s water system, what that connection could yield in terms of capacity gained, and estimated costs. See footnotes and maps attached for clarifying information, including footnote<sup>1</sup> for abbreviations used.

<b>Current Lines, Connections, and Agreements</b>	<b>Water Sources</b> – Sugar Camp Fork Creek Reservoir; City of Asheville		
	<b>Connection Point Avl/Woodfin Water District</b> = Old Home Rd at Pine Burr Baptist Church [see map]; no connection to Wvl system		
	<b>Proposed Connection Point with Wvl</b> = Merrimon Avenue @ Leisure Mountain Road [see map]; between the Citgo Station and the Ingles Gas Station		
	<b>Avl Transmission Line</b> = Elkwood Ave @ New Bridge Tire in Woodfin’s town limits to connection point (transmission line supplies Avl water to the connection point) [see map]; cast iron line built in the 1960s; line is in questionable condition and not a reliable source of water; hydraulics on this old line will continue to diminish over time		
	Line Length = +/- 2 miles	Line Size = 10-inch	Flow pressure = +/-92 psi
	<b>Woodfin Water District Distribution Line #1 (Avl Water)</b> = connection point with Avl to Merrimon @ New Stock Road and then out New Stock Road under I-26 (supplies Avl water to Woodfin Water District customers) [see map]		
			Line Size = 8-inch
	<b>Woodfin Water District Distribution Line #2 (Woodfin Water)</b> = Woodfin Water District WTP to Leisure Mountain Road @ Merrimon Avenue (supplies Woodfin Water District water to Woodfin Water District customers) [see map]		
			Line Size = 6-inch
	<b>Wvl Distribution Line</b> = Dubose Hill Tank to Wvl Hamburg Mountain Tank (supplies water to Wvl system) [see map]		
	Line Length = +/- 3 miles	Line Size = 8-inch	Flow pressure = +/-107-170 psi
	<b>Interconnection between Wvl and Woodfin Water District was last operable more than 20 years ago and has long been disconnected;</b> no intergovernmental agreement in place between Wvl and Woodfin Water District		
	<b>Interconnection between Avl and Woodfin Water District is operable and an Interlocal Agreement is in place that allows Woodfin Water District to purchase up to 1 million gpd.</b> Woodfin Water District is current purchasing +/- 500,000 gpd.		
<b>Woodfin Water District representative has advised that they are agreeable to the reestablishment of an interconnection to provide water from the Woodfin Water District at the proposed connection point with minimum improvements needed (as described below).</b>			
<b>The Town is unable to obtain emergency or supplemental water from Woodfin Water District unless a moderate capital project is undertaken at the Town’s expense.</b>			

<sup>1</sup> As used herein: gpm = gallons per minute; gpd = gallons per day; psi = pressure per square inch

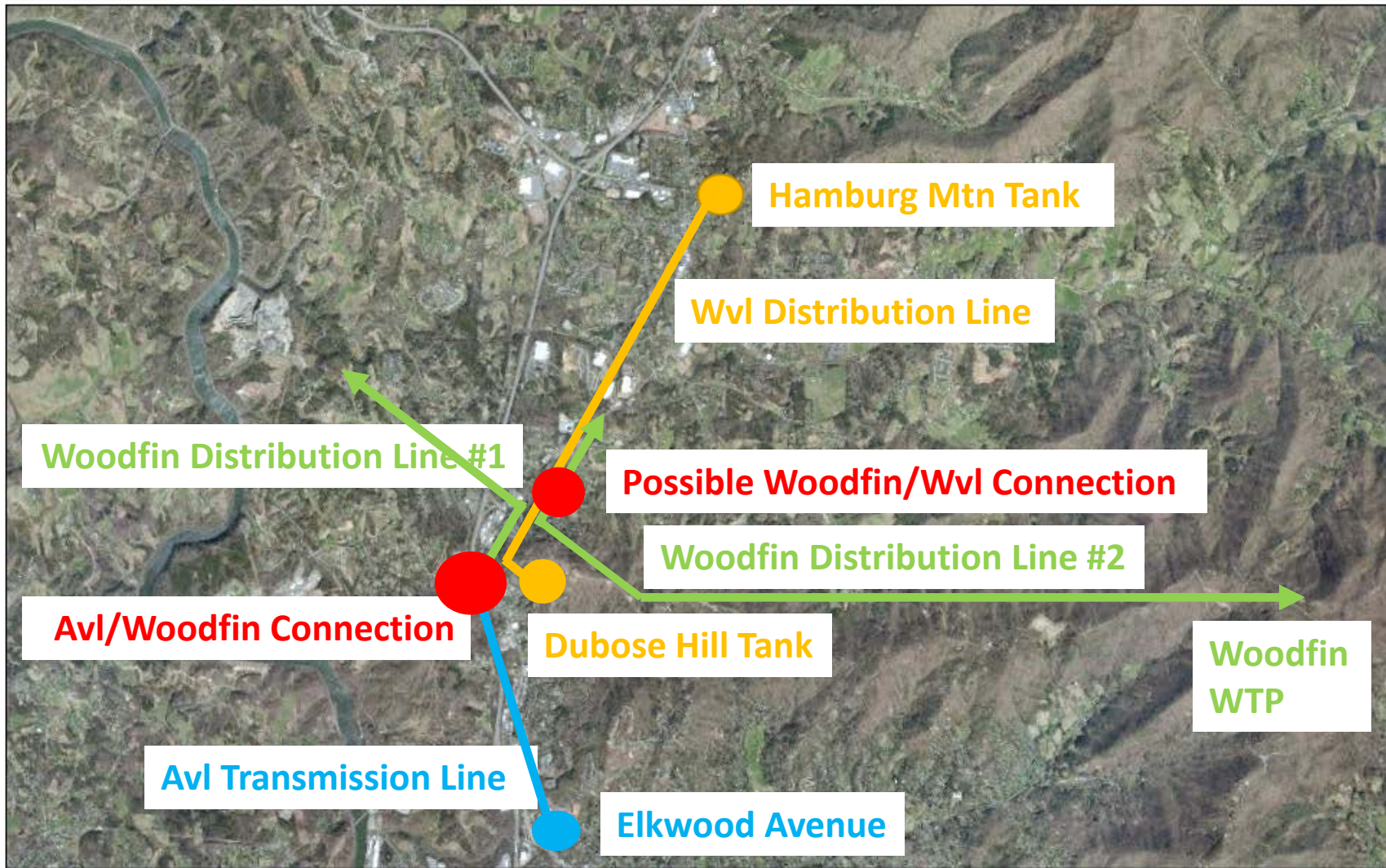
# WATER SYSTEM INFORMATION – INTERCONNECTION WITH WOODFIN WATER DISTRICT

November 2022

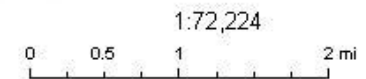
<b>Emergency and Supplemental Water - up to 250,000 gpd</b>  <b>(Vault Installation, Valve Replacement and Reconfiguration)</b>	Vault Installation at Proposed Connection Point (above- and below-ground concrete structure with interconnections and meters); replacement of valve between Woodfin Water District Distribution Line #1 and Woodfin Water District Distribution Line #2 from a manual valve to electronic valve
	Upgrades to the Wvl Dubose Hill Tank to replace and reconfigure the existing valves in order to maintain Wvl water flow when Woodfin Water is flowing into the Wvl system
	1-2 year project which will include engineering, DEQ permitting, land and/or easement acquisition, bidding, construction
	<b>Estimated total capital cost of upgrades = +/- \$600,000</b>
<b>Emergency and Supplemental Water - up to 500,000 gpd</b>  <b>(Vault Installations at 2 Connection Points, Valve Replacement and Reconfiguration)</b>	Vault Installation at Proposed Connection Point (above- and below-ground concrete structure with interconnections and meters); replacement of valve between Woodfin Water District Distribution Line #1 and Woodfin Water District Distribution Line #2 from a manual valve to electronic valve
	Upgrades to the Wvl Dubose Hill Tank to replace and reconfigure the existing valves in order to maintain Wvl water flow when Woodfin Water is flowing into the Wvl system
	Vault installation at Avl/Woodfin Water District Connection Point
	1-2 year project which will include engineering, DEQ permitting, land and/or easement acquisition, bidding, construction
	<b>Estimated total capital cost of upgrades = +/- \$750,000</b>
<b>Important Notes</b>	<b>Capacity estimates on this information sheet are for discussion purposes only and have not been committed to by Woodfin Water District</b>
	<b>Available flow quantity must be confirmed with detailed hydraulic modeling from each water source.</b> Woodfin Water District cannot commit to providing any capacity without the detailed hydraulic modeling
	The amount of water that Woodfin Water District will commit to sell to Wvl will be affected by their current and future customer demands
	Woodfin Water District's ability to sell Avl water to Wvl is uncertain beyond the expiration of the Avl/Woodfin agreement which is due to expire in 2029
	The water consumption rate for Wvl's purchase of water from Woodfin Water District is not yet determined
	Dr. Joe Martin is retiring at the end of the year and discussions and potential agreements must be made with the in-coming director and the Woodfin Water District Board



# Woodfin and Wvl Interconnection



September 28, 2022





## WATER SYSTEMS INFORMATION – SUMMARY OF OPTIONS - November 2022

	What?	Who?	When?	One-Time Costs?		Annual Costs?			
				<i>Estimated Capital Project Costs and Development Fees</i>	<i>Capacity Reserve Fees, Meter Fees, and/or Estimated Operating Costs for Added Capacity</i>	+	<i>Consumption Costs Based on Usage</i>	=	<i>Estimated Annual Cost for Added Capacity</i>
<b>Town Needs Emergency Water</b>	Emergency Water	Asheville	3-5 years	\$14.1 million	Minimal (+/- \$3,000/year)	+	Wholesale Rate + 10%	=	TBD = \$3,000 + actual usage
		Woodfin	1-2 years	\$600,000	TBD	+	TBD	=	TBD = actual usage
		Mars Hill	0.25 years	\$0.00	TBD	+	TBD	=	TBD = actual usage
<b>Town Needs Supplemental Water</b>	+ 2 million GPD	Asheville	4-5 years	\$17.2 million	\$446,343/year	+	\$1,223,422/year	=	\$1.67 million/year
	+ 1.5 million GPD	Asheville	4-5 years	\$17.1 million	\$334,170/year	+	\$917,567/year	=	\$1.25 million/year
		Weaverville*	5-6 years	\$20 million	\$465,000/year	+	n/a	=	\$465,000/year
	+ 1 million GPD	Asheville	4-5 years	\$17.1 million	\$223,770/year	+	\$611,711/year	=	\$835,481/year
		Weaverville*	5-6 years	\$20 million	\$360,000/year	+	n/a	=	\$360,000/year
	+ 500,000 GPD	Asheville	4-5 years	\$17.1 million	\$113,370/year	+	\$305,856/year	=	\$419,226/year
		Weaverville*	5-6 years	\$20 million	\$270,000/year	+	n/a	=	\$270,000/year
		Woodfin^	1-2 years	\$750,000	TBD	+	TBD	=	TBD
	+ 250,000 GPD	Asheville	4-5 years	\$17.1 million	\$58,170/year	+	\$152,928/year	=	\$211,098/year
Weaverville*		5-6 years	\$20 million	\$265,000/year	+	n/a	=	\$265,000/year	
Woodfin^		1-2 years	\$600,000	TBD	+	TBD	=	TBD	

Notes: \* The Weaverville option reflects added capacity obtained if the Town's Water Treatment Plant is expanded from 1.5 million GPD to 3.0 million GPD.  
 ^ Amount of capacity gained through Woodfin Water is subject to confirmation through detailed hydraulic modeling (which will determine available flow quantity), and analysis of current and expected demands on the Woodfin Water system. This document does not address the cost of any funding options or related debt service expenses.

# Introduction to CDM Smith

## About Us

CDM Smith is celebrating an unprecedented industry milestone in 2022—our 75th Anniversary! The firm was founded in 1947 in Cambridge, Massachusetts and has grown into an employee-owned, full-service consulting, engineering, architecture, construction, environmental and operations services firm with 125+ offices worldwide. With more than 5,000 employees, we bring **150+ dedicated professionals in our Charlotte, Raleigh, and Wilmington offices**. We have provided professional and environmental services to local North Carolina communities since 1979, and are proud of our 43 years of service in the state.

## Industry Leadership

CDM Smith provides lasting and integrated solutions in water, environmental, transportation, energy, and facilities services to public and private clients worldwide. As a full-service engineering and construction firm, we strive to deliver exceptional client service, quality results, and enduring value across the entire project life cycle. The cornerstone of CDM Smith's business has always been supporting our public utility clients in delivering safe, reliable, water and wastewater service in an economical and sustainable manner. For this reason, we are consistently ranked among the top engineering firms by **Engineering News Record (ENR)**, including being ranked as the 4th Water Engineering Firm in 2022.

Over the years, we have worked on virtually every aspect of water quality investigations, treatment technologies, and approaches to treatment plant design. **We have completed over 2,500 water treatment related projects, including the design of over 1,500 new or expanded treatment plants ranging in size from 1 million-gallons-per-day (mgd) to 2,020 mgd.** Additionally, many industry-standard water treatment technologies, such as rapid-rate direct filtration, air-water backwash, and laminar-flow sedimentation were established by CDM Smith, and are still used by municipalities around the globe today.

## Carolinas WTP Planning and Design Experience

CDM Smith's North Carolina offices have been leading the way in WTP projects for over four decades, with our Raleigh office serving as a regional design center for WTP work on the east coast. We have engineered over 1.2 billion-gallons-per day (gpd) in WTP design and improvement projects throughout the region, including over 40 WTPs in the Carolinas, with commissioning and plant startups for 25 WTPs by our in-house operations and maintenance (O&M) staff. **Our North Carolina staff have assisted dozens of municipalities with water supply assessments, WTP improvements, expansions, and evaluations, and have designed 17 major WTP expansions (>10-mgd) and new greenfield WTPs in North Carolina alone, an accomplishment that is unmatched by any consulting firm in our state.** Locally, we have assisted the City of Asheville with raw water supply assessments. Per the write-up on the following page, we have also partnered with the State of South Carolina to quantify reliable yields in the Broad and Edisto River Basins.

Proudly Serving Our  
North Carolina Customers  
— STATEWIDE —



One firm provides lasting and  
integrated solutions to our clients  
— WORLDWIDE —



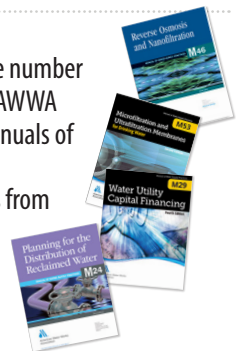
## INDUSTRY LEADER



**2,500<sup>+</sup>** WTP projects with plants ranging from 1- to 2,020 mgd

**ENR**  
Engineering News-Record  
**ranked 4<sup>th</sup>**  
of the **Top 20 Water Engineering Firms**  
in 2022

**16** The number of AWWA Manuals of Practice with contributions from CDM Smith



**36<sup>+</sup>**  
National drinking water awards for engineering excellence since 1990 from ACEC and AAE



**REGIONAL DESIGN CENTER**  
in the Carolinas, offering local & direct access to nearly **150+** professionals located in our NC offices

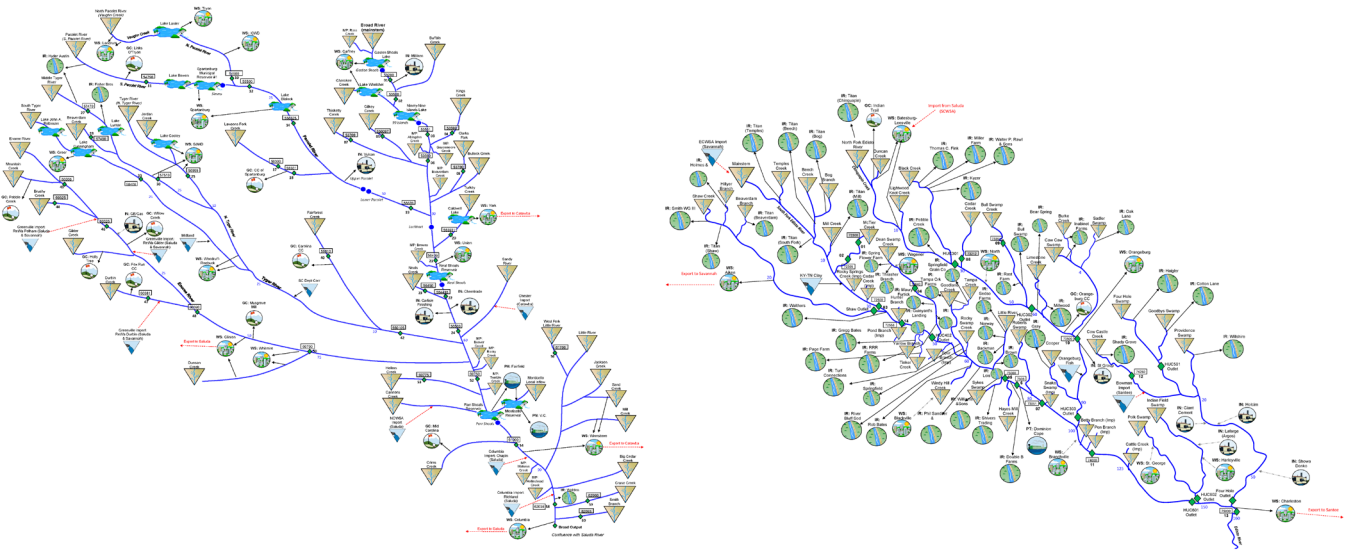


## South Carolina Surface Water Modeling Development and Application

Since 2014, CDM Smith has been working with the state of South Carolina, public water suppliers, energy companies, environmental and agricultural interests, and other stakeholders to support water supply planning and water resources management in each of the state's eight river basins. CDM Smith developed and calibrated eight different water quantity models using the CDM Smith-developed Simplified Water Allocation Model (SWAM). The models have been, and continue to be used by CDM Smith, the South Carolina Department of Health and Environmental Control, and others to identify reliable yield of streams, rivers, and reservoirs, evaluate drought management options, test water management strategies, and support water withdraw permitting decisions.

To support the state's ongoing river basin planning process, CDM Smith is working with public water suppliers and other stakeholders in the Edisto and Broad River basins to quantify reliable yield over a 50-year planning horizon. Both moderate and high growth water demand scenarios are being evaluated. Scenarios are also being conducted to examine the cumulative impact to the basin's water resources assuming surface water withdrawals at fully permitted and registered amounts. Some of the public water suppliers in these two basins, and for which reliable yield is being addressed, are listed below.

- ▶ City of Aiken
- ▶ Town of Batesburg-Leesville
- ▶ Charleston Water System
- ▶ Town of Clinton
- ▶ City of Columbia
- ▶ City of Gaffney
- ▶ Greer Commission of Public Works
- ▶ City of Landrum
- ▶ Orangeburg Department of Public Utilities
- ▶ Spartanburg Water System
- ▶ Startex-Jackson-Wellford-Duncan Water District
- ▶ City of Union
- ▶ Town of Winnsboro
- ▶ City of York



*CDM Smith's Surface Water Quantity Models of the Broad (left) and Edisto (right) River Basins.*




## A Sampling of CDM Smith's North Carolina WTP Planning, Design, Improvements & Expansion Experience

**1**

**Mills River WTP | Asheville, NC**

CDM Smith designed a new 7.5-mgd conventional surface WTP, including rapid mix, sed-floc, and dual-media filtration. Design also included ozone biofiltration and chloramination. Facility included architectural details on a campus layout, including a new laboratory and administrative buildings. Design components included electrical, backup generators, SCADA, clearwells, high-service pump station, raw-water impoundment, transmission mains, chemical systems, and sludge lagoons.



**2**

**Yadkin WTP and Finished Water Infrastructure Progressive Design-Build | Union County, NC**

CDM Smith is the design-builder for a new, green-field WTP in Union County as part of the Yadkin Regional Water Supply project. The WTP construction consists of a 13-mgd conventional treatment plant with site master planning for future production capacity up to 39-mgd and considerations for future advanced treatment technologies. The project will use natural topography to optimize plant hydraulics (i.e., saving energy) and balance rock removal and earthwork. CDM Smith is designing all aspects of the plant, including rapid mix, conventional 3-stage flocculation, sedimentation with inclined plate settlers and hoseless sludge collection, filtration with granular activated carbon, transfer pumping, finished water storage, finished water pumping, and chemical feed systems.



**3**

**Cary/Apex WTP (CAWTP) | Town of Cary, NC**

CDM Smith has been supporting the CAWTP since the late 1990s, when the Town retained CDM Smith to expand the CAWTP from 16 mgd to 40 mgd. The CAWTP received the National Award of Excellence from the Partnership for Safe Water and the Martin Black Partnering Award. We are currently in the study phase of the plant's Phase 3A Improvements with biofiltration, clearwell expansion, and miscellaneous upgrades. Improvements include PAC in HRCs, ozone, and a baffled clearwell for THM control; evaluations and testing of DBPs and TOC; new additional clearwell with 6 MG capacity; development of an O&M manual; and O&M training and startup assistance.



**4**


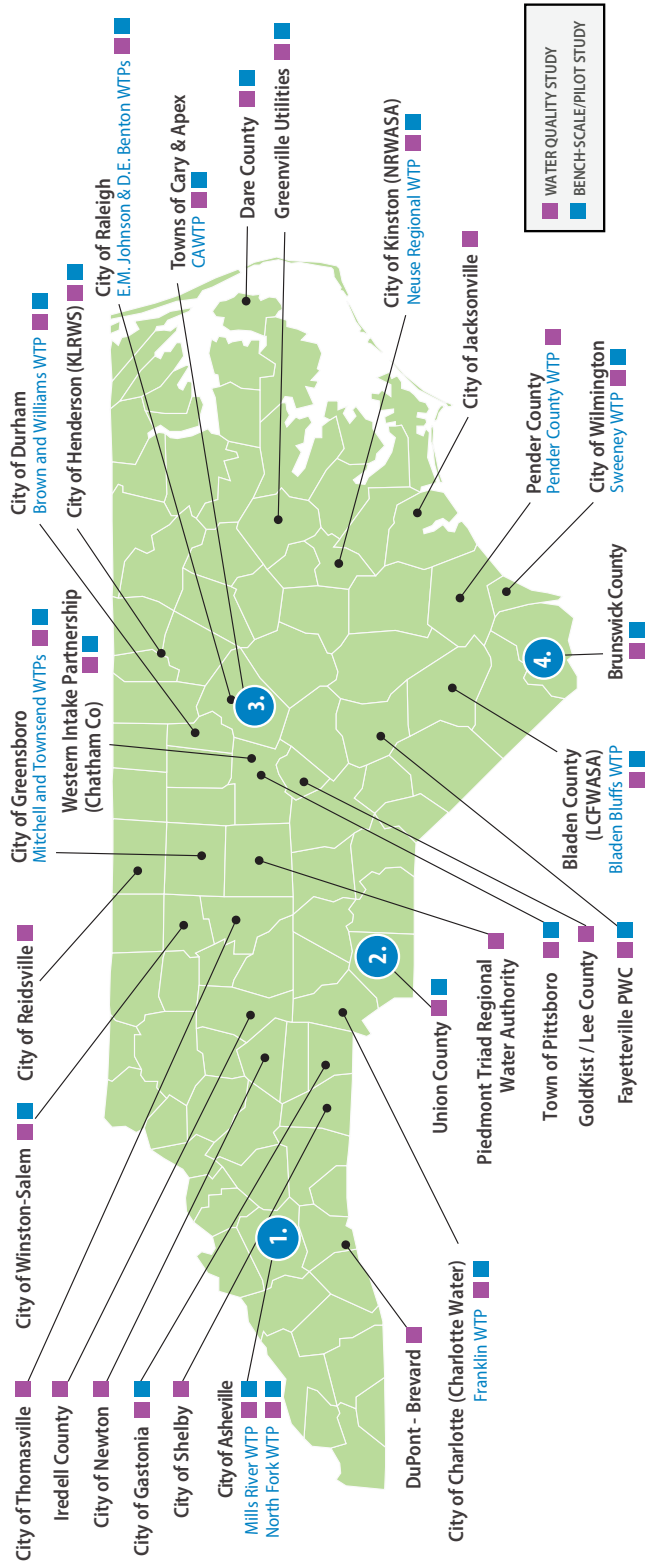
**Northwest WTP Expansion and Upgrades | Brunswick County, NC**

Brunswick County retained CDM Smith for a water treatment evaluation study that ultimately led to our design of the Northwest WTP expansion and water treatment process upgrades to address water quality concerns in the Cape Fear River. The project provides advanced treatment for removal of many contaminants, including per- and polyfluoroalkyl-compounds (PFAS), such as GenX, from the source water, as well as expands the capacity of the drinking water facility from 24 mgd to 48 mgd. CDM Smith conducted pilot testing to evaluate treatment improvements to address variable raw water quality, a treatment alternatives analysis, and a conceptual design phase for the improvements within two months. CDM Smith's design included 36 mgd of low-pressure reverse osmosis (LPRO) for removal of emerging contaminants, as well as Superpulsator upflow-clarification.



**Brown and Williams WTPs | City of Durham, NC**

CDM Smith has designed and provided construction services for multiple WTP improvements for the City of Durham since the 1980s, including the Brown WTP expansion to 30 mgd, and the recent residuals improvements for the Brown WTP (42 mgd) and Williams WTP (22 mgd). Work has also included master planning for each WTP and pilot studies for evaluating treatment options. The residual improvements at both WTPs are currently in construction. Design included significant architectural work to meet the requirements of the Durham Historic Preservation Commission.

**Neuse Regional WTP | Kinston, NC**

CDM Smith designed and provided construction and start-up services for the 15-mgd WTP with administration and chemical buildings. The project included bench- and pilot-testing, GAC, and CT for Trihalomethane (THM) control, two 2-MG prestressed concrete clearwells, 30-MG raw-water impoundment, 30-mgd raw-water intake, and a raw-water and high-service pump station. CDM Smith helped secure over \$41M in grants and loans, and \$142M in total overall funding, including SRF loans. The project was awarded the ACEC/NC Grand Award in 2009.




**Bladen Bluffs WTP | Bladen County, NC**

CDM Smith designed and provided construction and start-up services for the new 6-mgd conventional surface WTP, expandable to 30 mgd. Project included site and facilities development, 30-mgd raw-water pump station, raw-water impoundment, sed-floc treatment trains, chemical facilities, finished water pumping and storage, post-filter GAC contactors and dual-media filters, and residuals treatment/disposal. Facilities included lab, offices, training and maintenance, and electrical and SCADA upgrades.



**Mitchell and Townsend | WTPs Greensboro, NC**

CDM Smith designed critical WTP improvements for the City of Greensboro's facilities, including the Mitchell WTP (24 mgd) and the Townsend WTP (30 mgd). Improvements have included 1-MG new baffled clearwell, raw waterline replacements, plant hydraulics and operational control, SCADA improvements, and high-service pump station improvements. Current projects include improvements design for residuals treatment and dewatering, backwash treatment, and a new lagoon.



**Pender County WTP | Pender County, NC**

CDM Smith designed and provided construction/start-up for the 6-mgd conventional surface WTP, including total site and facilities development, sed-floc treatment trains, chemical facilities, water pumping and storage, post-filter GAC contactors, and dual-media filters. Included lab, offices, training and maintenance facilities, electrical supply, standby power, and SCADA system setup and programming.



**Sweeney WTP | Wilmington, NC**

CDM Smith provided DB operations of pilot facilities and then design and provided construction services for a 10-mgd addition with HRCs (superpulsators), granular-activated carbon (GAC)/sand filters, ozone, chemical facilities, high-service pumping, standby power, and administrative facility upgrades. Bench- and pilot-testing included DBP/THM control optimization.







## ATTACHMENT A - SCOPE OF SERVICES

### Reliable Yield Study for the Ivy River Water Intake

for

THE TOWN OF WEAVERVILLE

October 2022

#### Study Objectives

The primary objective of the study is to evaluate the reliable yield associated with the Ivy River water intake for the Town of Weaverville (the Town). CDM Smith (Consultant) understands that the Town has a current permitted water treatment plant (WTP) capacity of 1.5 million gallons per day (MGD) and is considering an expansion of the WTP to 3.0 MGD.

For the purposes of this study, reliable yield is defined as the expected minimum available flow at the intake location during critical drought conditions and in consideration of current upstream water use and environmental flow requirements (if applicable). For this study, the environmental flow requirements are 20 percent of the 7Q10 flow. The NCDEQ Local Water Supply Plan guidance suggests the use of 20 percent of the 7Q10 as the safe (or reliable) yield when no instream flow study is available.

A secondary objective of the study is to quantify the reliable yield for an alternative water use or management scenario, reflecting potential future conditions. Such scenarios might include future demand projections for a specific planning horizon, the implementation of alternative hypothetical minimum instream flow requirements, and/or climate change considerations.

#### Scope of Services

##### Task 1 – Project Management, Meetings and Quality Control

Consultant will perform activities involved with the planning and subsequent monitoring and control of the Project. Consultant will undertake quality control activities in accordance with the Consultant's Quality Management System (QMS) that include monthly Project status reporting and independent specialist reviews. Consultant will provide monthly invoices with progress reports.

Consultant will conduct two meetings with Town staff to collect data, receive staff input, discuss progress, and present Project findings. These meetings are anticipated to occur at Project kickoff and upon completion of Task 4.

##### Task 2 – Data Collection and Analysis

Consultant will collect and analyze data necessary to perform the reliable yield modeling. Data needed to complete the project, and the sources of data are listed below:

**From the USGS:**

- Daily river flows at USGS gage 03453000 (Ivy River near Marshall, NC). Consultant will download the data from the USGS National Water Information System website. Daily flow data is available from April 1934 to present.

**From the Town:**

- Location (coordinates) of the Town’s water supply intake.
- Amount of offline storage available (if any, either at the intake site or within the plant).
- Configuration of the intake (i.e., is there a minimum flow or elevation needed to draw water, and/or any low-head structure to help maintain adequate head).
- Ivy River watershed delineation (area) upstream of the water supply intake if available. If not available, Consultant will use the USGS StreamStats application to delineate the watershed.

**From Town’s Local Water Supply Plan (LWSP) filed with NCDEQ, or as provided by the Town, if different than in the most recently filed LWSP:**

- Current monthly water demands.
- Water demand projections by decade through 2070 or other planning horizon defined by the Town.

**From NCDEQ:**

- Estimates of any other historical and planned future withdraws or discharges on the Ivy River (if any).

**Task 3 – Reliable Yield Modeling**

Consultants Simplified Water Allocation Model (SWAM) will be used to construct a hydrologic water supply model of the Ivy River. SWAM is a generalized water allocation and water supply modeling platform that is designed to be easy-to-use for a wide range of potential end users. It allows for efficient construction, visualization, and application of water supply system models at a local or river basin scale. For this study, the constructed model will simulate the hydrology of the Ivy River from headwaters to USGS gage 03453000 (Ivy River near Marshall, NC) and including explicit representation of the Town’s intake.

The model will be run using current conditions (current withdrawals and discharges) to determine the reliable yield at the intake location. In addition to a baseline simulation of current conditions, the constructed and calibrated model will be used to simulate up to three (3) future demand, and/or water management scenarios associated with specific planning horizons. Demand projections to be used in the planning scenarios will be developed in consultation with the Town.



## **Task 4 – Incorporating Future Climate Projections**

Non-stationary climate projections will be used to modify the baseline hydrology in the model to better represent a range of plausible future climate conditions in the Ivy River watershed. Under this task, site-specific published climate model projections will be used to modify the baseline hydrologic record to better reflect projected future climate conditions (precipitation and temperature) in the Ivy River watershed. Projections will be made for a specified future planning horizon. Projections will be used to modify the baseline hydrologic record using industry standard published methods, with recognition of climate model projection uncertainties. Output from this task will include modeled riverine reliable yields for a future planning horizon given a set of plausible climate futures.

A draft and final technical memo (TM) summarizing the methodology and results of Tasks 3 and 4 will be developed. The Town will have the opportunity to review and comment on the draft memo. Consultant will incorporate any comments and submit a final TM.

## **Schedule**

CDM Smith will complete the Draft Tasks 3 and 4 TM within 5 weeks after receiving the signed authorization and all requested data from the Town. The Final TM will be submitted 2 weeks following receipt of comments from the Town.

## **Compensation**

CDM Smith will perform Tasks 1 through 4 for a lump sum amount of \$29,800. Invoices will be submitted monthly.

## **Assumptions and Conditions**

- The first meeting with the Town will be conducted via teleconference at the outset of the project to review the scope and collect and clarify data needs.
- The second meeting with the Town will be conducted at the Town's office, following the completion of Tasks 3 and 4, following the Draft TM submission.
- Should the scope of work change based on the Town's request, CDM Smith reserves the right to submit a new task order commensurate with the changes in the scope of work.
- Climate projections for runoff are available in downscaled form for the region and easily accessed.

**Budget Amendment FY 2022-2023**

**Town of Weaverville**

What expense accounts are to be increased?

<u>Account</u>	<u>Account Description</u>	<u>Transfer Amount</u>
030-700-711-19000	Water Admin - Professional Svcs	\$29,800.00

What expense account(s) are to be decreased or additional revenue expected to offset expense?

<u>Account</u>	<u>Account Description</u>	<u>Transfer Amount</u>
030-004-310-09900	Appropriated Fund Bal (Water)	\$29,800.00

**Justification:** Please provide a brief justification for this budget amendment. *Water Supply Reliable Yield Study to be performed by the engineering firm CDM Smith.*

_____ <b>Authorized by Finance Officer</b>	_____ <b>Date</b>
_____ <b>Authorized by Town Manager</b>	_____ <b>Date</b>
_____ <b>Authorized by Town Council (if applicable)</b>	_____ <b>Date</b>

Budget Ordinance Section 7:

- B. The Budget Officer or his/her designee is hereby authorized to distribute departmental funds based upon the line item budgets and make expenditures therefrom, in accordance with the Local Government Budget and Fiscal Control Act.
- C. The Budget Officer or his/her designee may authorize transfers between line items, expenditures and revenues, within a department or division without limitation and without a report being required.
- D. The Budget Officer or his/her designee may transfer amounts up to 5%, but not to exceed \$10,000 monthly, between departments, including contingency appropriations, but only within the same fund. The Budget Officer must make an official report on such transfers at a subsequent regular meeting of Town Council.
- E. The Budget Officer or his/her designee may not transfer any amounts between funds, except as approved by Town Council, as a budget amendment.