

New Water Infrastructure *to Supply* Union County



Currently, Union County obtains 80% of their water capacity from the Catawba River Water Treatment Plant (CRWTP), through a partnership with Lancaster Water and Sewer. Union County also has contractual arrangements with Anson County, to supply up to 4 MGD through a transmission pipeline and an interconnect that they have on the eastern side of the county. Additionally, Union County has several interconnects with Charlotte Water that can be utilized on an emergency basis. But within six months, Union County expects to have a new water treatment plant in operation, thanks to a project that John Shutak, Engineering Division Director for Union County, says started as a concept 18 or 19 years ago.

"The original idea is old enough to vote, is a good way of thinking about it," says Shutak.

The project is actually much more than just the water plant. It consists of an intake and a pump station at Lake Tillery, 30 miles of raw water pipeline (to supply the raw water to the treatment plant), and 10 miles of finished water transmission main. It is a substantial undertaking, which John says is actually two projects: One project is the raw water infrastructure, which is everything at the lake, including the pump station, the intake, and the raw water pipeline. The other project is the water treatment plant and the finished water transmission pipeline.

The project has taken years and many steps along the way. It proceeded through the initial concepts and made its way to master planning documents between 2004 and 2011. By 2011, Union County started looking for regional partners. The need for a regional partner is due to the fact that Union County doesn't have an identified water source within its boundaries. By 2013, Union County had finalized an agreement with the Town of Norwood and started the environmental work for the project, including the environmental impact statement and environmental assessment. Shutak says Union County looked at a dozen alternatives. "The option to pull water from Lake Tillery was found to be the least impactful, all the way around," said Shutak.

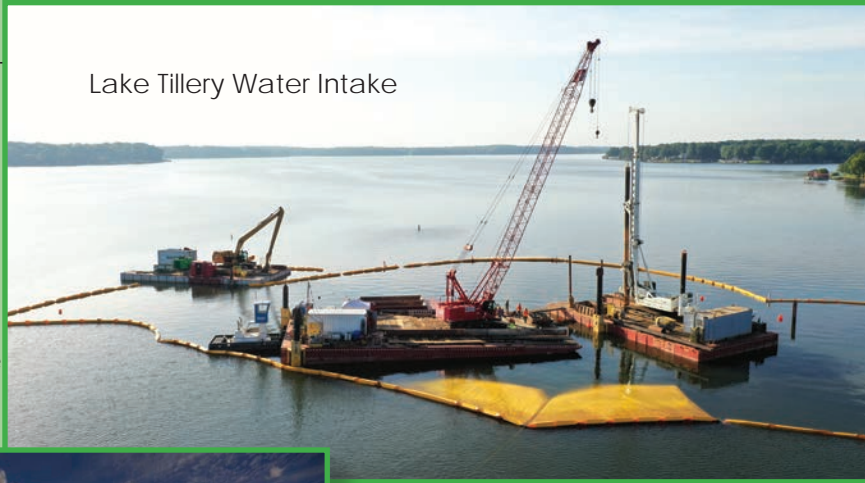
In 2015, shortly after the environmental studies were completed, Union County started the process of obtaining an interbasin transfer (IBT) permit from the State. The permit was issued by the State in 2017. From there, Shutak says, "we were able to move forward with selecting design build teams in 2018, and then progressing through the initial design into early 2020, and starting construction at the end of 2020, beginning of 2021. So, when you look at the project timeline, the vast majority of it is the concept phase through the big-picture permitting. That's about 75% of the timeline, and only about 25% of it is in the actual design and construction." Now the construction is more than 80% complete, and expected to go into operation in July or August of this year.

Union County is paying for the entire cost of construction through the issuance of approximately \$300 million in revenue bonds. However, the Town of Norwood benefits from the project as well.

“Basically, Norwood gets brand new infrastructure. They have an existing intake on Lake Tillery but that intake facility is very old, so they get a brand-new facility, capable of pulling plenty of water out of the lake, for their current and future needs,” said Shutak. “In addition, Stanly County will have access to up to 1.5 MG, through the Town of Norwood. That raw water facility is sized so that Norwood can pull not only what they need, but what Stanly County might need in the future, as well.”

When the water plant is in operation, it will not

Lake Tillery Water Intake



Intake Rendering

way 74 area and the associated Monroe Bypass.

“There’s a significant portion of the county that does have very dense development in the Yadkin Basin, but as you move further to the east in the County, land use is primarily agricultural,” said Shutak. “This project

will serve current and future residents, businesses, and institutions in the Yadkin Basin. Union County has grown steadily over time and we expect that trend to continue into the future.”

Staffing for Union County increased by 11 personnel, due to the project. This number includes the plant operators, laboratory, maintenance, instrumentation and controls personnel, and utility operators.

“We had to account not only for the operation of the water treatment plant and intake but the addition of 40 miles of pipeline and related appurtenances we will need to operate and maintain,” Shutak explained.

In times of normal operations, the two plants (Catawba and Yadkin) will supply different areas of Union County, but the capability exists for one plant to supply the other’s area, if one plant has to go offline. The Catawba plant has a 42-inch pipeline that leaves the plant and the Yadkin plant will have a 36-inch line that leaves the plant and those pipes do ultimately connect to each other, basically creating what John calls a “water superhighway” between the two facilities.

In addition to the project being beneficial, John believes the project is unique.

“It’s the largest Infrastructure project Union County has ever undertaken and it will be the first water treatment plant Union County will own and operate,” said Shutak. “Another first is Union County’s use of the progressive design-build delivery method for the project. So, we’ve broken ground on a number of firsts: the first treatment facility we’ll own, the largest project that we’ve ever done, and it’s the first one that we delivered via integrated delivery. I find those things to be truly unique about the project.”



Rocky River Crossing

be run 24 hours a day initially. The water plant will be operated in 12-hour shifts. Initial capacity of the plant is 12 MGD, with conventional treatment (rapid mix, flocculators and sedimentation basins, four filters, 1.5 MGD finished water storage). But Shutak says the site can be expanded.

“That initial footprint can be mirrored a total of three times on the front side of the property, so we’ve got the ability to expand and we can go through the first expansion, so that we can double the plant’s capacity, without having to revisit the IBT or expand the electrical or chemical buildings,” said Shutak. “The initial phase is planned to meet projected demands into the next decade. Expansions of the water treatment plant will be undertaken based on population growth and system demand.”

The current population of Union County is approaching a quarter of a million. Union County is split between the Catawba River Basin and the Yadkin River Basin. The area in the Catawba River Basin tends to be more densely populated than the area in the Yadkin Basin, but the Yadkin area serves the main transportation corridor, including the High-