



FINDING OF NO SIGNIFICANT IMPACT
Approval of Facilities Plan
City of Clifton (Wayne County), Tennessee
Water Infrastructure Improvements for the Nation (WIIN) Grant Recipient 2020
February 22, 2024

The National Environmental Policy Act requires federally designated agencies to determine whether a proposed major agency action will significantly affect the environment. One such major action, defined by the Safe Drinking Water Act (SDWA), is the approval of a facilities plan prepared pursuant to EPA 816-R-97-005, Final Guidelines. In making this determination, the State Revolving Fund Loan Program assumes that all facilities and actions recommended by the plan will be implemented. The State's analysis concludes that implementing the plan will not significantly affect the environment; accordingly, the State Revolving Fund (SRF) Loan Program is issuing this Finding of No Significant Impact (FNSI) for public review.

The City of Clifton has completed the facilities plan entitled "Facilities Planning Document – 2019 Water System Improvements" dated September 2020. The facilities plan provides recommendations to replace the existing drinking water plant facility serving the City of Clifton (Wayne County). The project will consist of the construction of a 1.5 million gallon per day (MGD) water treatment plant (WTP) capable of expansion to 3.0 MGD; a 3.0 MGD raw water intake on the Tennessee River; and the installation of approximately 2,500 linear feet of water line from the raw water intake to the WTP. The total estimated project cost is \$20,778,800. The City of Clifton was awarded a Water Infrastructure Investment for the Nation (WIIN) Grant through the Drinking Water State Revolving Fund Loan program of \$707,500 for the planning and design of the water treatment facility. The City of Clifton intends to apply for a construction loan from the SRF Loan Program for the construction of the project.

Attached is an Environmental Assessment containing detailed information supporting this action. Comments supporting or disagreeing with this proposed action received within 30 days of the date of this FNSI will be evaluated before we make a final decision to proceed.

If you wish to comment or to challenge this FNSI, send your written comment(s) to:

Mr. Randy Anglin, P.E.
Division of Water Resources, State Revolving Fund Loan Program
William R. Snodgrass TN Tower, 12th Floor
312 Rosa L. Parks Avenue, Nashville, TN 37243
or call or e-mail (615) 961-5896 or randy.anglin@tn.gov

A. PROPOSED FACILITIES AND ACTIONS; FUNDING STATUS

The City of Clifton has completed the facilities plan entitled "Facilities Planning Document – 2019 Water System Improvements" dated September 2020. The facilities plan provides recommendations to replace the existing drinking water plant facility serving the City of Clifton (Wayne County). The project will consist of the construction of a 1.5 million gallon per day (MGD) water treatment plant (WTP) capable of expansion to 3.0 MGD; a 3.0 MGD raw water intake on the Tennessee River; and the installation of approximately 2,500 linear feet of water line from the raw water intake to the WTP. The City of Clifton's Planning Area is shown on Figure 1 and the project location is indicated on Figure 2 of this Environmental Assessment.

FUNDING STATUS

The facilities described above comprise the scope of the Water Infrastructure Improvements for the Nation (WIIN) Grant planning and design project Agency Tracking No. 32701-03995 awarded on May 1, 2020. The estimated planning and design costs are summarized in the following tabulation:

<u>PROJECT CLASSIFICATIONS</u>	<u>COSTS (\$)</u>
Administrative & Legal	22,500
Land Costs & Appraisals Surveying	30,000
Planning Fees	35,000
Design Fees	450,000
Engineering Basic Fees	30,000
Other Engineering Fees	140,000
TOTAL	707,500
DWSRF WIIN Grant	707,500

This planning and design project was funded with a \$707,500 WIIN Grant. The City of Clifton intends to request a DWSRF construction loan from DWSRF for the construction phase of the project.

B. EXISTING ENVIRONMENT

The City of Clifton's Planning Area is located in Wayne County in the southwestern part of Tennessee. Existing environmental features are described below:

SURFACE WATERS

The Clifton Planning Area lies entirely within the Tennessee River Watershed. The City of Clifton is on the banks of the Tennessee River and it is the predominate hydrologic feature. The Tennessee River is located north of the City and forms a physical boundary between Wayne and Decatur County. Other waterways in the area include Roach Creek, Buckeye Branch, Ross Creek and Parker Branch. All tributaries drain to the Tennessee River.

Stream use classifications for the Tennessee River include industrial water supply, fish and aquatic life, recreation, livestock watering and wildlife, and irrigation. Stream use classifications for Roach

Creek, Buckeye Branch, Ross Creek, Eagle Creek and Parker Branch are fish and aquatic life, recreation, livestock watering and wildlife, and irrigation.

Municipal water supplies in Wayne county are obtained from surface stream impoundments and the Tennessee River. The City of Clifton's WTP withdraws water from the Tennessee River. Additionally, the City of Clifton owns and operates a wastewater treatment plant (WWTP). Treated effluent from the City's WWTP is discharged at River Mile 157.2 of the Tennessee River

GROUNDWATER

Groundwater within Clifton's Planning Area occurs in primary openings in gravel and sandstone. No large supplies of potable water are obtained from wells. Water supplies for domestic and stock use in Wayne County are usually from dug wells less than 100 feet deep, in the residual clay material. Springs supply water to most of the rural population lying outside of municipal water service. Dug wells, which are not uncommon in areas underlain by thick cherty residual clay, yield small quantities of water and often go dry during drought periods. The chemical quality of the groundwater in Wayne County is generally good.

SOILS

Soils in the planning area consist entirely of the Braxton-Talbott complex. These soils lie on moderate slopes of 5-15% to significant slopes of 15-35%. The typical Braxton-Talbot profile found on hilltops consists of a gravelly silt loam that is well drained and overlies a clay residuum weathered from limestone bedrock. Hillslopes exhibit a similar profile. This soils group is rarely flooded, well drained, and has no hydric soil rating. Continuing north of the complex there are zones of the Lindell series, a silty loam lying on more gentle slopes as the hillside falls towards the Tennessee River.

Further north, as the river approaches, the Pickwick silt loams reemerge and include silty clay loams of the Pickwick series where hillslopes become moderately steep.

Soils found on hillslopes dipping gently away to the west and southwest at a 0-2% slope from the WTP, are three flooded soils series comprising the Lee, which are gravelly silt loams, the silty loam Lindell series, and the Wolftever silt loam. This is also the zone of the new WTP intake line.

Moderate steep slopes falling away to the south host another suite of soils. Directly south of the Braxton-Talbott soils series found at the WTP site, the Pickwick silt loam lies on gently to steeply sloping hillsides and is followed by the Barfield complex, a steeply sloping rock outcrop. Minor amounts of the Armour silt loam can be found south and southeast on gentle slopes.

East of the new WTP site the Talbott silt loam soils dominate steeply sloping rocky hillsides.

TOPOGRAPHY

The City of Clifton is in the Western Highland Rim Physiographic Province, which is dissected by numerous streams and valleys. The topography is typically hilly with slopes varying from nearly level to very steep. The topographic surface is approximately 400 feet above mean sea level.

OTHER ENVIRONMENTAL FEATURES

No wild or scenic rivers or unique agricultural, scientific, cultural, ecological, or natural areas were identified in the City of Clifton's Planning Area.

C. EXISTING WATER FACILITIES

The City of Clifton owns and operates a 0.9 MGD WTP that is operating at reduced capacity. Raw water is obtained from two casing pipes which each house a submersible pump on two independent pier structures in the Tennessee River. The WTP was constructed in 1989 and expanded in 2001. The WTP consists of three package treatment units each designed to treat 200 gallon per minute (gpm). Each unit contains a flocculation chamber, a sedimentation basin with tube settlers, and a multimedia gravity filter. Finished water is discharged into one of two clearwell basins. The current average daily demand for the City of Clifton is .451 MGD. The WTP currently operates 22 hours a day at reduced capacity in order to meet this demand.

The City of Clifton's distribution system consists of approximately thirty miles of 2 inch through 12 inch mixture of polyvinyl chloride and ductile iron waterlines. There are two water storage tanks: one 65,000 gallon ground storage tank (referred to as the Ross Creek Tank) and one 500,000 gallon ground storage tank (referred to as the City Tank). There are three booster pump stations in the distribution system. West Pillow Street pump station is rated at 100 gpm, South Central Correction Center pump station at 185 gpm and Ross Creek rated at 300 gpm. This system has the capability to supply water to the entities of the City of Clifton, the City of Waynesboro, the City of Collinwood, and Wayne County Water System.

D. NEED FOR PROPOSED FACILITIES AND ACTIONS

The WTP was initially constructed over thirty years ago and is well beyond its useful life and unable to operate at its designed capacity. Raw water from the Tennessee River is highly turbid. The decrease in capacity is directly related to excessive turbidity levels (greater than 1.0 ntu) reaching the mixed media gravity filters. Due to flocculation and settling inefficiencies, water production at the WTP must be halted regularly to backwash filters. The current filtration system is required to be backwashed an average of three times per day equating to 127,575 gallons of finished water wasted each day. Additionally, the existing system has been unable to consistently meet state permit requirements. Clifton has experimented with different operational methods to optimize plant production including higher dosages of coagulant, addition of granular activated carbon, complete media replacement, and increased filter backwash times. All these methods have not resulted in permanent solutions. Frequent backwash cycles reduce the amount of potable water that can be pumped into the distribution system. Clifton is nearing a point to where the WTP will have to operate 24 hours a day to meet existing customer demand. Unless improvements are made to the treatment process, Clifton will not be able to supply safe and reliable drinking water to its customers.

A study conducted for the U.S. Army Corps of Engineers in July 2013 (Southwest Highland Rim Water Supply Study: Phase1. Wayne County, Tennessee) projected future demand and reliable water yield for all of Wayne County including Waynesboro, Collinwood, Clifton and County water users. The projections show that Wayne County will have both a treatment and yield deficit by the year 2035. A recommendation to the County's future water inadequacies was for Clifton to become the regional water supplier. The City of Clifton is the only entity that is projected to have both adequate treatment and yield capacity to be self-sufficient. With proper design of a new WTP and intake structure, Clifton will have the ability and capacity to treat water for the entire County. A new intake is necessary to accommodate the need for additional capacity. In addition, the pumps housed in each casing pipe

experience frequent motor failure and access to the existing pumps for maintenance / repair is extremely difficult with no steps or platforms in place for safe access.

Therefore, the City of Clifton must take action to construct a new WTP and associated raw water intake to protect the public health and potentially supply both Clifton and the remainder of Wayne County.

Existing and projected facility conditions are shown on the following chart:

<u>EXISTING AND PROJECTED FACILITY CONDITIONS</u>		
<u>POPULATION</u>	<u>EXISTING (2024)</u>	<u>PROJECTED (2044)</u>
City of Clifton	2,651	2,705
Percent Served	100%	100%
Planning Area Excluding City of Clifton	19,447	19,840
Percent Served	18%	37%
Total Planning Area	22,098	22,545
Percent Served	28%	45%
<u>WATER NEEDS (MGD)</u>	<u>EXISTING Average Demand (2024)</u>	<u>PROJECTED Peak Demand (2044)</u>
	1,078,975	2,490,000

E. ALTERNATIVES ANALYSIS

Several alternatives were evaluated in the facilities plan entitled "Facilities Planning Document – 2019 Water System Improvements" dated September 2020. Treatment capacity for all alternatives considered will be an initial 1.5 MGD with room for future expansion to 3.0 MGD. Discussions of the evaluation of these alternatives and the recommended plan are following:

NO-ACTION

The "No-action" approach was not a viable alternative. The existing facility cannot produce additional water and consistently meet current permit requirements. Therefore, this alternative is rejected.

REHABILITATING AND EXPANDING THE EXISTING WTP

This alternative would consist of rehabilitation and expansion of the existing WTP and include new package treatment units and expansion of both the clearwell and backwash basins. A new pre-sedimentation basin would also be required. This alternative would involve using temporary treatment units to supply potable water while the WTP is being modified. The additional space to expand both the clearwell and backwash basins and bring in temporary treatment units is not available at the current site. This alternative would also require modifications to the existing WTP to make it compatible with the new systems and a new raw water intake to address inadequacies in the existing intake. This alternative is not the most cost-effective and is rejected.

NEW WTP WITH GRAVITY FILTER TREATMENT AND NEW RAW WATER INTAKE

This alternative would consist of a conventional 1.5 MGD water treatment plant utilizing flash mix, flocculation and sedimentation basins for pre-treatment on a new site the City has purchased. From pre-treatment, raw water will pass through new gravity filters. Once treated, finished water will gravity fill an underground clearwell, for distribution with new high service pumps. A new backwash lagoon will also be provided. The WTP building treatment area will be designed to accommodate future treatment expansion to 3.0 MGD.

In addition to the new water treatment plant, a new raw water intake will be necessary to address the hydraulic deficiencies and inaccessibility of the existing intake. The proposed site will be easily accessible for both construction and future operation/maintenance. The proposed intake will, utilize caisson pipe installed down the embankment of the Tennessee River supported by piers. Submersible turbine pumps will be inserted in the caisson pipe with rollers, drawing water in through a screen equipped with air scouring cleaning system. Raw water will pass through a valve vault and be pumped directly to the new WTP. A new 12-inch diameter raw water line approximately 2,500 linear feet in length will be required from the new intake to the proposed WTP site.

This alternative is advantageous for many reasons which include ensuring adequate detention time for raw water before passing through the gravity filters, no disruption to the existing WTP while construction activities occur and suitable space is available for expansion of critical facilities such as the clearwell and backwash basin without the need to purchase additional property. This option has construction and annual operating costs higher than the option of a new WTP with membrane filter treatment and new raw water intake as well as being less flexible in its operations. Therefore, this alternative is not the most cost-effective and is rejected.

NEW WTP WITH MEMBRANE FILTER TREATMENT AND NEW RAW WATER INTAKE

This alternative is a new membrane filter WTP that will be rated for 1.5 MGD with expansion to 3.0 MGD on a new site the City has purchased. The proposed components of the new WTP will help to meet demand, expansion requirements, and comply with turbidity requirements. It will also require less frequent backwashing and lower personnel and energy costs. It will include a treatment train with flash mixing, flocculation and a sediment basin followed by membrane filtration utilizing micro-filtration technology. A new clearwell, high service pumps and a backwash lagoon will also be provided. This will also include the construction of a new raw water intake on the Tennessee River and 2,500 linear feet of 12-inch diameter new raw waterline will be installed as described in the previous alternative. The new WTP will require less backwashing and will be able to provide finished water with reduced chemical costs and is more easily expanded as water demands increase. This is the most cost-effective alternative for the project and is selected.

F. ENVIRONMENTAL CONSEQUENCES; MITIGATIVE MEASURES

The environmental benefits of this project will be the reduction of energy usage; meet current drinking water standards; and the provision of customers with a safe and dependable supply of drinking water.

During the construction phase, short-term environmental impacts due to noise, dust, mud, disruption of traffic, runoff of silt with rainfall, etc., are unavoidable. Minimization of these impacts will be required; however, many of these minimization measures will only be temporary. Using the following measures to prevent erosion will minimize impacts on the environment:

1. Specifications will include temporary and permanent measures to be used for controlling erosion and sediment.

2. Soil or landscaping maintenance procedures will be included in the specifications.
3. The contractor will develop an Erosion Control Plan. It should contain a construction schedule for each temporary and permanent measure controlling erosion and sediment. It should include the location, type, and purpose for each measure and the times when temporary measures will be removed or replaced.

These measures, along with requiring the contractor to return the construction site to as-good-as or better-than its original condition, will prevent any adverse impacts due to erosion.

G. PUBLIC PARTICIPATION; SOURCES CONSULTED

A Public Meeting was held on Monday, October 26, 2020 at 6:00 p.m., local time. The selected plan for a new water treatment and costs associated with all three construction alternatives were described to the public, and their input was received. This agency is not aware of any unresolved public objections that may have been voiced before or after the public meeting regarding this project.

The annual median household income for the City of Clifton is \$46,968. The planning and design project was funded through a WIIN grant. Therefore, no incremental increase in user charges was required.

Sources consulted about this project for information or concurrence were:

1. Tennessee Department of Agriculture
2. Tennessee Department of Economic and Community Development
3. TDEC, Division of Air Pollution Control
4. Tennessee Department of Transportation
5. Tennessee Historical Commission
6. TDEC, Division of Archaeology
7. Tennessee Geological Survey
8. TDEC, Division of Solid Waste Management
9. TDEC, DWR
10. Tennessee Wildlife Resources Agency
11. USACE
12. United States Fish and Wildlife Service
13. City of Clifton
14. Wayne County
15. Hethcoat and Davis Engineers

H. SPECIAL CONDITIONS

The State Revolving Fund loan agreement will have the following special conditions:

1. The City of Clifton shall obtain applicable Section 10/404 Permits from the USACE prior to the approval of the plans and specifications to meet the requirements of wetlands protection and stream-crossing statutes. A letter stating permits are not required will satisfy this condition.
2. The City of Clifton shall obtain applicable ARAPs from the DWR prior to the approval of the plans and specifications.
3. The City of Clifton shall obtain a construction stormwater permit (CGP) from the DWR prior to the approval of plans and specifications.