



Division of Water Resources / State Revolving Fund Loan Program

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FINDING OF NO SIGNIFICANT IMPACT
Approval of Facilities Plan
Chattanooga (Hamilton County), Tennessee
Loan No. SRF 2016-357

March 17, 2016

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 Section 511(c)(1) of the Clean Water Act, is the approval of a facilities plan prepared pursuant to Title VI of the Clean Water Act. In making this determination, the State Revolving Fund (SRF) 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 SRF Loan Program is issuing this Finding of No Significant Impact (FNSI) for public review.

The City of Chattanooga has completed the facilities plan entitled "Facilities Plan, SRF Loan Planning Document for Specified Consent Decree Projects" dated October 29, 2015. The facilities plan provides recommendations for improvements to the wastewater treatment system serving the City of Chattanooga. The proposed project consists of improvements to the Moccasin Bend Wastewater Treatment Plant (WWTP) to include the construction of two new 110 foot diameter circular secondary clarifiers, upgrades to the chlorine contact tank; sanitary sewer evaluation study of approximately 3,150 linear feet (LF) of sewer lines; rehabilitation of approximately 9,800 LF of 36-inch through 72-inch diameter sanitary sewers and manholes; and construction of an 8 million gallon storage tank at the Dupont Pump Station. The total estimated project cost is \$42,500,000. A Clean Water State Revolving Fund loan in the amount of \$42,500,000 has been requested for this project.

Attached is an Environmental Assessment containing detailed information supporting this proposed 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. Sam R. Gaddipati, Environmental Manager
State Revolving Fund Loan Program
Tennessee Department of Environment and Conservation
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 12th Floor
Nashville, Tennessee 37243-1102

or call or e-mail (615) 532-0462 or sam.gaddipati@tn.gov

ENVIRONMENTAL ASSESSMENT

**Chattanooga (Hamilton County), Tennessee
Loan No. SRF 2016-357**

March 17, 2016

A. PROPOSED FACILITIES AND ACTIONS; FUNDING STATUS

The City of Chattanooga has completed the facilities plan entitled "Facilities Plan, SRF Loan Planning Document for Specified Consent Decree Projects" dated October 29, 2015. The facilities plan provides recommendations for improvements to the wastewater treatment system serving the City of Chattanooga. The proposed project consists of improvements to the Moccasin Bend Wastewater Treatment Plant (WWTP) to include the construction of two new 110 foot diameter circular secondary clarifiers, upgrades to the chlorine contact tank; sanitary sewer evaluation study of approximately 3,150 linear feet (LF) of sewer lines; rehabilitation of approximately 9,800 LF of 36-inch through 72-inch diameter sanitary sewers and manholes; and construction of an 8 million gallon storage tank at the Dupont Pump Station. The City of Chattanooga Planning Area is shown on Figure 1 and the project locations are indicated on Figure Nos. 2, 3, and 4 of the Environmental Assessment.

FUNDING STATUS

The facilities described above comprise the scope of Loan No. SRF 2016-357 scheduled for funding in fiscal year 2016. The estimated project costs are summarized in the following tabulation:

<u>PROJECT CLASSIFICATIONS</u>	<u>COSTS (\$)</u>
Planning Fees	626,500
Design Fees	1,437,600
Other Engineering Fees	1,184,350
Resident Inspection	1,008,900
Construction	33,992,650
Contingencies	4,250,000
TOTAL	42,500,000
Clean Water State Revolving Fund (CWSRF)	42,500,000
Loan	

A CWSRF loan in the amount of \$42,500,000 has been requested for this project.

B. EXISTING ENVIRONMENT

The City of Chattanooga’s Planning Area is located in Hamilton County in southeast Tennessee. A discussion of existing environmental features in the area includes the following:

SURFACE WATERS

Surface waters within the Chattanooga Planning Area include the Tennessee River (portions of Chickamauga and Nickajack Lakes); North, South, and East Chickamauga Creek; Friar Branch; Chattanooga Creek; Wolftever Creek; Stringer’s Branch; Soddy Creek; Mountain Creek; Peavine Creek; and Lookout Creek and their tributaries. Designated uses for the Tennessee River include industrial and drinking water supply, fish and aquatic life, recreation, irrigation, livestock watering and wildlife, and navigation. Designated uses for the Chickamauga Creek include industrial water supply, fish and aquatic wildlife. The Tennessee American Water Company supplies drinking water for the City of Chattanooga. Raw water is obtained from a surface water intake on the Tennessee River, upstream of the MBWWTP treated effluent discharge location.

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GROUNDWATER

Groundwater in the Chattanooga Planning Area occurs under shallow unconfined conditions in soil and in fractures and solution cavities in the underlying calcareous rock formations. Wells in the planning area range in depth from 50 to 170 feet and generally provide good quality water with yields up to 50 gallons per minute.

SOILS

The Chattanooga Planning Area lies within the Fullerton-Bodine and Talbot-Rock Outcrop-Etowah Soil Associations. The Fullerton-Bodine Association is characterized by hilly and steep, deep, well-drained, cherty and clayey residuum produced from the weathering of dolomitic limestone. The Talbot-rock Outcrop-Etowah Association is characterized by outcrops of limestone and undulating to hilly, deep to shallow, well-drained, clayey and loamy soils.

TOPOGRAPHY

The Chattanooga Planning Area lies within the Valley and Ridge Physiographic Province. Approximately 40-mile wide province is characterized by a succession of ridges of folded and faulted predominately calcareous Paleozoic-age rocks trending northeast to southwest. Relatively flat valleys of varying width surround the Tennessee River and numerous tributaries and surface streams. Portions of Lookout Mountain, White Oak Mountain, Walden's Ridge, and Elder Mountain overlook the Chattanooga Planning Area. Topographic relief ranges from approximately 600 feet above mean sea level (MSL) in the Tennessee River flood plain to approximately 2,200 feet MSL on Lookout Mountain southwest of downtown Chattanooga.

OTHER ENVIRONMENTAL FEATURES

No wild or scenic rivers exist in the Chattanooga Planning Area. Numerous unique environmental and archaeological areas exist in the Chattanooga Planning Area. However, none are known to exist in the project area and the proposed project will not affect the above mentioned environmental and archeological sites.

C. EXISTING WASTEWATER FACILITIES

The MBWWTP is the only WWTP in the City of Chattanooga's Planning Area and was built in 1956 with a grit removal system, comminutors, a pumping station, and an administration building. During the years of 1979 through 2015, the MBWWTP went through several modifications/renovations including headworks, addition of an equalization basin, sludge handling facilities, power modifications, new lab facilities, etc., and plant expansion up to 230 MGD.

The MBWWTP currently serves the City of Chattanooga and other regional customers in Tennessee and northwest Georgia and has a treatment capacity of 140 million gallons per day (MGD) with an additional combined sewer overflow (CSO) capacity of 90 MGD for a total of 230 MGD. The MBWWTP's process components consist of coarse and fine screening, grit removal, primary clarification and scum removal, flow equalization, high purity oxygen activated sludge, secondary clarification, chlorination, and dechlorination. Solids are gravity thickened and conditioned with lime and ferric chloride or polymer, and dewatered using a filter press or centrifuge. Class "B" biosolids generated by the digestion process are land-applied. The CSO/wet weather treatment at the MBWWTP consists of fine screening, grit removal, primary clarification, chlorine disinfection and dechlorination. The MBWWTP discharges treated effluent from its primary outfall location into the Tennessee River at River Mile 457.8.

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The WWTP currently operates under the National Pollutant Discharge Elimination System (NPDES) Permit No. TN0024210 that includes the following parameters and effluent limitations:

<u>PARAMETER</u>	<u>EFFLUENT LIMITATIONS</u>
CBOD ₅	25 milligrams per liter (mg/l)
Suspended Solids	30 mg/l
E. coli	126/100 colonies per milliliter
Dissolved Oxygen	4.0 instantaneous minimum
Ammonia as N	15 mg/l
Chlorine Residual, Total	0.28 instantaneous maximum
Settleable Solids	1.0 daily maximum (milliliter/liter)
pH	6.0-9.0 (Standard Units)

The City of Chattanooga's wastewater collection system was originally installed over 100 years ago. The City's wastewater collection system consists of approximately 1,300 miles of 6-inch through 96-inch diameter gravity sewers of which 70 miles are combined sewers; 70 pump stations with a capacity range from 0.025 to 130 MGD; 32 miles of 2-inch through 48-inch diameter force main, eight CSO facilities, and approximately 30,000 manholes. The collection system pipe materials are 14% vitrified clay, 28% reinforced concrete, 47% polyvinyl chloride, and 4% ductile iron pipe.

Over time, old and deteriorated sewer lines have become susceptible to infiltration and inflow (I/I) and have led to excessive sanitary sewer overflows (SSOs) during rainfall events.

D. NEED FOR PROPOSED FACILITIES AND ACTIONS3

As mentioned in Section C, the City of Chattanooga is experiencing significant I/I and SSOs in its wastewater collection system. The SSOs can be associated with several causes, such as aging and deteriorating pipelines, blockages within the pipeline, and broken pipelines. The MBWWTP has experienced bypasses of wastewater flows from its treatment facilities as a result of I/I and SSOs. The City of Chattanooga received a Consent Decree (CD) from the United States Environmental Protection Agency (USEPA) on April 24, 2013. The CD requires the City of Chattanooga to develop and implement plans to eliminate SSOs and correct overflows detected at the MBWWTP specified in its NPDES by April 2018.

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Existing and projected facility conditions are shown in the following table:

EXISTING AND PROJECTED FACILITY CONDITIONS

<u>POPULATION</u>	<u>EXISTING (2016)</u>	<u>PROJECTED (2036)</u>
City of Chattanooga	179,509	195,070
% Sewered	100%	100%
Regional Customers	212,584	255,078
% Sewered	38%	56%
Total Planning Area	392,093	450,148
% Sewered	66%	75%
<u>CITY/UD WWTP FLOWS (MGD)</u>	<u>EXISTING (2016)</u>	<u>PROJECTED (2036)</u>
Domestic	17.61	22.76
Commercial	11.87	14.79
Industrial	10.73	10.64
Infiltration/Inflow (during rainfall events)	24.79	18.59
TOTAL	65.00	66.78

E. ALTERNATIVES ANALYSIS

Several alternatives, including a “No-action” alternative, were evaluated for the wastewater treatment and collection system in the October 2015, Facilities Plan. Discussions of the evaluation of these alternatives and the recommended plan follow:

No Action

The “No-Action” alternative was not a viable alternative. The USEPA issued a Consent Decree on April 24, 2013 for the City of Chattanooga. Therefore, some action must be taken to eliminate SSOs within the City’s wastewater treatment and collection system and comply with the Consent Decree. Therefore, the “No-Action” alternative was rejected.

Construct a Wet Weather Storage Tank and MBWWTP Improvements

This alternative consists of the construction of a 10 MG wet weather storage tank and MBWWTP improvements. A weir and channel system would also be constructed to allow wastewater to flow from the collection system to the wastewater storage tank via a pump station. The wastewater in the tank would be returned to the collection system during periods of low flows for treatment. Improvements to the MBWWTP will include the construction of two new 110 foot diameter circular secondary clarifiers and upgrades to the chlorine contact tank. This alternative was not the most cost-effective and was rejected.

Replace Existing Sewer Lines With New Sewer Lines and MBWWTP Improvements

This alternative consists of the replacement of approximately 23,640 LF of existing 36-inch through 72-inch diameter sewer lines with new sewer lines within the South Chickamauga Creek 5 and Friars Branch subbasins; and improvements to the MBWWTP to include the construction

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of two new 110 foot diameter circular secondary clarifiers and upgrades to the chlorine contact tank. This approach would eliminate the need for a SSES and reduce I/I problems. The alternative was not the most cost-effective and was rejected.

Comprehensive Sewer System Rehabilitation Program and MBWWTP Improvements

This alternative consists of improvements to the MBWWTP to include the construction of two new 110 foot diameter circular secondary clarifiers and upgrades to the chlorine contact tank; SSES of approximately 3,150 LF of sanitary sewers; the rehabilitation of approximately 9,800 LF of 36-inch through 72-inch diameter sanitary sewers and manholes by cured in-place pipe, point repairs, and open-cut methods; and the construction of an 8 MG storage tank at the Dupont Pump Station. This alternative was the most cost-effective and was selected.

F. ENVIRONMENTAL CONSEQUENCES; MITIGATIVE MEASURES

The environmental benefits of this project will be protection of public health and environment; and improvement of water quality conditions for the City of Chattanooga's Planning Area.

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 be temporary and only necessary during construction. 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 will contain a construction schedule for each temporary and permanent measure controlling erosion and sediment. It will 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.

Acquisition of applicable United States Army Corps of Engineers (USACE) Permits will be required prior to the approval of construction plans and specifications. Any findings that must be preserved shall be removed/protected/preserved in accordance with State and Federal laws, regulations, and/or policies.

G. PUBLIC PARTICIPATION; SOURCES CONSULTED

A Public Meeting was held on September 29, 2015, at 6:00 p.m., local time. The selected plan for the wastewater treatment and collection system and user charges 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 Chattanooga is \$38,064. The current sewer user rate for the typical residential user (5,000 gallons per month) will increase from \$31.82 to \$34.97 per month on October 1, 2014. The total incremental annual cost for this project is \$37.80, which is equal to approximately 0.10 percent of the current annual household median income.

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Sources consulted about this project for information or concurrences were:

1. Tennessee Department of Agriculture
2. Tennessee Department of Economic and Community Development (ECD)
3. TDEC, Division of Air Pollution Control (DAPC)
4. Tennessee Department of Transportation (TDOT)
5. Tennessee Historical Commission
6. TDEC, Division of Archaeology (DA)
7. TDEC, Natural Heritage Program (NHP)
8. TDEC, Division of Solid Waste Management (DSWM)
9. TDEC, Division of Water Resources (DWR)
10. Tennessee Wildlife Resources Agency (TWRA)
11. USACE
12. United States Fish and Wildlife Service (USF&W)
13. City of Chattanooga
14. Jacobs Engineering

H. SPECIAL CONDITIONS

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

The City of Chattanooga shall obtain applicable Section 10/404 permits from the USACE to meet the requirements of wetlands protection and stream crossing statutes prior to the approval of plans and specifications. A letter from the USACE stating that the permits are not needed will obviate this requirement.