

SHOVEL READY | 2022

Sanitary Sewer

INFRASTRUCTURE ASSESSMENT



\$22,442,373

IN TOTAL INVESTMENT CITY-WIDE

#WeAreTOGETHER

CWSRF PRELIMINARY ENGINEERING REPORT

(February 1, 2022)

1. DESCRIPTION OF THE PROJECT

a. Brief Description and Background of the Project:

The City of Selma proposes to make improvements and repairs to parts of the existing sanitary sewer infrastructure that is currently in a “seriously deteriorated” condition.

Since the 1970's, Selma has received numerous grants from agencies such as HUD, ADECA, ADEM and EDA to replace aging sanitary sewer pipes. The bulk of these projects have been done in the eastern parts of the City, the area inhabited by a majority of low and moderate income residents. The northern and western parts of the City have had very few of these projects. Selma has not experienced significant sub-division growth since Craig Air Force Base closed in 1978. As such, most of the pipes in the northern and western portions of the City were installed between the end of World War II and the mid-70's. These pipes were typically terra-cotta (clay) pipes in 3-4 foot joints.

These terra-cotta pipes have clay on clay type joints, are brittle and due to the short lengths alignment is a serious problem in clay soils (due to expansion and contraction). Infiltration/inflow is a serious problem in the northern and western parts of the City and the cause has been determined to be the older terra-cotta pipes. In areas where pipes do not lay beneath streets, tree and shrub roots enter the pipe joints and cause blockages.

Many of the existing sanitary sewer manholes are constructed of brick. Over time the mortar between the brick deteriorates causing infiltration and weakening the structural integrity of the manhole. This can also cause bricks to loosen, fall into the manhole and lodge into the sanitary sewer pipe. Several problems can occur when that happens, for instance, the brick will obstruct the pipe so the sewage will not flow and will back up. Several cave-ins have occurred at manholes due to missing bricks. Soil from around the manhole moves thru the voids from the missing bricks into the manhole causing the cave-in.

b. Purpose of Project:

The purpose of this project is to make improvements and repairs to the current sanitary sewer infrastructure in the City of Selma. As stated above, sections of the sanitary sewer infrastructure are currently in a seriously deteriorated condition. The City of Selma prefers a proactive approach to making needed improvements

to the sanitary sewer infrastructure rather than deferred maintenance, which always costs much more in the long run.

Project beneficiaries for the sanitary sewer improvements described in this preliminary engineering report include the **7,586** existing customers of the system, which includes **17,971** residents of the City of Selma (2010 Census) plus some **500** residents (**200** customers) living just outside the City Limits (but within Police Jurisdiction).

The total cost of this project is **\$22,442,373**. The City of Selma proposes to fund this project with a Clean Water State Revolving Fund (CWSRF) Loan administered by the Alabama Department of Environmental Management.

c. Description of Priority Areas:

This project is broken down by priority, the highest priority being the most critical sewer needs in the City. Each of these is broken down by cost and is shown in Section 5

The most critical sanitary sewer needs (\$5,545,265) are listed below:

- a. Cannon Lane (3rd Avenue to Battery Avenue)
- b. Dawson Avenue (Lauderdale Street to Broad Street)
- c. 8th Avenue (Broad Street to Poplar Street)
- d. Behind Selma University
- e. Mabry Street, Tremont Street & Griffin Avenue (LL Anderson Ave to Railroad Tracks)
- f. Jones Creek (Landsdown Subdivision to Cahaba Road Pump Station)
- g. Bell Road Industrial Park/Behind Old Walmart
- h. Mallory Drive
- i. Behind Selma High School
- j. Lapsley Street
- k. Griffin Avenue (Broad Street to Martin Luther King, Jr. Street)
- l. Satterfield Street
- m. Valley Creek Circle (at Highland Avenue)
- n. Along Valley Creek

The second highest priority needs (\$4,410,755) is Downtown Area and is listed below:

- a. Church Street (JL Chestnutt Blvd to Water Avenue)
- b. Lauderdale Street (JL Chestnutt Blvd to Water Avenue)
- c. Washington Street (JL Chestnutt Blvd to Water Avenue)
- d. Franklin Street (JL Chestnutt Blvd to Water Avenue)
- e. Green Street (JL Chestnutt Blvd to Water Avenue)

- f. Lawrence Street (JL Chestnutt Blvd to Water Avenue)

The third highest priority (\$12,486,353) needs is the section of sanitary sewer main that runs along Valley Creek and is listed below:

- a. Along Valley Creek (JL Chestnutt Blvd to Dallas Ave)
- b. Along Valley Creek (Dallas Avenue to the Valley Creek WWTP)

d. Project Scope:

This project proposes to replace 11,326 linear feet of 8" sanitary sewer pipe, 277 linear feet of 10" sanitary sewer pipe, 4,379 of 12" sanitary sewer main, 352 linear feet of 18" sanitary sewer pipe, 319 linear feet of 18" sanitary sewer main, 6,311 linear feet of 21" sanitary sewer main all with new PVC sanitary sewer pipe, replace a total of 96 sanitary sewer manholes, install 4 new sanitary sewer manholes, cured-in-place (CIPP) line 1,195 linear feet of 6" ,16,920 linear feet of 8" and 784 linear feet of 12" sanitary sewer main, line 800 vertical linear feet of sanitary sewer manholes as well as perform the necessary street repair and point repairs associated with replacing and lining sanitary sewer mains.

e. Average Annual Household Water Bill:

The Selma Waterworks measures sewage usage by the 100 Cubic Feet (750 Gallons) increments. Based on an average household water usage of 700 CF (5,250 gallons) per month, the annual household sewer bill in Selma is **\$575.04**. 700 CF (5,250 gals) is the increment closest to 5,000 gallons. In 2006 the Selma Water Works adopted a policy to raise water and sewer rates by 2.5% every June 1st. This policy is still in place and will not expire until at least 2036. The annual rate noted above is effective on June 1, 2021.

f. Population and Median Household Income:

The total population of the City of Selma is 17,971 (2020 Census). There are 500 residents living outside of the City that are also served by the Selma water system, for a total of 21,256 project beneficiaries. According to the 2020 Census, the Median Household Income (MHI) of the Project Area (the City of Selma) is **\$27,030**.

The number of residents served by the public water system in Selma, Alabama is **19,316**. This includes approximately **17,971** residents of the City of Selma; **1,195** housed (Dallas County Jail), or employed in the Selfield Industrial Park, which is located just outside the Selma City Limits; and **150** residents of the Brook Lane Subdivision, located approximately 1,000 feet outside the Selma City Limits.

There are **148** households with **371** residents within the Selma City Limits that are not served by the public sewer system. Typically, these are isolated residences that cannot be served because of elevation differences. These households are served by septic tanks, and it has been determined that it is not economically feasible to serve them

2. PROPOSED IMPROVEMENTS:

a. System Connections and Connections that Benefit from Construction:

There are 7,586 existing customers currently served by the sanitary sewer system. All of the 7,586 customers served by the sanitary sewer system will benefit from this project. Of those customers, there are many industrial users of the sanitary sewer system.

The impact on the Valley Creek WWTP would be beneficial. According to records furnished by personnel of the Valley Creek WWTP, flows normally average 3.0-3.5 MGD. During periods of excessive rainfalls, flows increase to as much as 7.0 MGD. Not only does this cause increases in electrical costs at the WWTP, it impacts the 38 pump stations located throughout the City.

b. System Operation and Management:

The existing collection and interceptor lines located in Selma, Alabama are the responsibility of the **City of Selma**, and are maintained by the City's Public Works Department.

The City of Selma's sanitary sewer collection system consists of approximately 88 miles of sewer mains and 1,100 manholes. Because of its relatively flat terrain, there are thirty-eight (38) pump stations located throughout the City. The pump stations as well as the Valley Creek WWTP are operated and maintained by the Selma Water Works. The City of Selma is responsible for the maintenance of the sanitary sewer collections system.

The City of Selma's Public Works Department headed by Director Henry Hicks, consists of 6 crews with an annual budget of approximately \$1,500,000. The proposed improvements will be managed and operated by the Sanitary Sewer Crew of the Public Works Department. This crew consists of 4 full-time employees.

c. Improvements to System:

This project proposes to replace and line several sections of sanitary sewer pipe along with replacing sanitary sewer manholes. This will greatly improve the system and resolve several issues such as sewer overflows, blockages, collapsed/deteriorated pipe, cave-ins and infiltration/inflow.

3. PROJECT MAPS:

The proposed service area includes all residents living within the corporate limits of the City of Selma. A USGS Quad map showing the City of Selma and the locations of the sanitary sewer mains to be fixed.

4. PROJECTED OUTLAY SCHEDULE:

Year: 2023

Month	Outlay
Jan	650,000
Feb	620,000
Mar	600,000
Apr	600,000
May	600,000
Jun	600,000
Jul	600,000
Aug	600,000
Sept	600,000
Oct	600,000
Nov	600,000
Dec	600,000

Year: 2024

Month	Outlay
Jan	600,000
Feb	600,000
Mar	600,000
Apr	600,000
May	600,000
Jun	600,000
Jul	600,000
Aug	600,000
Sept	600,000
Oct	600,000
Nov	600,000
Dec	600,000

Year: 2025

Month	Outlay
Jan	700,000
Feb	650,000
Mar	600,000
Apr	600,000
May	600,000
Jun	600,000
Jul	600,000
Aug	600,000
Sept	600,000
Oct	700,000
Nov	1,022,373
Dec	
Total:	\$22,442,373

*Grand Total:

\$22,442,373

*Must equal loan amount requested.

Construction Start Date: October 1, 2022

Construction Completion Date: September 30, 2025

Note: The construction completion date should be selected carefully, as loan repayment will begin immediately thereafter. Please contact the SRF Section if you have any questions.

5. COST BREAKDOWN:

Various Citywide Streets (Highest Priority)					
	Description	Qty	Unit	Unit Price	Total Price
1.	Remove & Replace 8" PVC	11,326	LF	@ \$150.00	\$1,698,900
2.	Remove & Replace 10" PVC	277	LF	@ \$175.00	\$48,475
3.	Remove & Replace 12" PVC	4,379	LF	@ \$200.00	\$875,800
4.	Remove & Replace 18" PVC	352	LF	@ \$350.00	\$123,200
5.	Manholes	73	EA	@ \$6,000	\$438,000
6.	18" Casing, Jack and Bore	120	LF	@ \$500	\$123,200
7.	12" Ductile Iron Pipe	120	LF	@ \$250.00	\$30,000
8.	House Lateral Pipe	2,720	LF	@ \$80.00	\$217,600
9.	Raise Manhole/Install New Vent Pipe	24	EA	@ \$5,000	\$120,000
10.	Clear ROW	5	AC	@ \$25,000	\$125,000
11.	Street Repair	7,890	LF	@ \$80.00	\$631,200
12.	12" CIPP Pipe Lining	784	LF	@ \$150.00	\$117,600
Total Cost					\$4,548,975
Contingencies (10%)					\$454,900
Sub-Total					\$5,003,875
Engineering & Inspection					\$500,390
Administration (Advertisement for Bids, etc..)					\$30,000
Loan Closing					\$11,000
TOTAL PROJECT COSTS					\$5,545,265

Downtown Area Streets (Second Highest Priority)					
	Description	Qty	Unit	Unit Price	Total Price
1.	6" CIPP Lining	1,195	LF	@ \$150.00	\$179,250
2.	8" CIPP Lining	16,920	LF	@ \$175.00	\$2,961,000
3.	Sanitary Sewer Manhole Lining	800	VLF	@ \$300.00	\$240,000
4.	New Sanitary Sewer Manhole	4	EA	@ \$10,000	\$40,000
5.	Raise Manhole Ring & Cover	10	EA	@ \$2,500	\$25,000
6.	Point Repairs	80	EA	@ \$2,500	\$200,000
Total Cost					\$3,345,250
Contingencies (10%)					\$364,525
Sub-Total					\$4,009,775
Engineering & Inspection					\$400,980
TOTAL PROJECT COSTS					\$4,410,755

Along Valley Creek (Third Highest Priority)					
	Description	Qty	Unit	Unit Price	Total Price
1.	18" PVC Sanitary Sewer Pipe	319	LF	@ \$1,200	\$382,800
2.	21" PVC Sanitary Sewer Pipe	6,311	LF	@ \$1,500	\$9,466,500
3.	Sanitary Sewer Manhole	23	EA	@ \$10,000	\$230,000

4.	30" Jack and Bore (at Railroad)	120	LF	@ \$2,000	\$240,000
Total Cost					\$10,319,300
Contingencies (10%)					\$1,031,930
Sub-Total					\$11,351,230
Engineering & Inspection					\$1,135,123
TOTAL PROJECT COSTS					\$12,486,353

6. SUPPORTING DOCUMENTATION FOR PRIORITY POINTS CLAIMED:

A. Enforcement and Compliance Rating Criteria

A.3 25 points claimed: The Valley Creek WWTP is currently in compliance with the limits of the NPDES permit; however, failure to replace sanitary sewer mains will likely result in the discharge of untreated sewage into Valley Creek or the Alabama River causing non-compliance with the existing permit.

C. Water/Energy Efficiency Rating

C.4 (10 points claimed): By replacing or lining deteriorated sanitary sewer mains and sanitary sewer manholes, infiltration/inflow will be corrected.

F. Sustainability Criteria

F.2 (c) (5 points claimed): This project will require that all construction vehicles utilize the use of clean fuel construction vehicles during construction.

F.2 (d) (5 points claimed): All of the areas proposed are located in previously developed areas.

F.3 (5 points claimed): This project will incorporate innovative erosion control practices.

G. Growth Criteria

G.2 (50 points claimed): This project does not include a significant growth component. In fact, no growth at all will result.

TOTAL POINTS CLAIMED IS 100

Conclusions and Recommendations

The improvements in this pre-application are considered critical and essential infrastructure needs of the City of Selma. Our recommendation is to proceed with the submission of a pre-application of a SRF Loan/ARPA Grant from ADEM in order to finance the infrastructure improvements described in this Preliminary Engineering Report.

I hereby certify this report is true and correct to the best of my professional knowledge and experience.

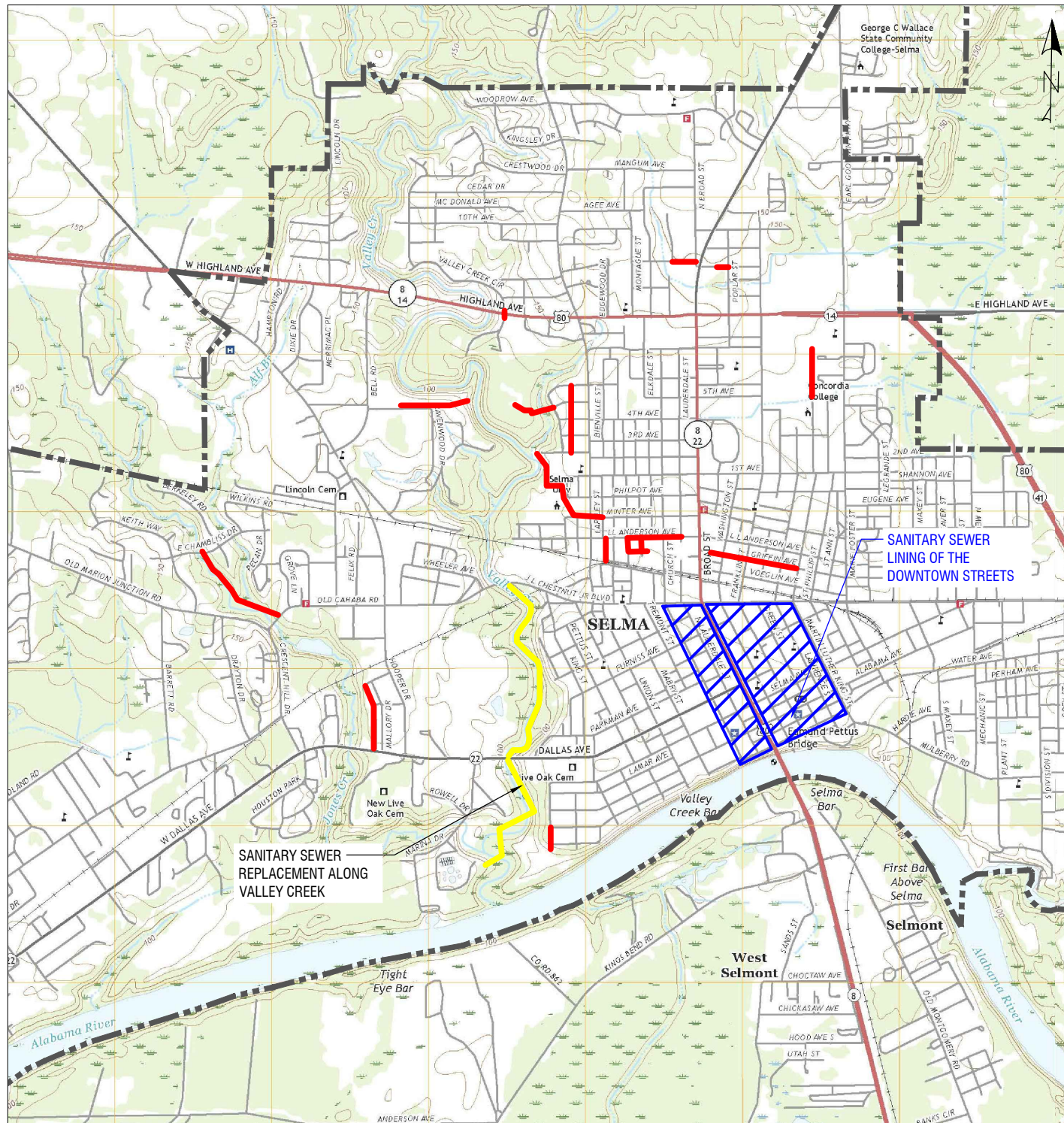
Meredith Hogg Stone

HSA Engineers, Inc.

Meredith Hogg-Stone, P.E.

Ala. Reg. Professional Engineer No. 36005





LEGEND

- SANITARY SEWER REPLACEMENT
- ▨ DOWNTOWN SANITARY SEWER LINING
- SANITARY SEWER REPLACEMENT ALONG VALLEY CREEK

HSA ENGINEERS INC.
HOGG STONE & ASSOCIATES ENGINEERS, INC.

City of Selma
FY22 CWSRF Project
Pre-Application Map
February, 2022