CITY OF ST AUGUSTINE EST. 1565

City Commission

Utilities Quarterly Update

August 14, 2023

Stephen L. Slaughter, P.E. Utilities Director

Utilities Quarterly Update Agenda

- FEMA 13 Lift Station Rehabilitation Project
- Wastewater Treatment Plant Headworks Rehabilitation
- West 3rd St Gravity Sewer and Water Main Improvements
- West Augustine Gravity Sewer Improvements
- Capital Projects Overview and Status Summary
- Questions and Discussion
- Appendix – CIP Project Information Sheets & Glossary of Terms

FEMA 13 Lift Stations Rehabilitation

- Major Lift Station Construction Complete
  - Punch list items remain
- Construction Cost $13.8M
- Start Construction Jan 2021
- Arricola Ave. Force Main
  - Complete

Wastewater Treatment Plant Headworks Rehabilitation

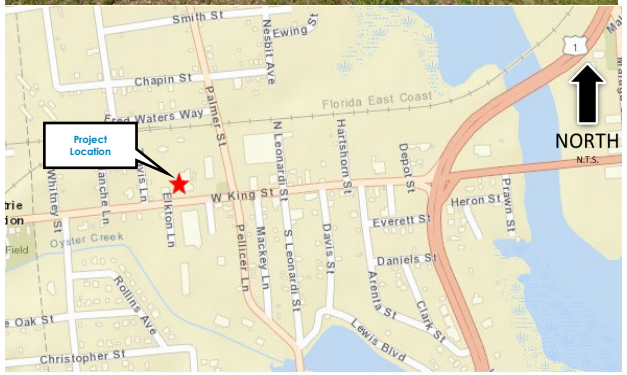
- Introducing flow to the new Headworks later this month

- Construction Cost $4.3 M
- Start Construction July 2022
- Finish Construction Sept 2023

WTP HSP MCC and Emergency Generator Replacement

Water Treatment Plant High Service Pump Motor Control Center & Emergency Generator Replacement

- Construction Cost $2.5 M
- Start Construction January 2023
- Finish Construction November 2023
- 36% Construction Complete



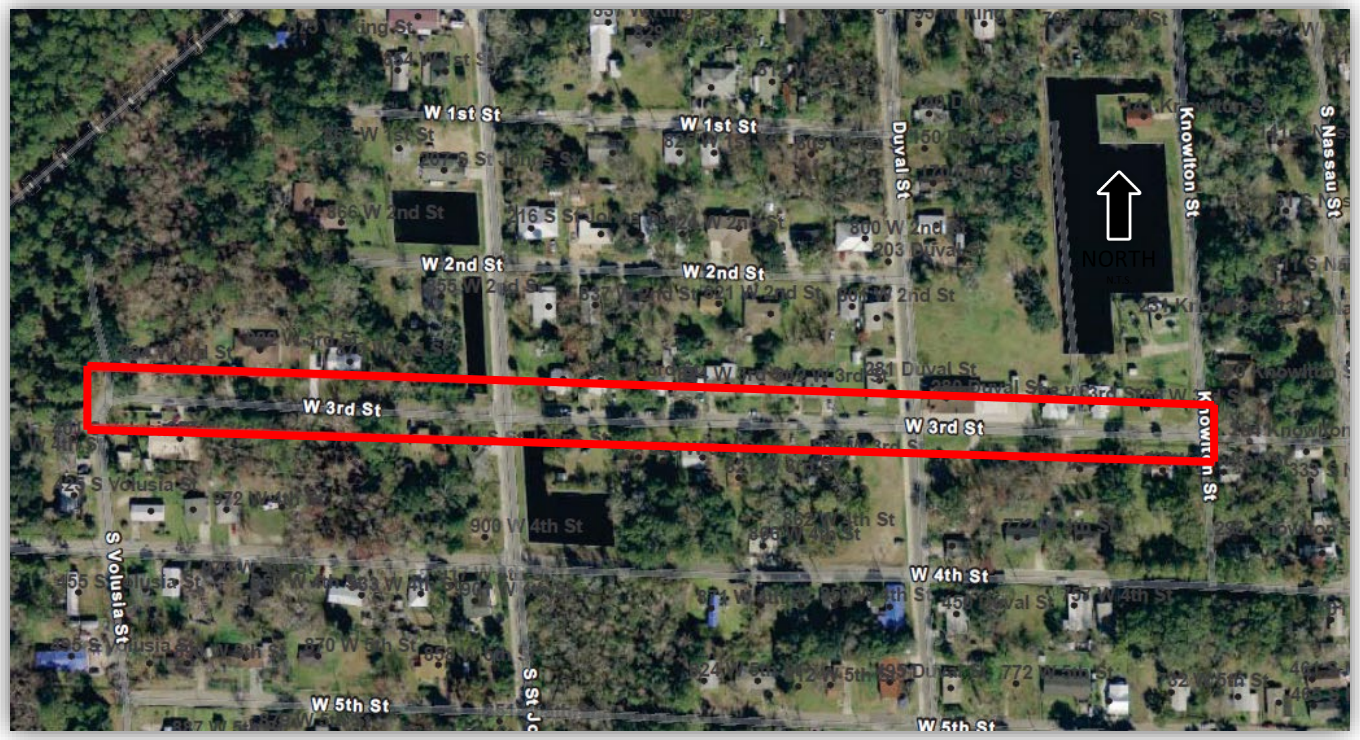
West 3rd Street Sewer Extension – Volusia to Knowlton St

West 3rd Street Sewer Extension

- Construction Cost $1.7 M
- Construction Start May 2023
- Construction Finish December 2023
- Approximately 26 homes to be connected
- Construction Time Frame: 6 Months
- Includes water main improvements

Funding Sources

- $300,000 State Grant
- Portion of $2,000,000 State Grant



West Augustine Gravity Sewer Improvements

West Augustine Sewer Master Plan

- In Design

Septic-to-Sewer Program

- Abandoned 57 septic systems to date

Pearl Street Gravity Sewer

- In solicitation-construction - expanding gravity sewer from existing lift station
- Water main improvements part of this project

CIP Project Information Schedule

Project Title	Project Status	Schedule				
		2023	2024	2025	2026	2027
Oyster Creek Force Main HDD	Complete					
Automatic Meter Reading Phase 4	Complete					
Min Grant Septic to Sewer Connections W Aug Pkg 5	Complete					
(SJC) South Orange Street Utility Adjustments	Complete					
(SJC) N. Rodriguez Street Utility Adjustments	Complete					
I&I Clean & Inspect Sewer Basins 62, 68, 69, 71	Complete					
I&I Clean & Inspect Sewer Basins 60, 64, 66, 70	Complete					
I&I Manhole Rehab Basins 16, 17, 20, & 52	Complete					
I&I Sanitary Sewer Main & Lat Rehab FY 2022	Complete					
Arricola Avenue Force Main HDD Improvements	Complete					
Water Treatment Plant Optimization	Study-Complete					
King Street Ownership Transfer	Complete					
Sevilla Street Brick Roadway & Utility Improvements	Design-Complete					
Downtown Circulator - Route 1	Complete					
Stormwater Outfall Tide Check-Valve Master Plan	Study-Complete					
FEMA 13 Lift Station Rehab & Replacement	Substantial Complete					
(SJC) The Lakes (S. Holmes) Utility Adj.	Substantial Complete					
I&I Prioritize Sanitary Sewer R&R Projects	Annual					
Paving Management Program	Annual					

CIP Project Information Schedule

Project Title	Project Status	Schedule				
		2023	2024	2025	2026	2027
(SJC) Collier Heights (S. Holmes) Utility Adj.	Construction					
(SJC) Santa Rosa Utility Adjustments	Construction					
(FDOT) SR 312, 207-Holmes Utility Adjustments	Construction					
Lake Maria Sanchez Flood Mitigation & Drainage Improvements	Design					
WWTP Headworks Rehabilitation	Construction					
WTP HSP MCC & Emergency Generator Replacement	Construction					
Water Treatment Plant Concentrate Outfall	CMAR Preconstruction					
Avenida Menendez Seawall (HMGP)	Design					
Pearl Street Gravity Sewer Improvements	Design					
W 3rd Street Gravity Sewer and WM Improvements	Construction					
W Aug Wastewater Master Plan & Hydraulic Model Update	Design					
Inspection Management Software	Design					
Stormwater Master Plan - Phase 2	Study-Postponed					
St. Francis Street Utility Improvements	Design					
King Street and San Sebastian River WM HDD	Design					
Ct Theophelia Neighbrhood Stormwater & Util Improvements	Design					
South Whitney & West King Stormwater Improvements	Design					
South Davis Shores Flood Mitigation & Drainage Improvements	Solicitation-Design					
Inlet Drive Shoreline Stabilization	Solicitation-Design					

CIP Project Information Schedule

Project Title	Project Status	Schedule				
		2023	2024	2025	2026	2027
Downtown Improvement District Phase 2A	Solicitation-Construction					
King St. Complete Streets Project	Design					
Lighthouse Park Gravity Sewer Improvements	Scope					
SCADA for Lift Stations, WTP, and WWTP	Scope					
City-Wide Tide Check Valve Installation	Solicitation-Construction					
Army Corps of Engineers Back Bay Feasibility Study	Study					
Duero & Cerro St. Stormwater and Utility Improvements	Design					
Smart St. Augustine	Solicitation-Design					
(FDOT) King Street Drainage Outfall	Construction					
Groundwater Monitoring	Solicitation-Design					
Parking Pay Station Flood Proofing	Construction					
Lift Station 8 Replacement	Scope					
Lift Station 14 Replacement	Scope					
Lift Station 41 Replacement	Scope					
South Tank Potable Water Fill Line	Scope					
Pearl Street Force Main Improvements	Scope					
Cast Iron Neighborhood Water Main Improvements	Scope					
WWTP Effluent Outfall Repair	Construction-Postponed					
WTP Improvements	Scope					

Additional Questions
and
Commission Discussion

Appendix

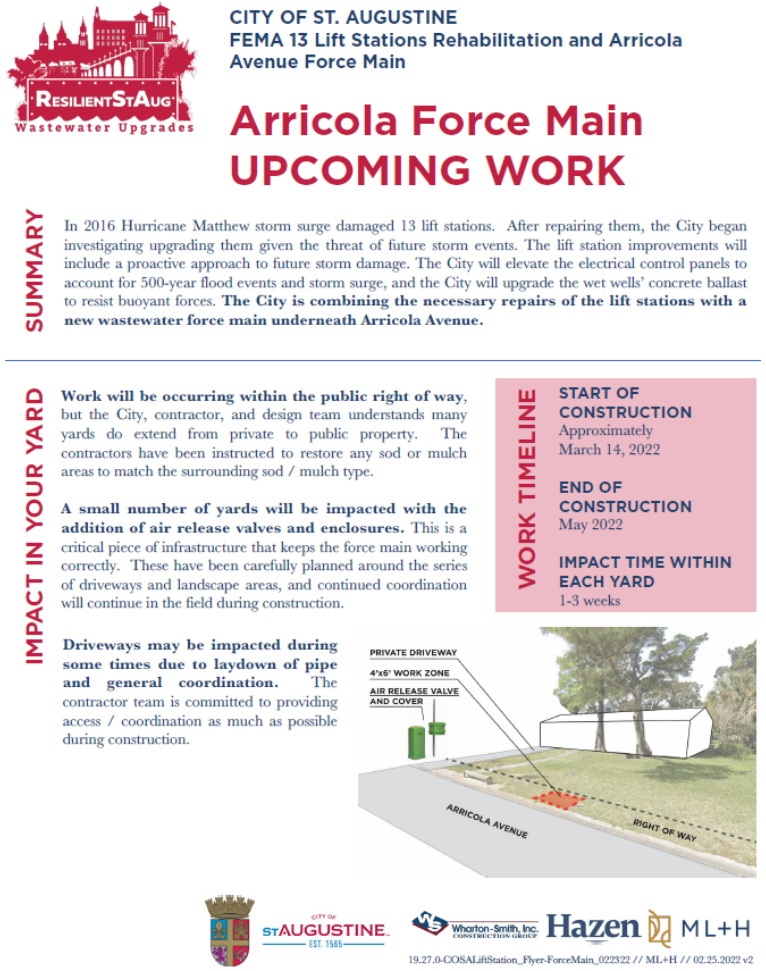
CIP Project Information Sheets
and
Glossary of Terms

CIP Project Information Sheet

Arricola Ave Force Main HDD

This project will replace and extend the force main between LS-51 and 52 in South Davis Shores. The existing cast iron force main stops short of LS-52 and discharges into a manhole on Solano Ave. This has caused SSOs (sanitary sewer overflows) at the manhole on Solano. This project will improve our utility, harden the collection and transfer of wastewater, and eliminate SSOs. Design and construction of this project is funded by city bond proceeds.

Design Cost:	$ 181,000
Construction Cost:	$ 620,000
Project Status:	Construction
Construction Duration:	April 2022 – May 2022



CITY OF ST. AUGUSTINE
FEMA 13 Lift Stations Rehabilitation and Arricola Avenue Force Main

ResilientStAug Wastewater Upgrades

Arricola Force Main UPCOMING WORK

SUMMARY

In 2016 Hurricane Matthew storm surge damaged 13 lift stations. After repairing them, the City began investigating upgrading them given the threat of future storm events. The lift station improvements will include a proactive approach to future storm damage. The City will elevate the electrical control panels to account for 500-year flood events and storm surge, and the City will upgrade the wet wells' concrete ballast to resist buoyant forces. **The City is combining the necessary repairs of the lift stations with a new wastewater force main underneath Arricola Avenue.**

IMPACT IN YOUR YARD

Work will be occurring within the public right of way, but the City, contractor, and design team understands many yards do extend from private to public property. The contractors have been instructed to restore any sod or mulch areas to match the surrounding sod / mulch type.

A small number of yards will be impacted with the addition of air release valves and enclosures. This is a critical piece of infrastructure that keeps the force main working correctly. These have been carefully planned around the series of driveways and landscape areas, and continued coordination will continue in the field during construction.

Driveways may be impacted during some times due to laydown of pipe and general coordination. The contractor team is committed to providing access / coordination as much as possible during construction.

WORK TIMELINE

START OF CONSTRUCTION
Approximately
March 14, 2022

END OF CONSTRUCTION
May 2022

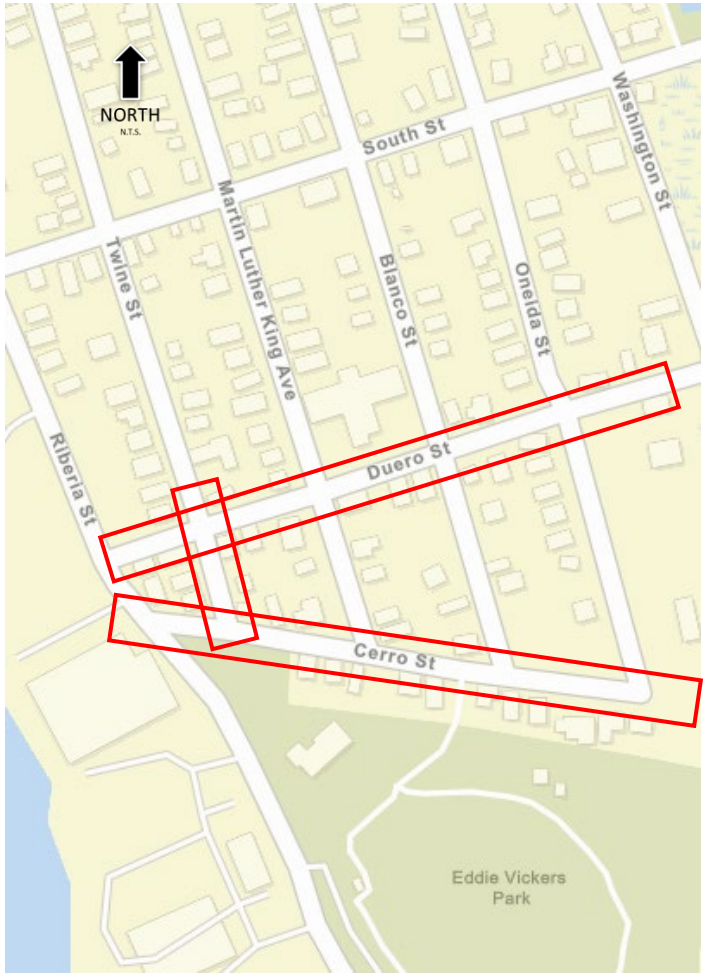
IMPACT TIME WITHIN EACH YARD
1-3 weeks

19.27.0-COSALiftStation_Flyer-ForceMain_022322 // ML+H // 02.25.2022 v2

CIP Project Information Sheet

Duero and Cerro St. Stormwater and Utility Improvements

This project will replace and improve utilities along Duero Street, Twine Street, and Cerro Street. Stormwater collection inlets and culverts will be replaced along Duero Street, between MLK Ave. and Blanco Street, and added along Cerro Street. Gravity sewer, water main, and force main improvements will also occur along Duero Street, Cerro Street, and the block of Twine Street between.



Design Cost:	$ 144,000
Construction Cost:	$ TBD
Project Status:	Design
Construction Duration:	TBD

CIP Project Information Sheet

FEMA 13 Lift Station Rehabilitation and Replacement

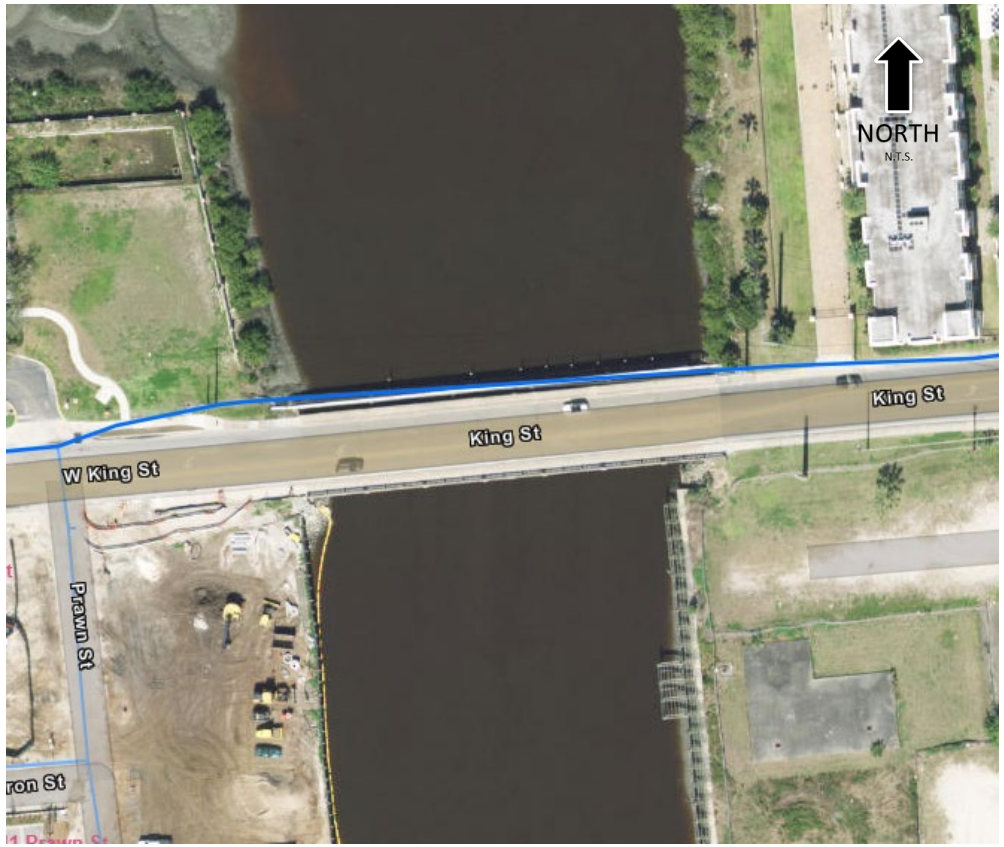
These 13 lift stations (LS-4, 5, 6, 7, 10, 11, 12, 21, 22, 50, & 52) were identified as being damaged during hurricane Mathew, and again during hurricane Irma. This project will elevate, rehabilitate, replace, and harden the lift stations against future storms and flooding events. This project is funded through FEMA's Public Assistance program with 75% reimbursable, the State reimbursing 12.5%, and the City's share 12.5%.

Design Cost:	$ 1.4 M
Construction Cost:	$ 14.8 M
Project Status:	Construction
Construction Duration:	Sept 2020 – Feb 2023

CIP Project Information Sheet

King Street and San Sebastian River WM HDD

This project will replace the existing water main on King Street crossing San Sebastian river. FDOT is replacing the bridge on King Street that crosses the San Sebastian river. The city's existing cast iron water main is an aerial crossing adjacent to the bridge. The new water main will be a horizontally-directionally-drilled (HDD) water main beneath the river. This water main replacement will occur before the FDOT bridge replacement project.



Design Cost:	$ 190,000
Construction Cost:	$ TBD estimate
Project Status:	Design
Construction Duration:	TBD

CIP Project Information Sheet

Lift Station 8, 14, and 41 Replacement

These projects will replace existing city lift stations located throughout the city. Lift station 8 and 14 are circa 1960's "can" stations utilizing a wet and dry pit. LS-41 is an existing suction-lift wastewater pumping station. The new stations will be modern submersible duplex stations with an emphasis on resiliency and hardening against storm surge and flooding.

Design Cost:	$ 360,000 estimate
Construction Cost:	$ 3.0 M estimate
Project Status:	Design
Construction Duration:	TBD

CIP Project Information Sheet

Lighthouse Park Gravity Sewer Improvements

This project will bring gravity sewer collection systems to the greater Lighthouse Park Neighborhood area. This neighborhood area was identified in the Septic Tank Vulnerability Assessment study as one the top contributors to surface water nitrogen from septic within the city limits. This project will eliminate existing and future onsite septic systems and residential grinder pump connections to force main. The project area is east of Anastasia Blvd between Ocean Way to the north and Anastasia Park Dr to the south. Design for this project is funded by city bond proceeds.

Design Cost:	$ 665,000 estimate
Construction Cost:	$ 6.7 M estimate
Project Status:	Design
Construction Duration:	TBD

CIP Project Information Sheet

Oyster Creek Force Main HDD

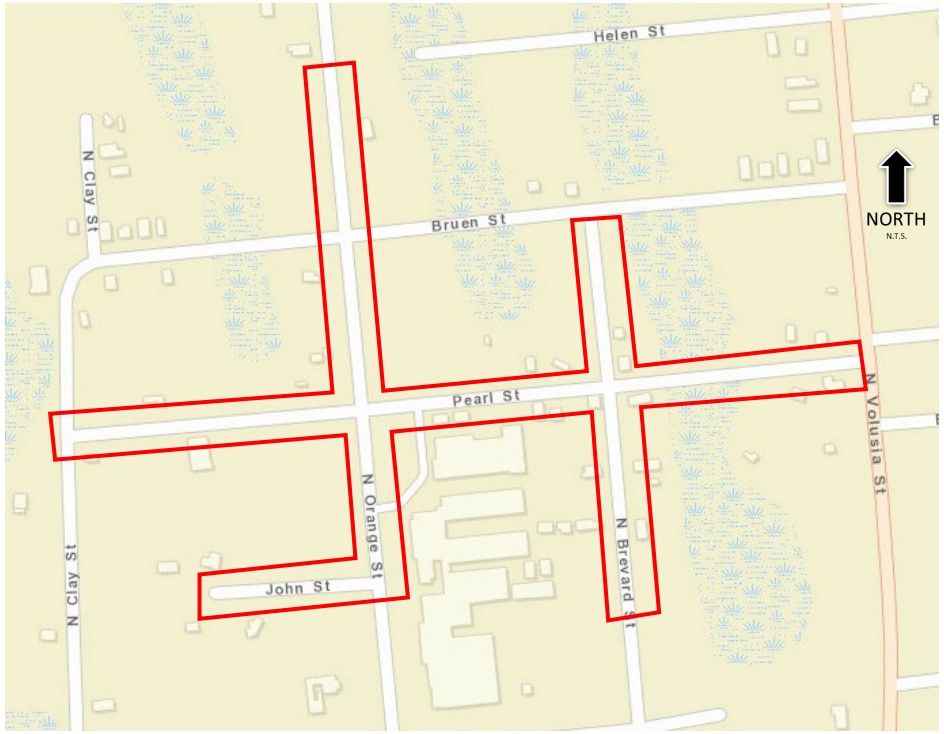
This project will replace the existing 8-inch PVC and 6-inch cast iron force mains with a single 12-inch HDPE force main. The new 12-inch force main will be installed via the horizontal directional drill (HDD) method. This work will improve the city's utility and relocate it out the way of future FDOT box culvert work.

Design Cost:	$ 27,000
Construction Cost:	$ 334,800
Project Status:	Construction Complete
Construction Duration:	90 days

CIP Project Information Sheet

Pearl Street Gravity Sewer Improvements

The City acquired existing sewer infrastructure that includes a pump station and gravity sewer infrastructure around the perimeter of Webster Elementary School. The City has the opportunity to install gravity sewer main extensions off the existing infrastructure and a watermain replacement to serve the residents in the adjacent area. The project is currently in solicitation and will build out the gravity sewer basin to the full extents possible and serve 42 existing residential homes. The proposed 6-inch watermain will replace the existing 2-inch watermain and tie into existing watermains to continue a loop system. Design and construction of this project is funded by city bond proceeds, ARPA funding, and a portion of the $2.0M state grant.



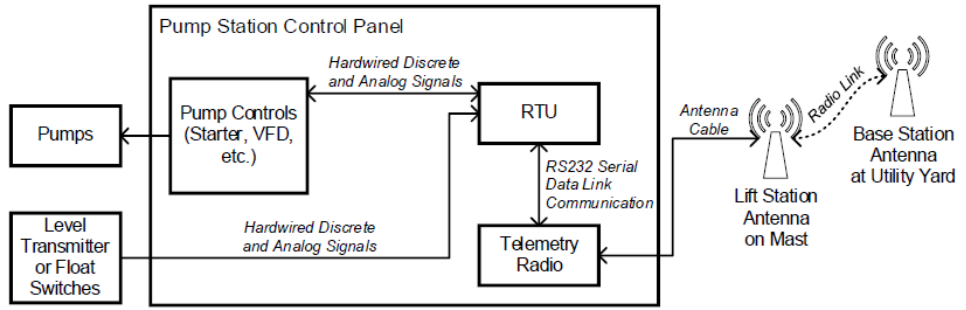
Design Cost:	$ 121,500
Construction Cost:	$ 4.1 M estimate
Project Status:	Solicitation-Construction
Construction Duration:	12 Months

CIP Project Information Sheet

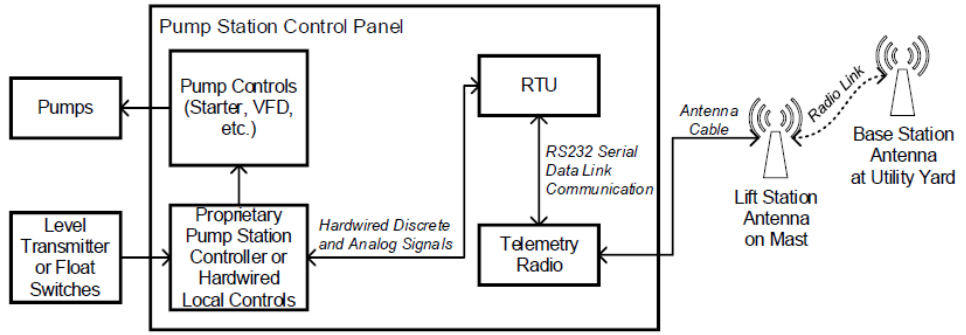
SCADA for Lift Stations, Water and Wastewater Treatment Plants

SCADA (Supervisory Control and Data Acquisition) is used to collect data and monitor the city's lift stations, water treatment plant, and wastewater treatment plant. Currently, the plants and operations are utilizing different systems and technologies of varying age and obsoleteness. This project will identify current issues and immediate fixes, before identifying and implementing a complete permanent solution. The first phase of this project has: identified and documented the current SCADA system and use; produced updated electrical and control panel standard drawings for city use.

Pump Station with Standalone RTU



Pump Station with RTU and Separate Controller or Hardwired Local Controls



Design Cost:	$ 350,000
Construction Cost:	$ 250,000
Project Status:	Design
Construction Duration:	TBD

CIP Project Information Sheet

Sevilla Street Brick Roadway & Utility Improvements

The Sevilla Street improvements consist of cast iron water main replacement, gravity sewer replacement, stormwater improvements, and brick roadway replacement. Project will also include improvements to existing sidewalks, with elevated crosswalks and intersections.

Design Cost:	$ 110,000
Construction Cost:	$ 1.2M estimate
Project Status:	Design
Construction Duration:	TBD

CIP Project Information Sheet

St. Francis Street Utility Improvements

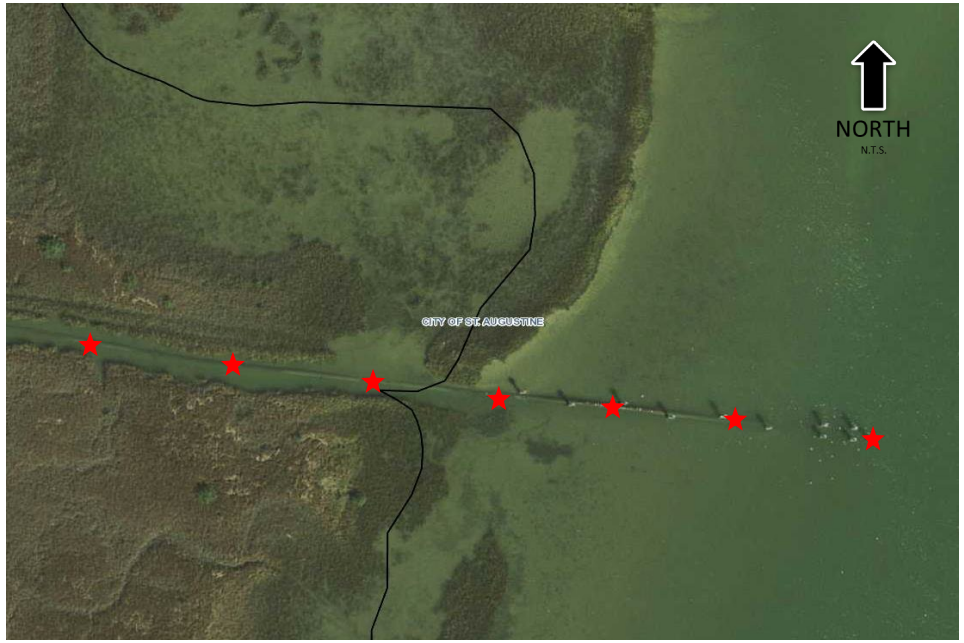
St. Francis Street currently has a vitrified clay pipe (VCP) gravity sewer collection system that is oversized, shallow-sloped, with cementitious material in the invert of the mains. Sanitary sewer overflows and a collapsed main during trenchless repair qualifies for complete replacement. Project will consist of cast iron water main replacement, gravity sewer replacement, roadway (asphalt or brick) replacement, and stormwater improvements. Adjusting the grade and slope of the gravity sewer main will allow city to continue these hydraulic improvements along Cordova Street with the LMS project.

Design Cost:	$ 120,000 estimate
Construction Cost:	$ 1.1M estimate
Project Status:	Design
Construction Duration:	TBD

CIP Project Information Sheet

Wastewater Treatment Plant Effluent Outfall Repair

This project will consist of realigning the 1,600 Ft HDPE wastewater treatment plant effluent pipe and diffuser. New precast concrete anchor collars will be installed at design intervals for the length of the pipeline. This will support and secure the pipeline in place for the remainder of the asset's projected life.

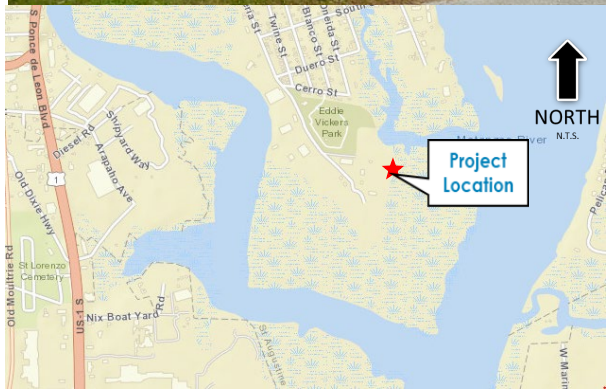


Design Cost:	$ 62,500
Construction Cost:	$ 500,000 estimate
Project Status:	Solicitation – Construction
Construction Duration:	4 months

CIP Project Information Sheet

Wastewater Treatment Plant Headworks Rehabilitation

The Wastewater Treatment Plant (WWTP) is the initial stage of the sanitary sewage treatment process. The headworks screens out trash, rags, and grit before it enters the treatment process, enhancing efficiency of the water treatment process. The headworks is the original 1987 structure. Rehabilitation will consist of replacing the mechanical screen, grit system, control panels, electrical lightening protection and structural concrete improvements. The project will also elevate critical equipment to 12 feet elevation to ensure operational integrity of the headworks in the event of a Category 2 storm surge event. Construction for this project is funded by city bond proceeds.

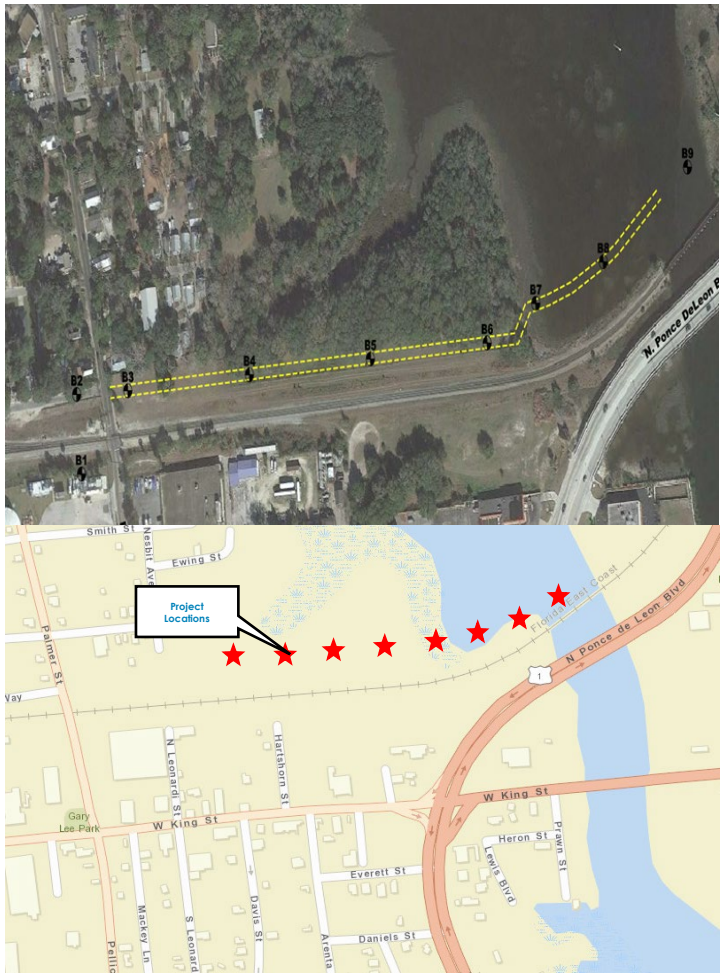


Design Cost:	$ 234,500
Construction Cost:	$ 4.0M estimate
Project Status:	Construction
Construction Duration:	2022 – 2024

CIP Project Information Sheet

Water Treatment Plant Concentrate Outfall

This project will construct a permitted outfall pipe for the Water Treatment Plant's (WTP) low-pressure reverse osmosis (LPRO) concentrate. During production of the city's drinking water, the LPRO system produces approximately 300,000 gallons of brine concentrate per day. The brine is currently discharged to the City's sanitary sewer collection system and pumped to the wastewater treatment plant (WWTP). This concentrate outfall will eliminate 300,000 gallons per day of brine sent through the City's gravity sewers, lift stations, and WWTP. Construction of this project is funded by city bond proceeds.

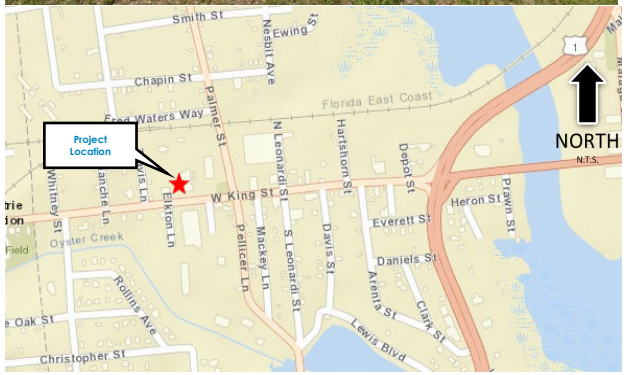


Design Cost:	$ 161,300
Construction Cost:	$ 2.0M estimate
Project Status:	Solicitation
Construction Duration:	TBD

CIP Project Information Sheet

Water Treatment Plant High Service Pump Motor Control Center and Emergency Generator Replacement

The Water Treatment Plant's (WTP) High Service Pump (HSP) Motor Control Center (MCC) is a critical component of delivering potable water to the distribution system. The existing MCC has reached end of life and does not provide fail safe distribution of potable water in the event of a power outage or surge. This project will completely replace the existing MCC and will be housed inside a climate-controlled environment. Variable frequency drives, programmable logic controllers, and human machine interfaces and control panels with annunciators, alarms, cable, and conduit will be installed. Additionally, a new emergency generator will be installed with an automatic transfer switch. Construction of this project is funded by city bond proceeds.

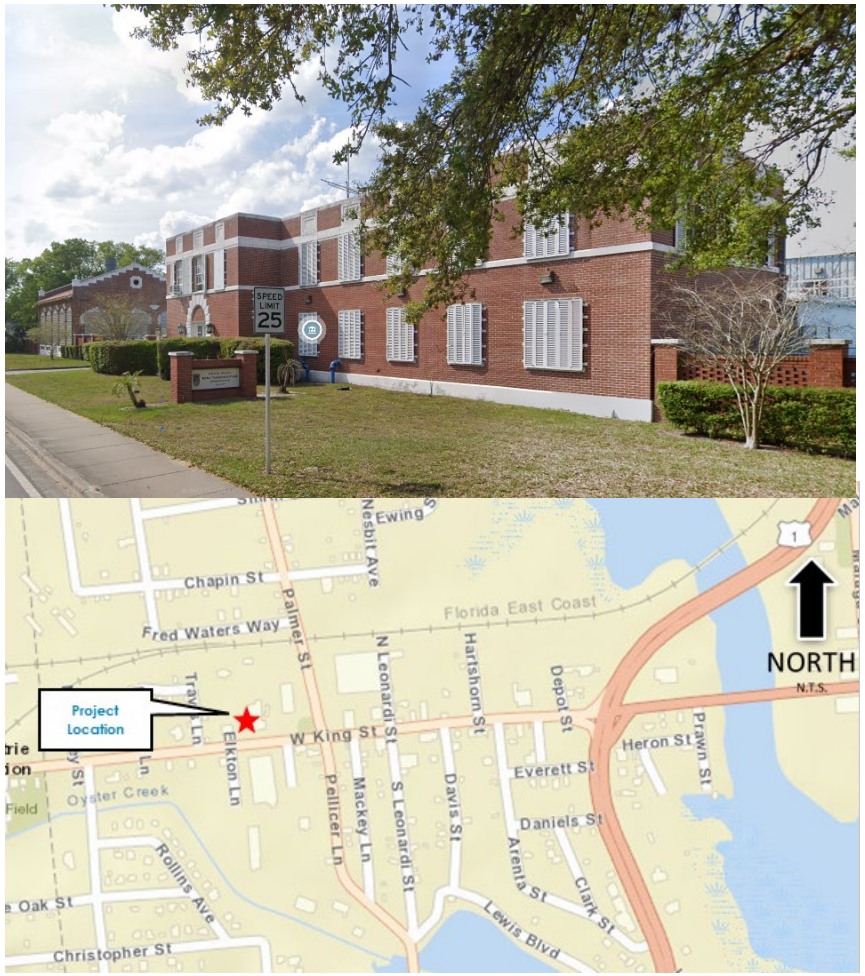


Design Cost:	$ 80,010
Construction Cost:	$ 2.4M estimate
Project Status:	Construction
Construction Duration:	2022 – 2023

CIP Project Information Sheet

Water Treatment Plant Optimization

The City has been in a pilot program to test free chlorine for maintaining residual water distribution system instead of the historically used chloramine. FDEP approved the pilot program and has extended it. Data collected during the pilot program showed promising results with respect to residual chlorine at the end of pipeline while maintaining compliance with disinfection byproduct limits. The City wants to evaluate current operational strategies including those in use prior to the free chlorine pilot program. In addition, the City wishes to develop an Operating Plan moving forward that includes the use of free chlorine disinfection, and to enhance the operating staff's capabilities to understand the operating plan and adjust the plan in response to changing conditions.



Study Cost:	$ 72,220
Construction Cost:	$ TBD
Project Status:	Study
Study Duration:	84 days

CIP Project Information Sheet

West 3rd Street Gravity Sewer and Water Main Improvements

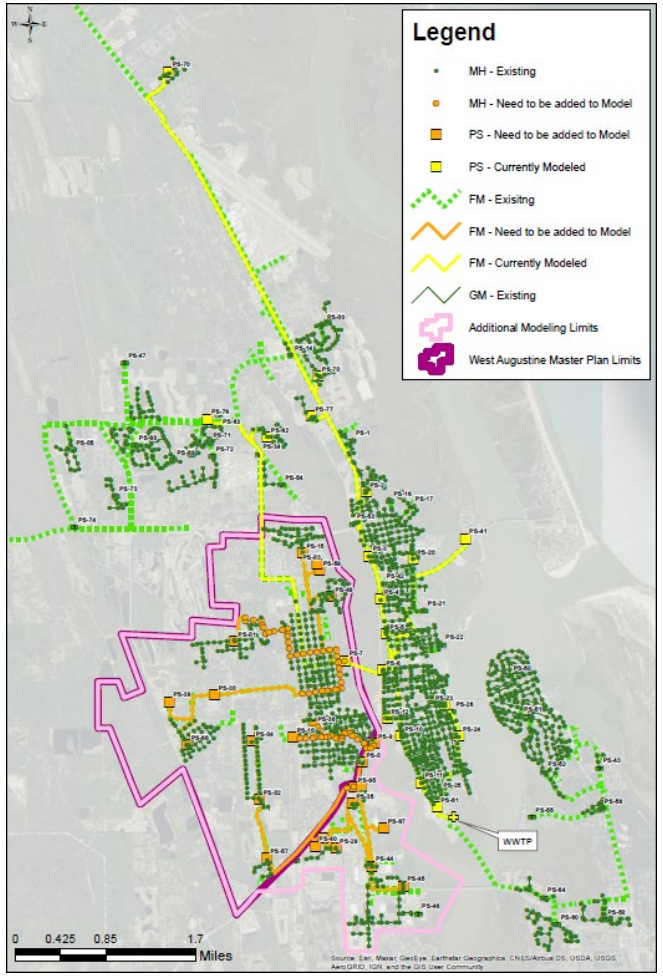
The West 3rd Street gravity sewer improvements will be an extension of the existing gravity sewer main. Improvements to the water main include replacing the existing 2-inch water main with a 6-inch watermain and tie-in existing water mains to continue a looped system. There will be 28 existing residential homes converted from septic to sewer. Construction of this project is funded by a $300,000 state grant and a portion of a $2.0M state grant..

Design Cost:	$ 60,000
Construction Cost:	$ 1.7M estimate
Project Status:	Construction
Construction Duration:	April 2023 - Dec 2023

CIP Project Information Sheet

West Augustine Wastewater Master Plan and Hydraulic Model Update

A Wastewater Master Plan for the West Augustine area is being developed because many of the area residences and businesses are served by on-site septic systems. The primary goal of the Master Plan will be to provide a guide for a planned wastewater collection system that may be constructed in phases with associated costs that can support requests for funding from various loan or grant agencies. The ultimate goal of providing a City wastewater system to the area will be to improve water quality, community health and quality of life.



Design Cost:	$ 68,000
Construction Cost:	$ TBD
Project Status:	Design
Construction Duration:	TBD

Glossary of Terms

ARPA – American Rescue Plan Act

CCTV – Closed Circuit Television

CI – Cast Iron

CIP – Capital Improvement Plan

CoSA – City of St. Augustine

CSRM – Coastal Storm Risk Management

FDOT – Florida Department of Transportation

FEMA – Federal Emergency Management Agency

FIND – Florida Inland Navigation District

HMGP – Hazard Mitigation Grant Program

HSP – High Service Pump

I & I – Infiltration and Inflow

LPRO – Low-pressure Reverse Osmosis

MCC – Motor Control Center

PVC – Polyvinyl Chloride

SCADA – Supervisory Control and Data Acquisition

USACOE – United States Army Corps of Engineers

VCP –Vitrified Clay Pipe

VIC –Visitor's Information Center

WTP – Water Treatment Plant

WWTP –Wastewater Treatment Plant