

2024 Sewer Point Repairs and Improvements

(City Project #22-0006-
UT, Council Item No. __)

September 2024



CLEARWATER
BRIGHT AND BEAUTIFUL • BAY TO BEACH



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1- WWCS BACKGROUND

Public Utilities Department Operates & Maintains the following Wastewater Collection systems:

- 8,300 manholes
- 370 miles of gravity sewer
- 73 lift stations
- 38 miles of force main
- Sub-divided into 3 service basins:
 - East Water Reclamation Facility (WRF)
 - Marshall St. WRF
 - Northeast WRF

2- WWCS MASTER PLAN



City of Clearwater

Wastewater Collection System Master Plan

City Project Number 17-0006-UT

PRESENTED TO

City of Clearwater
100 S. Myrtle Avenue
Clearwater, FL 33756

PRESENTED BY

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#200-41125-18003

December 2021

2– WWCS MASTER PLAN

Table 8-7. Summary of Collection System Opinion of Probable Cost

	To 2030	2031 to 2050
Capacity Related Projects		
Marshall Street WRF	\$15,380,000	\$0
East WRF	\$7,532,000	\$0
Northeast WRF	\$36,210,000	\$11,236,000
Total Capacity Related Project Cost	\$59,122,000	\$11,236,000
Renewal and Replacement Projects		
Marshall Street WRF	\$88,154,000	\$108,812,000
East WRF	\$48,420,000	\$110,474,000
Northeast WRF	\$24,046,000	\$107,825,000
Total Renewal and Replacement Project Cost	\$160,621,000	\$327,111,000
Total CIP Cost	\$219,742,000	\$338,347,000



2 – WWCS MASTER PLAN

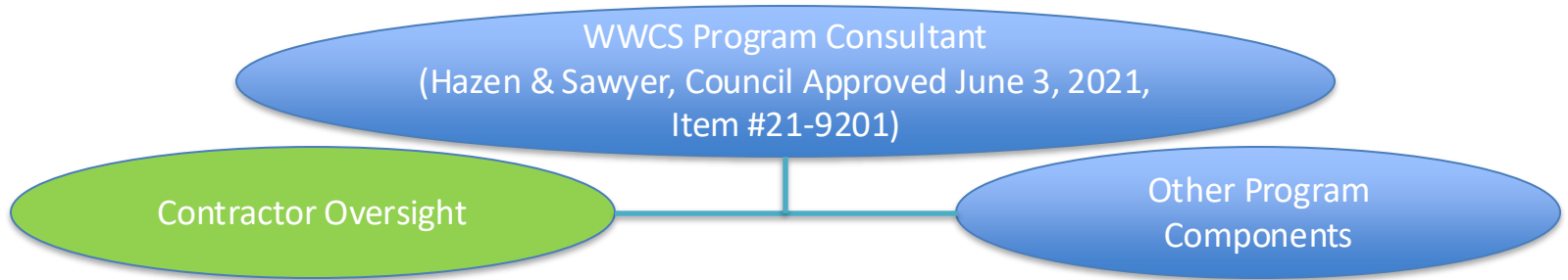
Table 8-6. Summary of **Renewal and Replacement** Annual Investment

	To 2030	2031 to 2050
Gravity Mains ¹	\$102,207,000	\$222,200,000
Manholes ²	\$36,638,000	\$73,276,000
Lift Stations ³	\$10,630,000	\$28,000,000
Force Mains ⁴	\$11,146,000	\$3,636,000
Total	\$160,621,000	\$327,112,000

Notes:

1. Based on an annual expenditure of \$10.22 million per year from 2021 to 2030 and \$11.11 million per year from 2031 to 2050.
2. Based on an annual expenditure of \$3.66 million per year through 2050.
3. Based on prioritized lift stations from Table 8-4 plus a \$1.4 million investment over 5 years from 2021 to 2030 and \$1.40 million per year thereafter.
4. Based on prioritized projects.

3 – WWCS PROGRAM OVERVIEW



- WWCS Flow Monitoring
- Sewer Point Repairs Contracts (As-Needed)
 - Group A – Sanitary Sewer Trenchless Reconstruction
 - Group B – Sewer Cleaning and Televising Inspections
 - Group C – Emergency/Non-Emergency Repairs/ Improvements of Sewer, Force Main, and Manholes
 - Group D – Sanitary Cleanouts and Laterals
 - Group E – Manhole Surfacing
 - Group F – Smoke and Dye Testing

\$21.5 M

- WWCS Program Prioritization and Tracking
- Hydraulic Modeling
- Designs:
 - New Pipelines
 - Capacity Increases
 - Pipeline Relocations
- Coordination with Lift Station, WRF Programs

GROUP A – SANITARY SEWER TRENCHLESS RECONSTRUCTION

1

Pipes Inside Pipes

Cured-in-place pipe, also known as CIPP, is one of several conduit repair technologies that are considered “trenchless” — that is, they don’t require that old pipes be dug up and replaced. In CIPP, liners made of felt, fiberglass, or other composite tubes embedded with resin are inserted into the damaged pipes. Hot water or steam hardens, or “cures,” the liner into a plastic conduit. During curing, plumes of materials can escape to the surface and into the air.

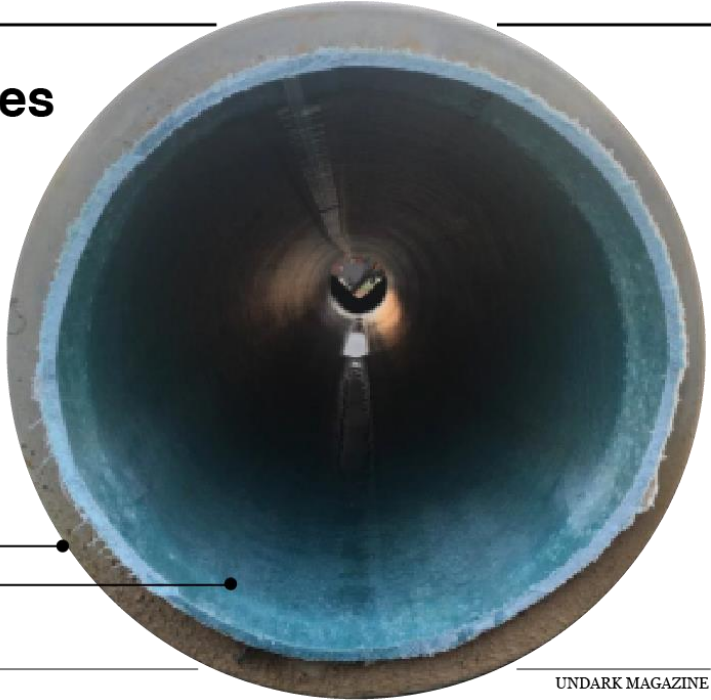
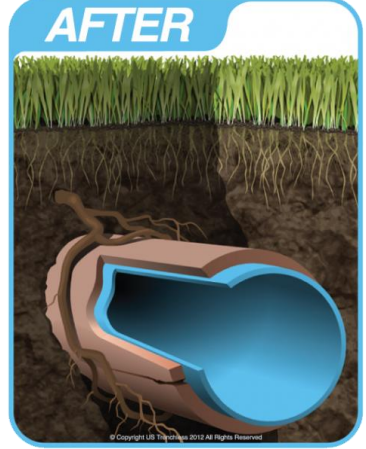


Image courtesy Purdue University

UNDARK MAGAZINE

2

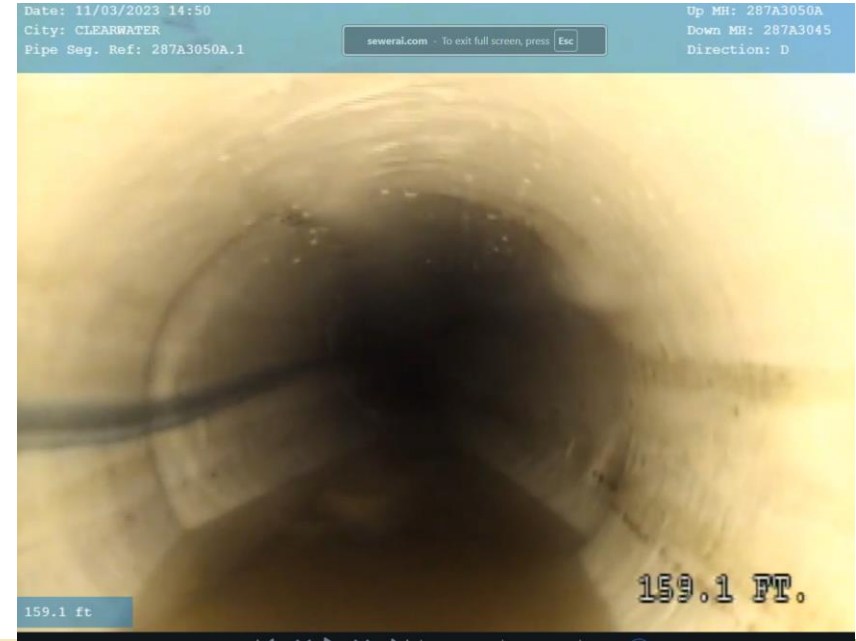


1. <https://www.compositesone.com/process/cured-in-place-pipe/>
2. <https://ustrenchless.com/services/pipe-lining/>

GROUP A – SANITARY SEWER TRENCHLESS RECONSTRUCTION

Before Rehab

After Rehab



GROUP A – SANITARY SEWER TRENCHLESS RECONSTRUCTION

- Year 2 Budget: \$5,000,000
 - Utilized: \$1,500,000 (est.)
 - 34,000 feet installed
 - Contractor capacity lower than anticipated
- Year 3 Recommendation: \$3,000,000

GROUP B – SEWER CLEANING & TELEVISION INSPECTIONS

Pipe segment ID: 287A3050.1

Before cleaning



After cleaning



GROUP B – SEWER CLEANING & TELEVISIONS INSPECTIONS

- Year 2 Budget: \$2,000,000
 - Utilized: \$250,000 (est.)
 - 8,800 feet of sanitary sewer inspected with closed circuit television (CCTV)
- Year 3 Recommendation: \$2,000,000

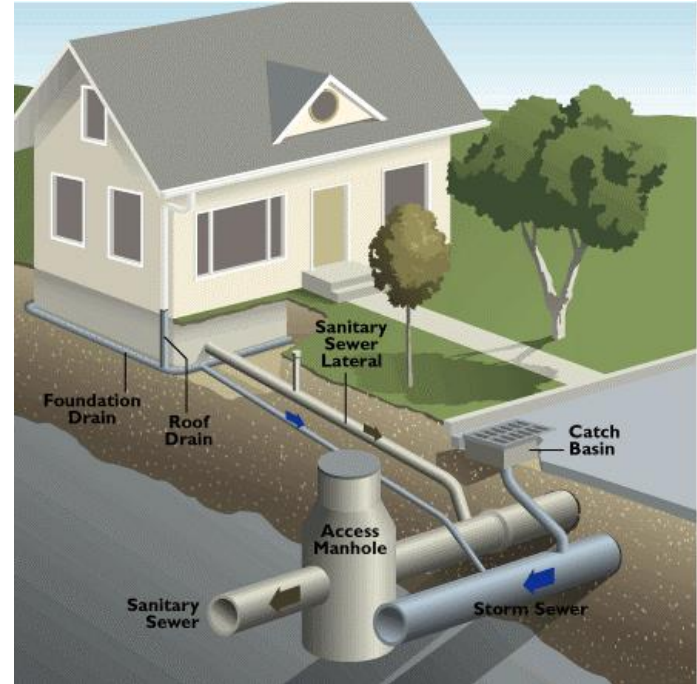
GROUP C – EMERGENCY/NON-EMERGENCY REPAIRS & IMPROVEMENTS



GROUP C – EMERGENCY/NON-EMERGENCY REPAIRS & IMPROVEMENTS

- Year 2 Budget: \$15,000,000
 - Utilized: \$8,000,000 (est.)
 - 65 point repair work orders completed or in progress
 - Multiple crews engaged
 - Progress aligned with expectations
- Year 3 Recommendation: \$11,000,000

GROUP D – CLEANOUTS & SEWER LATERALS



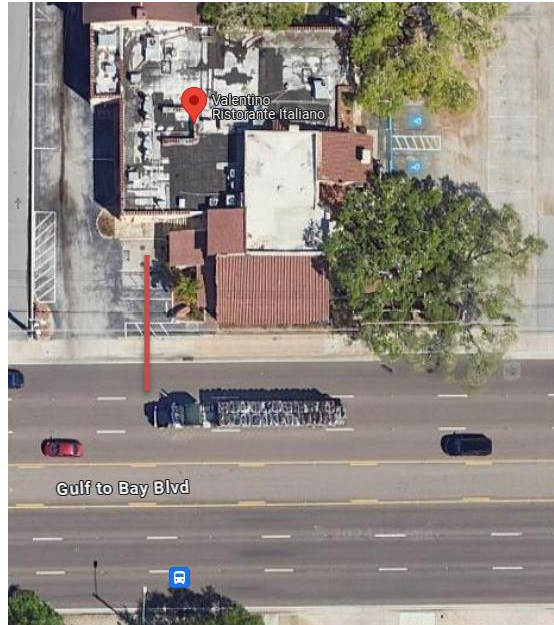
1. <https://www.cityofnoblesville.org/topic/subtopic.php?topicid=2698&structureid=16>

GROUP D – CLEANOUTS & SEWER LATERALS

6 Lane Div. Hwy
Gulf to Bay Blvd

Before Rehab

After Rehab



GROUP D – CLEANOUTS & SEWER LATERALS

- Year 2 Budget: \$6,000,000
 - Utilized: \$500,000 (est.)
 - 175 laterals lined
 - Lining, when possible, is more cost efficient than full replacement, reducing replacement costs
 - Potential significant infiltration and inflow (I&I) reduction
- Year 3 Recommendation: \$2,000,000

GROUP E – MANHOLE RESURFACING

MH 295B5050



Before
Rehab



After
Rehab

MH 286B8050



Before
Rehab



After
Rehab

GROUP E – MANHOLE SURFACING

- Year 2 Budget: \$3,000,000
 - Utilized: \$3,000,000 (est.)
 - Successfully demonstrated ability to scale
- 367+ manholes coated
 - 1,600+ total vertical feet of polyurethane coating applied
 - 242 frame/corbel connections resealed
 - 2,000+ ft of injection grouting installed to prevent infiltration and inflow (I&I)
- Year 3 Recommendation: \$3,000,000

GROUP F – SMOKE & DYE TESTING



GROUP F – SMOKE & DYE TESTING

- Year 2 Budget: \$750,000
 - Utilized: \$580,000
 - 1.2 million feet (226 miles) of pipe smoke tested
- Year 3 Recommendation: \$500,000

SUMMARY BY YEAR

Section	Year 1	Year 2*	Total to Date	
	Qty	Qty	Qty	Percent of System
A (CIPP)	53,300 ft	34,000 ft	87,300	4
B (CCTV)	78,000 ft	8,800 ft	86,800	4
C (Repairs)	130 repairs	65 repairs	195 repairs	N/A
D (Laterals)	18	175	193	0.6
E (MH Spray Coating)	245 MHs	367 MHs	612	7.4
F (Smoke & Dye Testing)	71 miles	226 miles	297	73

* As of August 7, 2024

4- SUMMARY

WWCS On-Call Contractors

- Total for 6 Contracts: \$21,500,000*
- Providing emergency and proactive preventive maintenance work to be renewed each year for up to 2 more years then rebid.
- Each year approved by Council.
- Contractor bids for capital projects will still be brought to City Council for approval.

*Total annual not to exceed. Unused funds revert to Public Utilities



4 - SUMMARY

Benefits to Clearwater of WWCS Program

- Proactive maintenance reduces new construction and emergency work, which costs 5 to 10 times more
- Reduces I&I over time by eliminating cracks, root intrusion, and other defects
- Reduces overflow risks by removing causes of backups
- Identifies parts of system needing priority focus or funding priority
- Protects public health and safety



5 – QUESTIONS?