

METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY, NC



Capital Improvement Program Committee

April 28, 2022

AGENDA



SUMMARY OF
PROPOSED CIP
BUDGET FOR FY22-23



COLLECTION SYSTEM
PROJECTS



WATER
RECLAMATION
FACILITY PROJECTS

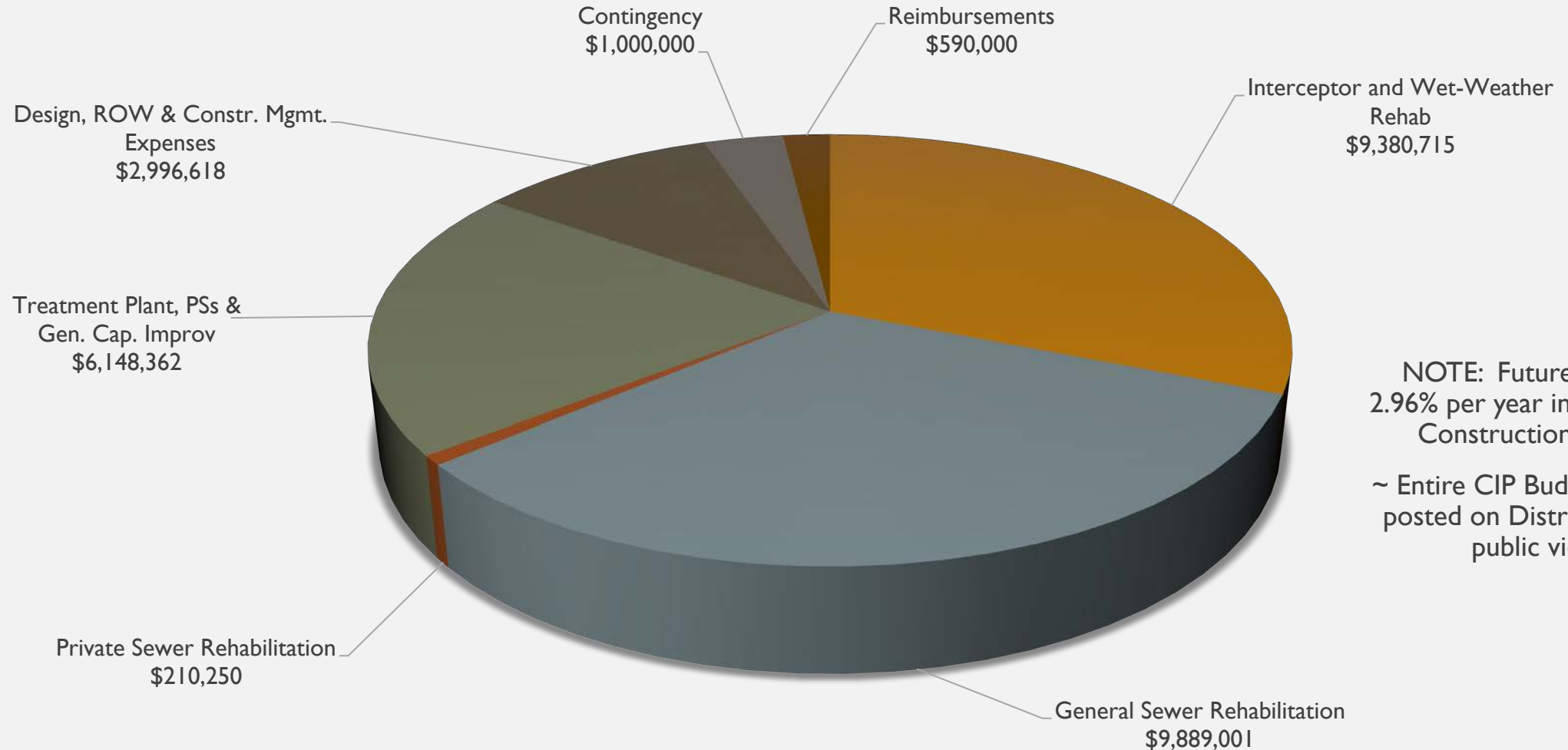


FINANCIAL ASPECTS
REGARDING THE CIP

CAPITAL IMPROVEMENT PROGRAM

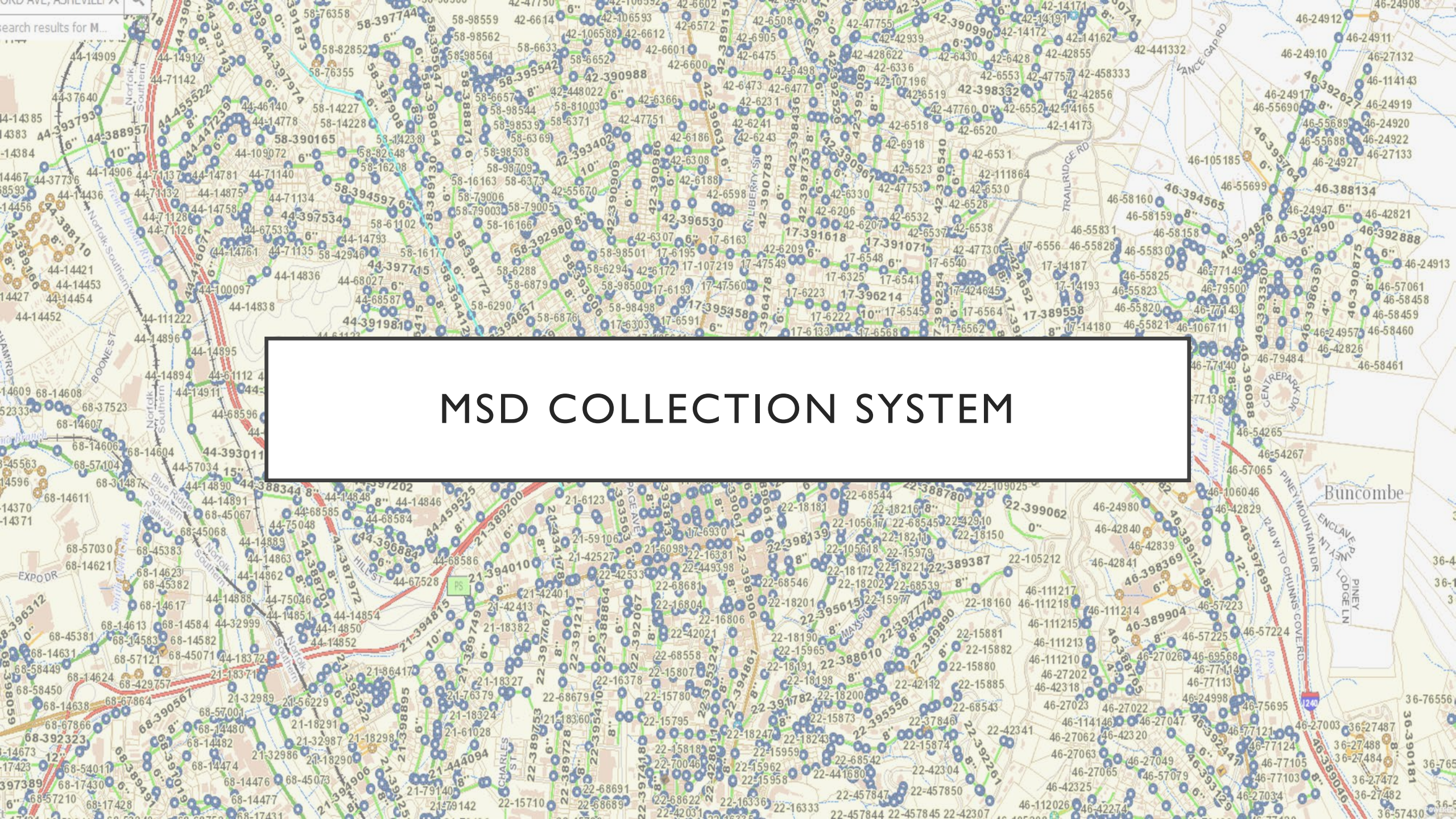
SUMMARY OF PROPOSED BUDGET FOR FISCAL YEAR 2023

\$30,314,882



NOTE: Future years reflect 2.96% per year inflation, per ENR Construction Cost Index.

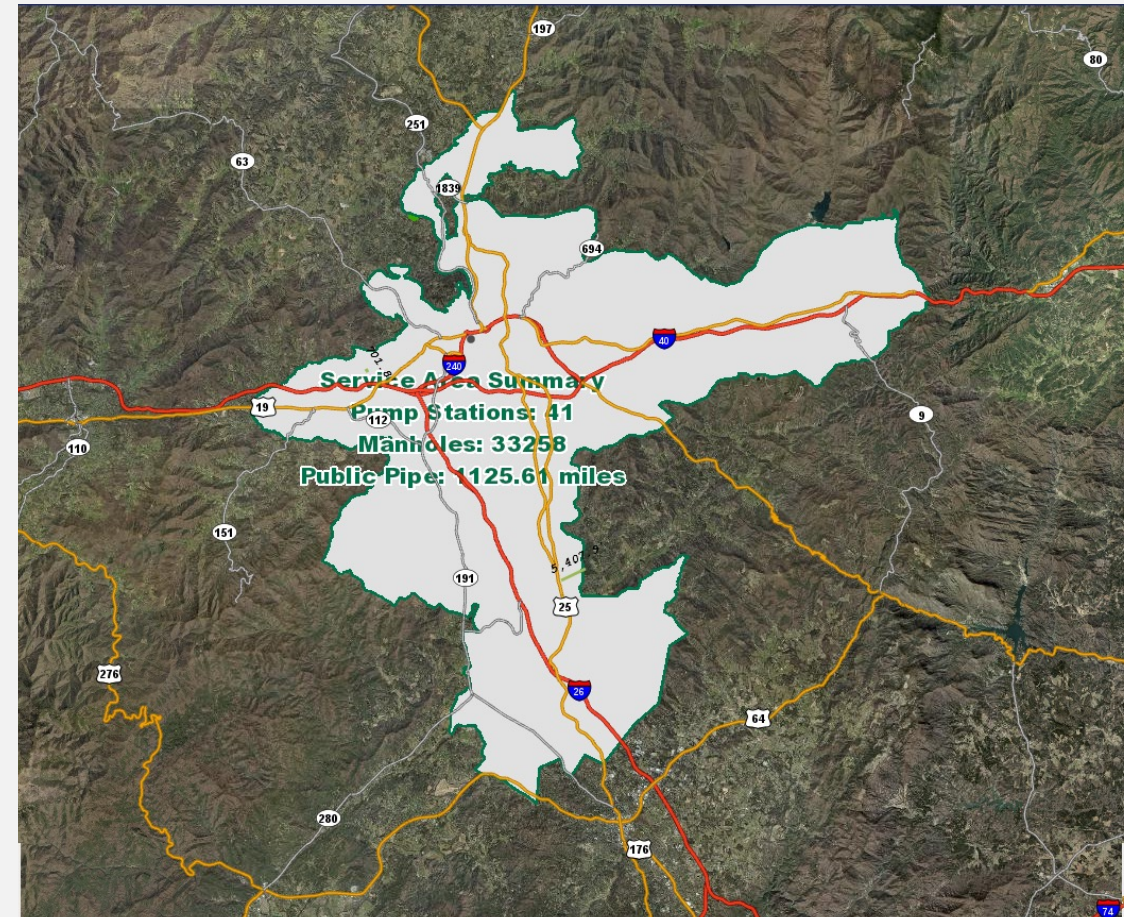
~ Entire CIP Budget Document is posted on District's website for public viewing. ~



MSD COLLECTION SYSTEM

MSD COLLECTION SYSTEM OVERVIEW

- MSD now serves ~201,000 people via 57,000 customer accounts
- Service District spans 263 square miles
- MSD currently owns and maintains:
 - 1,133 miles of sewer lines
 - 33,581 manholes
 - 40 pump stations



PIPE NETWORK

How it all gets to the plant....

- Small sewer mains (6") ~ 228 miles
- Sewer mains and small interceptors (8"-21") ~ 798 miles
- Large interceptors (24"-66") ~ 81 miles

Most of which was built in the 20's and 30's!

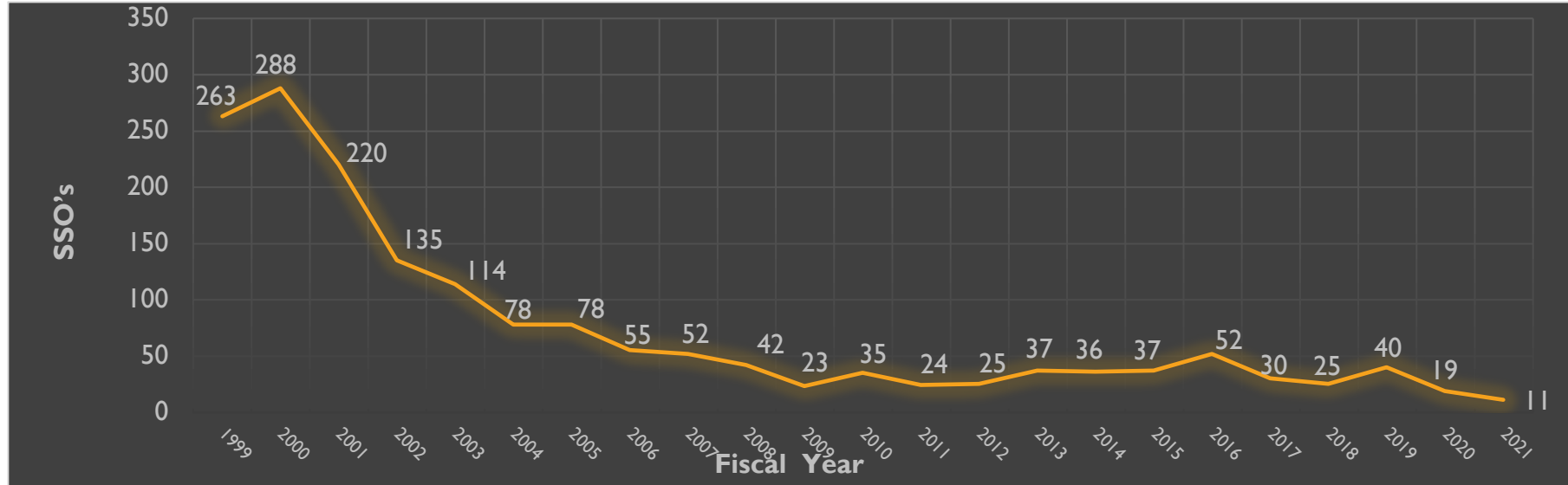




MSD'S AGGRESSIVE CIP PROGRAM

- MSD maintains an aggressive CIP Program (*thanks to you!*)
- MSD rehabilitates approx. 40k LF each fiscal year
 - In-House crews rehab ~20k LF (in addition to new taps and emergency repairs)
- From 1991 to 2021, **1.33 million LF rehabilitated or replaced**
 - 251.3 miles
 - Over 28% of “inherited” system

THE CIP TELLS A STORY



PIPE RATING SYSTEM

Projects are prioritized/scheduled according to their Pipe Ratings which includes the following aspects:

SSO & Overflow History

Customer Service Requests

Proximity to Streams/Waterbodies

Structural Condition

Monitoring Schedule by MSD Staff

Risk Matrix											
CONSEQUENCE OF FAILURE	Severe	10	20	30	40	50	60	70	80	90	100
		9	18	27	36	45	54	63	72	81	90
		8	16	24	32	40	48	56	64	72	80
	Moderate	7	14	21	28	35	42	49	56	63	70
		6	12	18	24	30	36	42	48	54	60
		5	10	15	20	25	30	35	40	45	50
	Low	4	8	12	16	20	24	28	32	36	40
		3	6	9	12	15	18	21	24	27	30
		2	4	6	8	10	12	14	16	18	20
	Negligible	1	2	3	4	5	6	7	8	9	10
	Negligible	Possible			Likely			Very Likely			
LIKELIHOOD OF FAILURE											

Pipe Rating program utilizes combination of “Likelihood” of failure and “Consequence” of failure.

FY23-FY32
(10 YR) CIP

PRIORITIZED BY
PIPE RATING

Higher Pipe Rating

MSD CAPITAL IMPROVEMENT PROGRAM
Collection System Projects FY23-FY32 Sorted by Pipe Rating

PROJECT NAME	LOCATION OF PROJECT	PROJ. MGR.	PROJECT NUMBER	PIPE RATING	PROJECT FOOTAGE	TOTAL ESTIMATED COST	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	FY 29-30	FY 30-31	FY 31-32
							FOOTAGE	FOOTAGE	FOOTAGE	FOOTAGE	FOOTAGE	FOOTAGE	FOOTAGE	FOOTAGE	FOOTAGE	FOOTAGE
French Broad Interceptor @ Ambury Rd	Ashville	HC/BP	2024006	N/A	1,000	\$3,214,924	1,000									
South French Broad Relief Int.	Swain County	HC	2017070	N/A	26,220	\$41,957,200					9,000	9,000	9,000	9,000		
Swain County Equalization Tank	Swain County	HC	2010040	N/A	0	\$26,727,013										
Alpharetta Cemetery PG Elimination	Ashville	TH	2019171	N/A	922	\$65,130										
USD Rehab. & Replacement	Various	MS	2002101	N/A	200,000	\$40,740,000	10,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Storage No. Design	Various	BN	2003060	N/A	N/A	\$600,000										
Carver Bridge PG Replacement	Ashville	HC/BP	2010045	N/A	1,400	\$40,551,791			1,400							
Waverly PG Replacement	Waverly	SA	2010060	N/A	18,000	\$13,783,250		1,000	10,000							
Ennis Hill Rd. @ High School	Waverly	SA	2021066	Q1	130	\$64,250		130								
La An Hunt Road	Ashville	TH	2010027	77	820	\$262,500	820									
Commerce Rd. @ Greene Rd.	South Asheville	TH	2021003	70	640	\$306,140			640							
Ugler Ave. @ Ambury Rd.	Ashville	SA	2021010	80	240	\$97,000					240					
Avenches. @ Hagerwood Rd.	West Asheville	HC	2021003	80	230	\$122,460						230				
Chickamauga Road	Ashville	HC	2014153	85	2,126	\$1,353,150	2,126									
Best Tree Road	Ashville	D.P.	2016102	80	1,654	\$66,412	1,654									
Head Mill Rd. @ Richard St.	Ashville	SA	2014105	80	3,300	\$1,263,300			3,300							
East Hill Road @ Baker Place	W. Asheville	SA	2015023	80	1,400	\$63,110			1,400							
Old County Home R&PFR	W. Asheville	SA	2015021	80	4,600	\$1,059,150				4,600						
Avoca Drive	Ashville	D.P.	2017146	80	3,700	\$1,066,600	3,700									
Joseph Road @ Riverside Drive	Waverly	TH	2010020	80	100	\$64,000				100						
Springdale Rd. @ Overlook Rd.	S. Asheville	SA	2012127	80	3,022	\$900,106	1,000									
Bushyway Ave.	Ashville	SA	2014020	81	2,266	\$1,401,400		2,266								
Wilderly Ave. @ Stealey Avenue	Ashville	TH	2010026	81	3,180	\$1,203,000				3,180						
Lakeside Dr. @ Chisel Ave.	Knickerbocker	HC	2021087	81	2,146	\$1,012,000					2,146					
Joseph Creek Rd. @ Buck Shoals Rd.	S. Asheville	HC	2014015	81	1,000	\$603,670		1,000								
Ugler Street	W. Asheville	SA	2010004	81	811	\$415,200	811									
Montford Ave. @ Montford Park	Ashville	HC	2017146	80	1,258	\$517,700				1,258						
Bellvue Road	S. Asheville	D.P.	2015175	40	1,100	\$606,100				1,100						
Cherokee Road	Ashville	D.P.	2009102	40	1,000	\$1,027,880		1,000								
Elk Mountain Place	Waverly	HC	2010004	40	4,137	\$1,468,870			4,137							
Lugin Avenue	W. Asheville	SA	2017156	40	2,150	\$1,056,500						2,150				
Woodland Park	Ashville	TH	2010030	40	821	\$441,000				821						
Brake Road @ Cagney Lane	Ashville	D.P.	2009126	40	4,027	\$1,676,176				4,027						
New Creek Road	Swain County	D.P.	2010011	40	6,000	\$2,744,000					6,000					
Snigher Springs Rd. @ Coalington St.	W. Asheville	D.P.	2014000	44	1,350	\$608,000						1,350				
Chatham Road	Ashville	SA	2010010	40	1,480	\$640,700						1,480				
Woodard Rd. @ Sunset Trail	Ashville	D.P.	2012134	40	994	\$472,500				994						
W. Street @ Cross Place	Ashville	TH	2010040	40	681	\$236,660				681						
W. Street St. @ N. Lexington Ave.	Ashville	D.P.	2017000	40	1,300	\$614,040						1,300				
Adams Street	Ashe	HC	2014012	30	1,823	\$906,020						1,823				
Royal Pine Drive - PRP 45009	Ashe	SA	2007030	30	7,050	\$2,736,000									2,000	
Johnson Blvd. @ Providence Rd.	W. Asheville	D.P.	2014010	27	2,000	\$662,150							2,000			
Maple Road @ Train Yard	Ashville	HC	2010007	37	2,001	\$1,059,000									2,001	
East Chestnut Ave. @ Pine Pointe	S. Asheville	SA	2015182	26	5,225	\$1,022,050								5,225		
Cabin Trail @ Orchard Trail	Ashville	TH	2021034	25	780	\$225,450									780	
Central Ave. @ L-240	Ashville	SA	2014180	35	880	\$364,000										880
Lincoln Ave. @ US 70 Hwy	Swain County	HC	2021004	35	2,400	\$673,400									2,400	
Harmony Lane	Ashville	D.P.	2016103	35	670	\$160,500										670
Westside Drive	S. Asheville	D.P.	2014002	33	2,800	\$1,028,000										2,800
W. Asheville Ave. @ Brookwood Ave.	W. Asheville	SA	2014180	30	3,022	\$1,370,750										3,022
W. Asheville Road	N. Asheville	D.P.	2010017	31	3,900	\$1,711,500										3,900
Waverly Rd. @ Johnson Dr.	N. Asheville	TH	2014020	31	6,140	\$2,159,660										6,140
New New Creek Rd. @ Engwood Drive	S. Asheville	SA	2014021	31	2,400	\$622,070										2,400
W. Asheville Ave. @ US 70 Hwy	Swain County	HC	2021004	30	2,400	\$673,400										2,400
Harmony Lane	Ashville	D.P.	2016103	35	670	\$160,500										670
Westside Drive	S. Asheville	D.P.	2014002	33	2,800	\$1,028,000										2,800
W. Asheville Ave. @ Brookwood Ave.	W. Asheville	SA	2014180	30	3,022	\$1,370,750										3,022
W. Asheville Road	N. Asheville	D.P.	2010017	31	3,900	\$1,711,500										3,900
Waverly Rd. @ Johnson Dr.	N. Asheville	TH	2014020	31	6,140	\$2,159,660										6,140
New New Creek Rd. @ Engwood Drive	S. Asheville	SA	2014021	31	2,400	\$622,070										2,400
W. Asheville Ave. @ US 70 Hwy	Swain County	HC	2021004	30	2,400	\$673,400										2,400
Harmony Lane	Ashville	D.P.	2016103	35	670	\$160,500										670
Westside Drive	S. Asheville	D.P.	2014002	33	2,800	\$1,028,000										2,800
W. Asheville Ave. @ Brookwood Ave.	W. Asheville	SA	2014180	30	3,022	\$1,370,750										3,022
W. Asheville Road	N. Asheville	D.P.	2010017	31	3,900	\$1,711,500										3,900
Waverly Rd. @ Johnson Dr.	N. Asheville	TH	2014020	31	6,140	\$2,159,660										6,140
New New Creek Rd. @ Engwood Drive	S. Asheville	SA	2014021	31	2,400	\$622,070										2,400
W. Asheville Ave. @ US 70 Hwy	Swain County	HC	2021004	30	2,400	\$673,400										2,400
Harmony Lane	Ashville	D.P.	2016103	35	670	\$160,500										670
Westside Drive	S. Asheville	D.P.	2014002	33	2,800	\$1,028,000										2,800
W. Asheville Ave. @ Brookwood Ave.	W. Asheville	SA	2014180	30	3,022	\$1,370,750										3,022
W. Asheville Road	N. Asheville	D.P.	2010017	31	3,900	\$1,711,500										3,900
Waverly Rd. @ Johnson Dr.	N. Asheville	TH	2014020	31	6,140	\$2,159,660										6,140
New New Creek Rd. @ Engwood Drive	S. Asheville	SA	2014021	31	2,400	\$622,070										2,400
W. Asheville Ave. @ US 70 Hwy	Swain County	HC	2021004	30	2,400	\$673,400										2,400
Harmony Lane	Ashville	D.P.	2016103	35	670	\$160,500										670
Westside Drive	S. Asheville	D.P.	2014002	33	2,800	\$1,028,000										2,800
W. Asheville Ave. @ Brookwood Ave.	W. Asheville	SA	2014180	30	3,022	\$1,370,750										3,022
W. Asheville Road	N. Asheville	D.P.	2010017	31	3,900	\$1,711,500										3,900
Waverly Rd. @ Johnson Dr.	N. Asheville	TH	2014020	31	6,140	\$2,159,660										6,140
New New Creek Rd. @ Engwood Drive	S. Asheville	SA	2014021	31	2,400	\$622,070										2,400
W. Asheville Ave. @ US 70 Hwy	Swain County	HC	2021004	30	2,400	\$673,400										2,400
Harmony Lane	Ashville	D.P.	2016103	35	670	\$160,500										670
Westside Drive	S. Asheville	D.P.	2014002	33	2,800	\$1,028,000										2,800
W. Asheville Ave. @ Brookwood Ave.	W. Asheville	SA	2014180	30	3,022	\$1,370,750										3,022
W. Asheville Road	N. Asheville	D.P.	2010017	31	3,900	\$1,711,500										3,900
Waverly Rd. @ Johnson Dr.	N. Asheville	TH	2014020	31	6,140	\$2,159,660										6,140
New New Creek Rd. @ Engwood Drive	S. Asheville	SA	2014021	31	2,400	\$622,070										2,400
W. Asheville Ave. @ US 70 Hwy	Swain County	HC	2021004	30	2,400	\$673,400										2,400
Harmony Lane	Ashville	D.P.	2016103	35	670	\$160,500										670
Westside Drive	S. Asheville	D.P.	2014002	33	2,800	\$1,028,000										2,800
W. Asheville Ave. @ Brookwood Ave.	W. Asheville	SA	2014180	30	3,022	\$1,370,750										3,022
W. Asheville Road	N. Asheville	D.P.	2010017	31												

MSD IN-HOUSE REHABILITATION

MSD System Services In-House Construction									
FY 21-22									
PROJECT NAME	LOCATION	ZIP CODE	ESTIMATED FOOTAGE	ESTIMATED PROJECT DATES	WO#	CREW	COMPLETION DATE	ACTUAL FOOTAGE	NOTES
765 New Airport Road Construction Rehabilitation	Fletcher	28732	365	7/19/2021	281422	M. Hensley	7/19/2021	368	Complete
Northwest Avenue @ 215 Sewer Rehabilitation	Swannanoa	28778	252	7/8/21 - 7/26/21	275846	Norton	7/26/2021	244	Complete
S Bear Creek Road Creek Crossing Replacement	W. Asheville	28806	161	3/23/21 - 8/25/21	282110	Dockery	8/25/2021	161	Complete
Sulphur Springs Road Sewer Rehabilitation Line B	Asheville	28806	1,100	7/1/21 - 11/13/21	278841	Dockery	9/15/2021	1074	Complete
3 Glen Cliff Rd Construction Rehabilitation	Candler	28715	220	11/12/2021	284144	G. Hensley	11/12/2021	220	Complete
Smokey Park Highway Construction Repair	Enka	28715	290	1/11/21 - 12/15/21	283056	Kam	11/18/2021	283	Complete
Coleman Avenue at Conestee Sewer Rehabilitation	Asheville	28801	1,517	1/18/21 - 11/15/21	233875	Dockery	11/30/2021	1485	Complete
72 Dillingham Road	Asheville	28805	234	1/1/21 - 12/17/21	39327	Norton	12/9/2021	240	Complete
Parker Drive At No. 110 Sewer Rehabilitation	Swannanoa	28778	598	2/1/21 - 12/31/21	275885	Dockery	12/20/2021	374	Complete
Brianwood Rd at W. Fox Chase Rd Sewer Rehab	Weaverville	28804	300	2/20/21 - 1/14/22	267160	Norton	1/6/2022	297	Complete
Briarcliff Dr at Oakwilde Dr Construction Rehab Ph. 1	Asheville	28803	189	1/17/22 - 1/31/22	258768	Norton	1/11/2022	189	Complete
129 South Ln @ Warren Wilson Construction Rehab	Swannanoa	28778	155	1/24/22 - 1/28/22	285520	Dockery	1/28/2022	155	Complete
Grace Avenue	Asheville	28804	239	12/20/21 - 2/2/22	284413	Dockery	2/2/2022	258	Complete
49 Eastview Circle Construction Rehabilitation	Asheville	28806	99	2/21/2022	285669	G. Hensley	2/21/2022	99	Complete
Lotus Place Sewer Rehabilitation	Asheville	28804	825	1/31/22 - 3/4/22	275767	Dockery	3/2/2022	851	Complete
Naples PS Elimination and Gravity Conversion Ph. 1	Cane Creek	28760	1858	2/10/22 - 3/4/22	285603	McDevitt	3/25/2022	1564	Complete
White Oak Road Sewer Rehabilitation Phase II	Arden	28704	1110	3/4/22 - 4/29/22	286269	Dockery			Construction 70% complete
Chateau Pl @ Kenilworth Rd Sewer Replacement	Asheville	28803	215	4/5/22 - 4/8/22	287063	McDevitt			Construction underway
753 Fairview Rd Sewer Rehabilitation	Asheville	28803	100	4/11/22 - 4/15/22	275813	McDevitt			Scheduled to start April 11, 2022
276 Hi-Alta Avenue Sewer Rehabilitation	Asheville	28806	201	5/2/22 - 6/3/22	271375	Dockery			Ready for construction
44 Galax Sewer Rehab	Asheville	28806	294	6/6/22 / 6/30/22	280827	TBA			Ready for Construction
Naples PS Elimination and Gravity Conversion Ph. 2	Cane Creek	28760	294	FY 21-22	285603	TBA			Ready for construction
Charlotte Street @ N Ridgeway Avenue	Blk Mountain	28711	1073	FY 21-22	232699	TBA			Ready for construction
Briarcliff Dr at Oakwilde Dr Construction Rehab Ph. 2	Asheville	28803	257	FY 21-22	TBA	TBA			In Design

Completed projects
 In progress

- 16 projects completed so far in FY21-22, 24 projects in total
- 7,862 LF of mainline sewer installed through March 2022

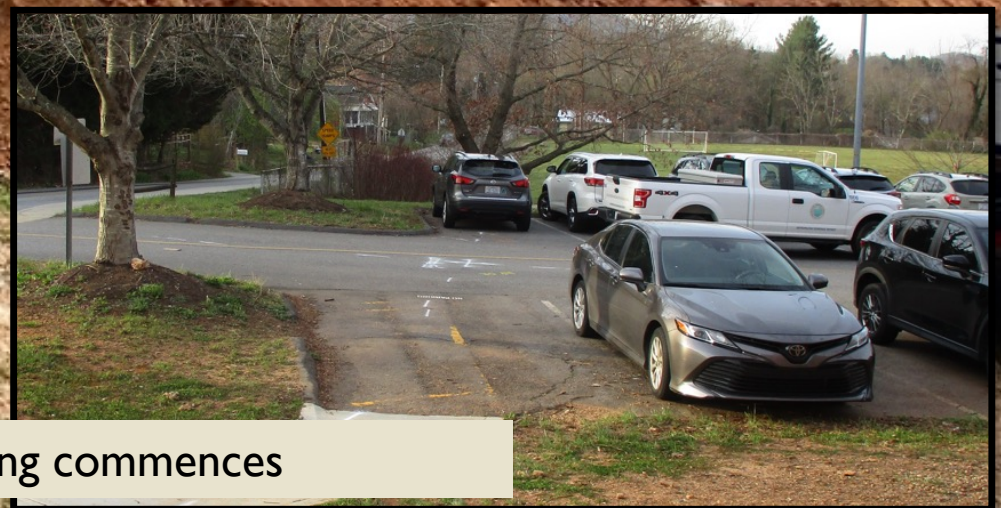


IN-HOUSE CIP CONSTRUCTION ACTIVITIES

OAKLEY ELEMENTARY SCHOOL

- MSD In-House replaced 70LF of mainline sewer in mid-April, 2022
- Work was closely coordinated with school staff to be completed during spring break week





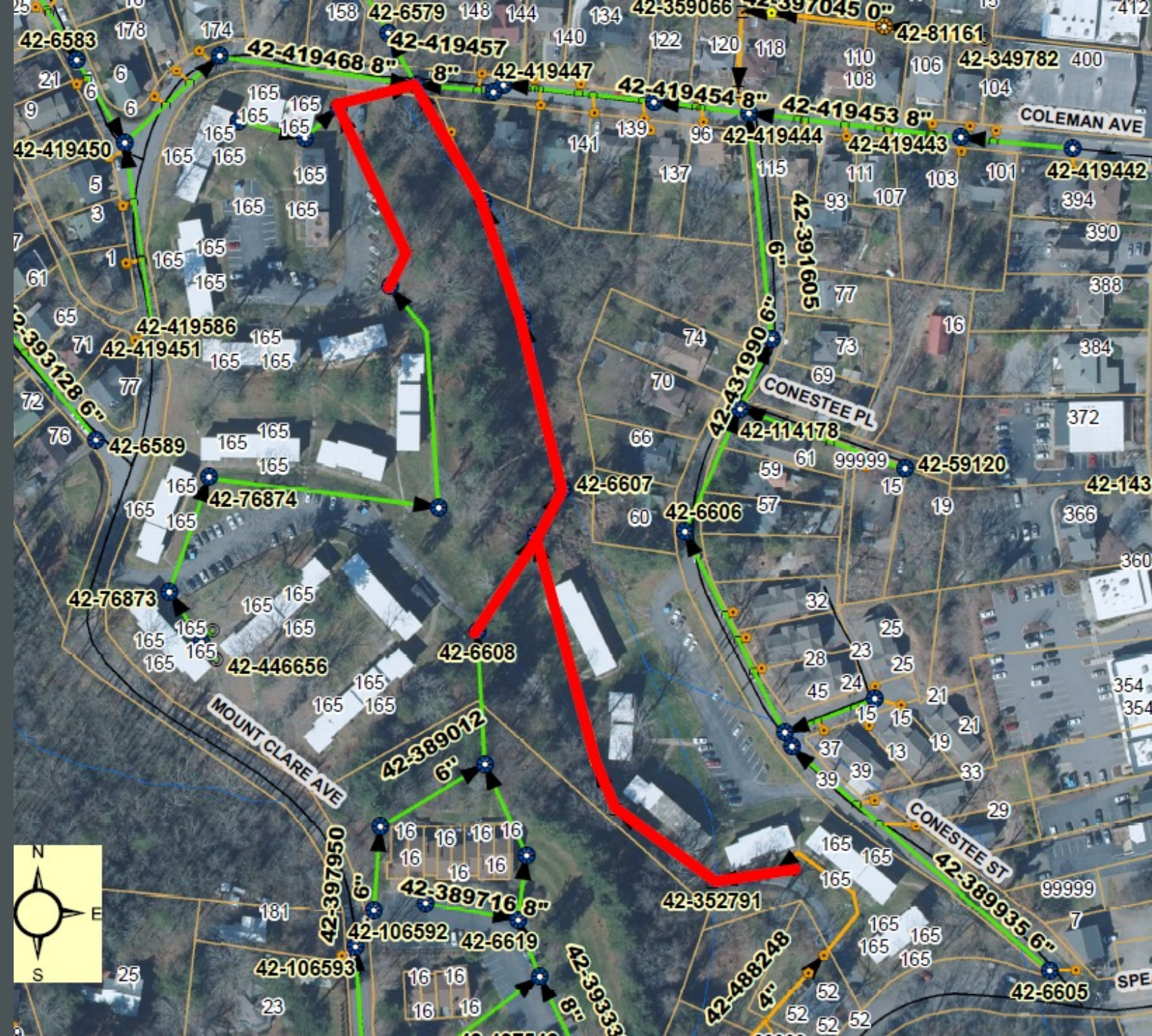
4-11-22 – Utility locate complete and digging commences



4-13-22 – Site ready for pavement and concrete restoration

COLEMAN AVE. AT CONESTEE STREET

- Located in north Asheville, adjacent to Merrimon Ave, SW of Weaver Park
- Replaced 1,485 LF with new 8-inch DIP
- Sept. – November 2021





Tree removal in progress



MSD crew working on mainline replacement behind apartment buildings on Conestee Street



MSD's Elias Gutierrez compacting the backfill in a trench over the renewed sewer service line.



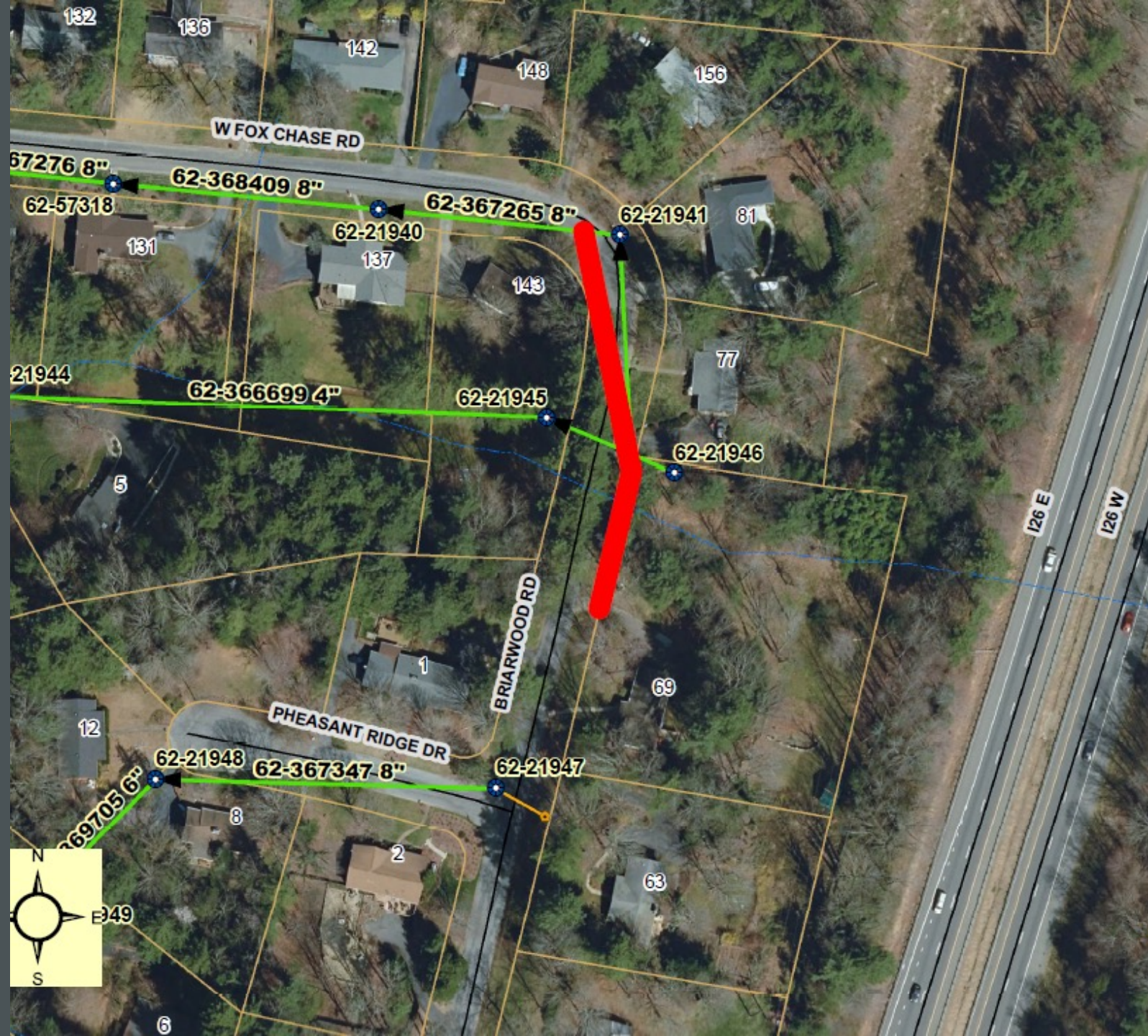
MSD's Seth Honeycutt working with a local plumber on reconnection for water service



Coleman Ave. at Conestee – Post Construction

BRIARWOOD ROAD AT W. FOX CHASE ROAD

- Located in Weaverville, adjacent to I-26 and just north of New Stock Road
- Replaced 297 LF with new 8-inch DIP
- Completed early January 2022





MSD's Matthew Ray installing
8-inch DIP



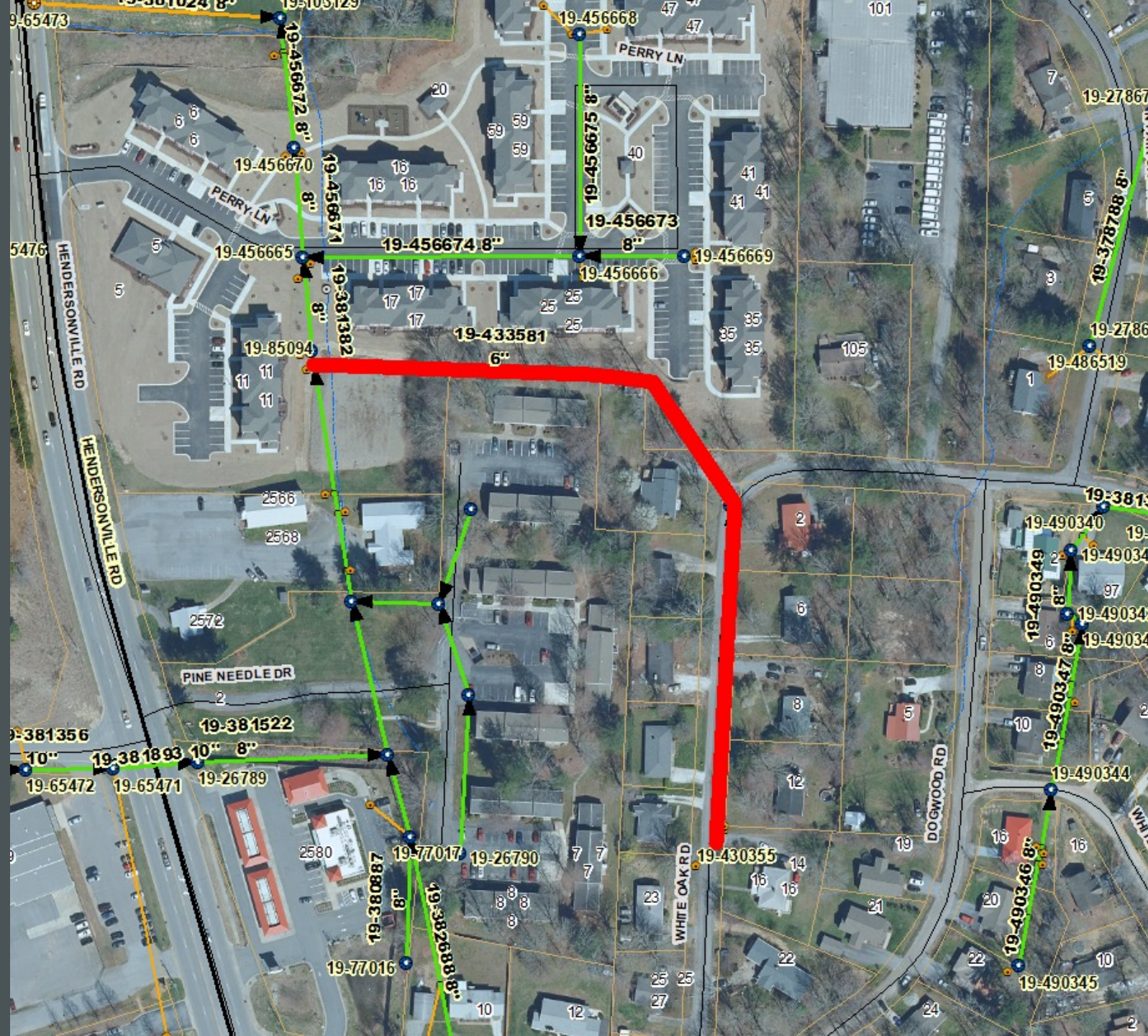
Trench compaction underway with Aggregate Base
Course ("ABC")



Briarwood Road at W. Fox Chase Road – Post Construction

WHITE OAK ROAD – PHASE II

- Located in Arden adjacent to Perry Lane Apartment Complex. Approx. 1 mile SW of Christ School
- Replaced 1,110 LF with new 8-inch DIP
- Began March 4, 2022 and is ongoing. Approximately 75% complete as of early April.





White Oak Rd – Phase II – Lower section during construction



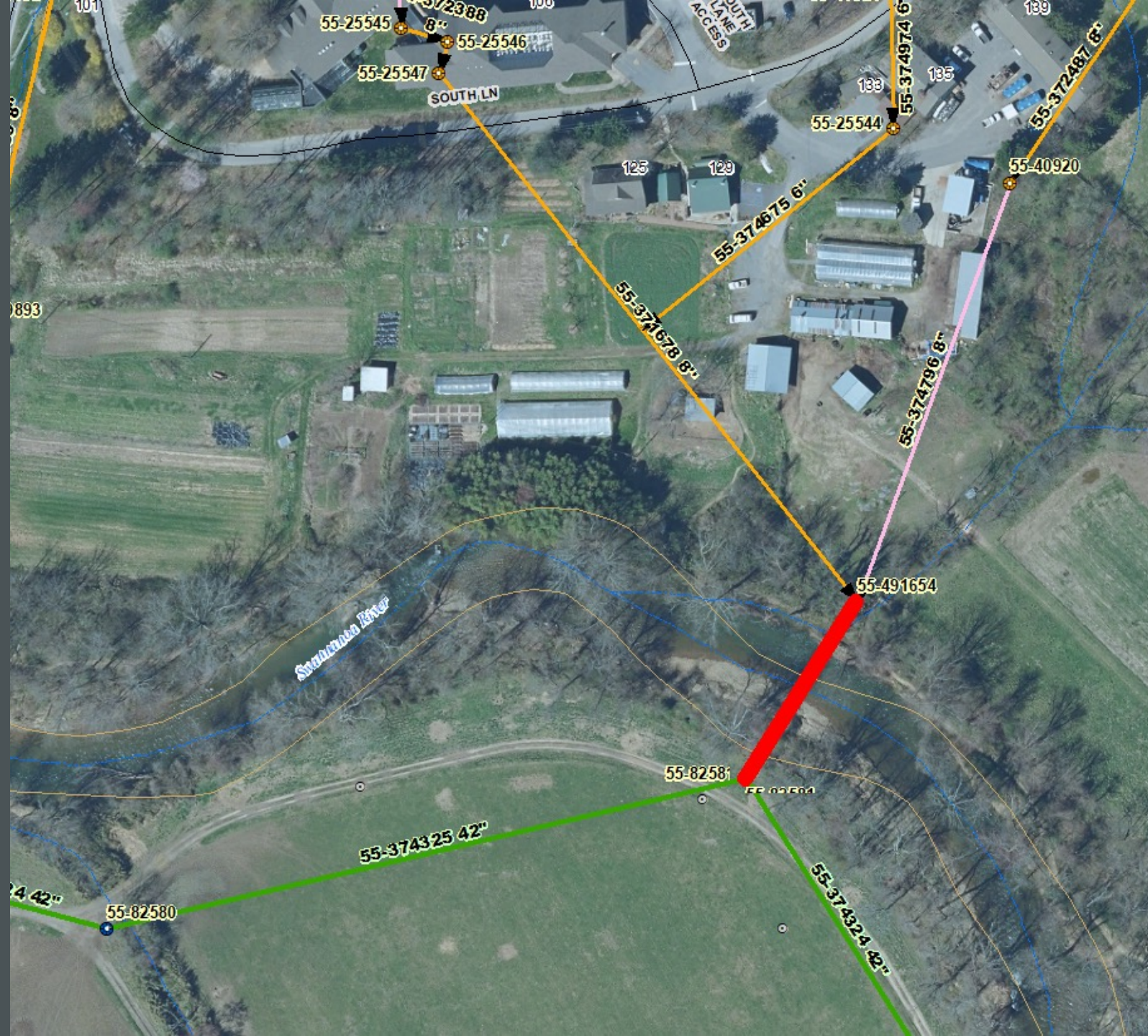
White Oak Rd – Phase II – Lower section post-construction



Current Construction Photos – Work on White Oak Road (Upper Section)

EMERGENCY RIVER CROSSING – WARREN WILSON COLLEGE

- Located in Swannanoa at Warren Wilson College
- Replaced 154 LF with new 8-inch DIP
- Commendable response time
 - Line break reported on Saturday, Jan. 22 at 4:35pm
 - Line plugged, leak contained, and bypass pumping by 7:15pm
 - Construction crew mobilized 8:00am Monday and completed work by 11am Friday, Jan. 28





Replaced pipe across the river utilizing conventional cofferdam construction



Restored construction site after work was complete



Photo of River Crossing Work Site From April 8, 2022 (College Side)

MSD IN-HOUSE REHABILITATION FY 22/23 WORK PLAN

- In-House crews anticipate rehabilitating approx. 16,000 LF of mainline sewer
- 22 project sites are planned at various locations across the District.

Background photo: RL Haynes and Grayson Hensley inspecting and repairing a section of the French Broad Interceptor in South Asheville

Metropolitan Sewerage District of Buncombe County, North Carolina CAPITAL IMPROVEMENT PROGRAM

BUDGET DATA SHEET - FY 2022-2023

PROJECT: SUMMARY - In-House Projects
ACCOUNT: GENERAL
DATE OF REPORT: January 2022
PROJECT BUDGET: Funded through 2002101

DESCRIPTION	PROJECT NO.	PROJECT LOCATION	WORK ORDER NO.	CONST. YEAR	TOTAL LINEAR FOOTAGE
5 Golf Street	2021269	Asheville 28801	284586	FY 22/23	240
10 Balsam Road	2020214	Ridgecrest 28770	275803	FY 22/23	410
11 Shenandoah Road	2020215	Asheville 28805	275804	FY 22/23	1,600
32 Kensington Drive	2020213	Asheville 28805	275805	FY 22/23	644
449 Midland Drive	2021273	Asheville 28804	279672	FY 22/23	318
753 Fairview Road	2020223	Asheville 28803	275813	FY 22/23	100
905 Patton Avenue	2017246	Asheville 28806	220364	FY 22/23	187
Albermarle Commons Pump Station	2018171	Asheville 28805	284462	FY 22/23	625
Baker Place @ Carrier Street	2021267	Asheville 28806	284574	FY 22/23	1,300
Bell Road @ New Haw Creek Road	2017244	Asheville 28805	248044	FY 22/23	1,002
Charlotte Street @ N. Ridgeway Ave.	2016237	Black Mtn 28711	232699	FY 22/23	1,073
Cherry Street	2021079	Weaverville 28787	278196	FY 22/23	420
Dayton Road @ No. 35	2020218	Asheville 28804	275867	FY 22/23	376
Grindstaff Drive @ McDowell Street	2021272	Asheville 28803	284606	FY 22/23	603
Maple Springs Road @ Knauth Road	2015220	Asheville 28805	275867	FY 22/23	893
Mountain View Road @ Maxwell Road	2019197	Asheville 28805	265269	FY 22/23	521
Old Fairview Road @ Wilmington Road	2020030	Asheville 28803	276005	FY 22/23	732
Rhodes Street @ Union Street	2021266	Woodfin 28804	284578	FY 22/23	230
Sheppard Drive @ No. 15	2021270	Asheville 28806	284601	FY 22/23	231
Vandalia Avenue	2017241	Asheville 28806	248041	FY 22/23	1,325
Virginia Avenue @ Luffy Avenue	2021271	Asheville 28806	441499	FY 22/23	513
Wellington Street	2021274	Asheville 28806	280245	FY 22/23	865

TOTAL FOOTAGE **14,208**

NOTES:

In addition to the projects identified above, an additional 2,000 linear feet of sewer rehabilitation footage is anticipated through completion of previously identified projects, emergency repairs, and other activities during FY 2022-2023.



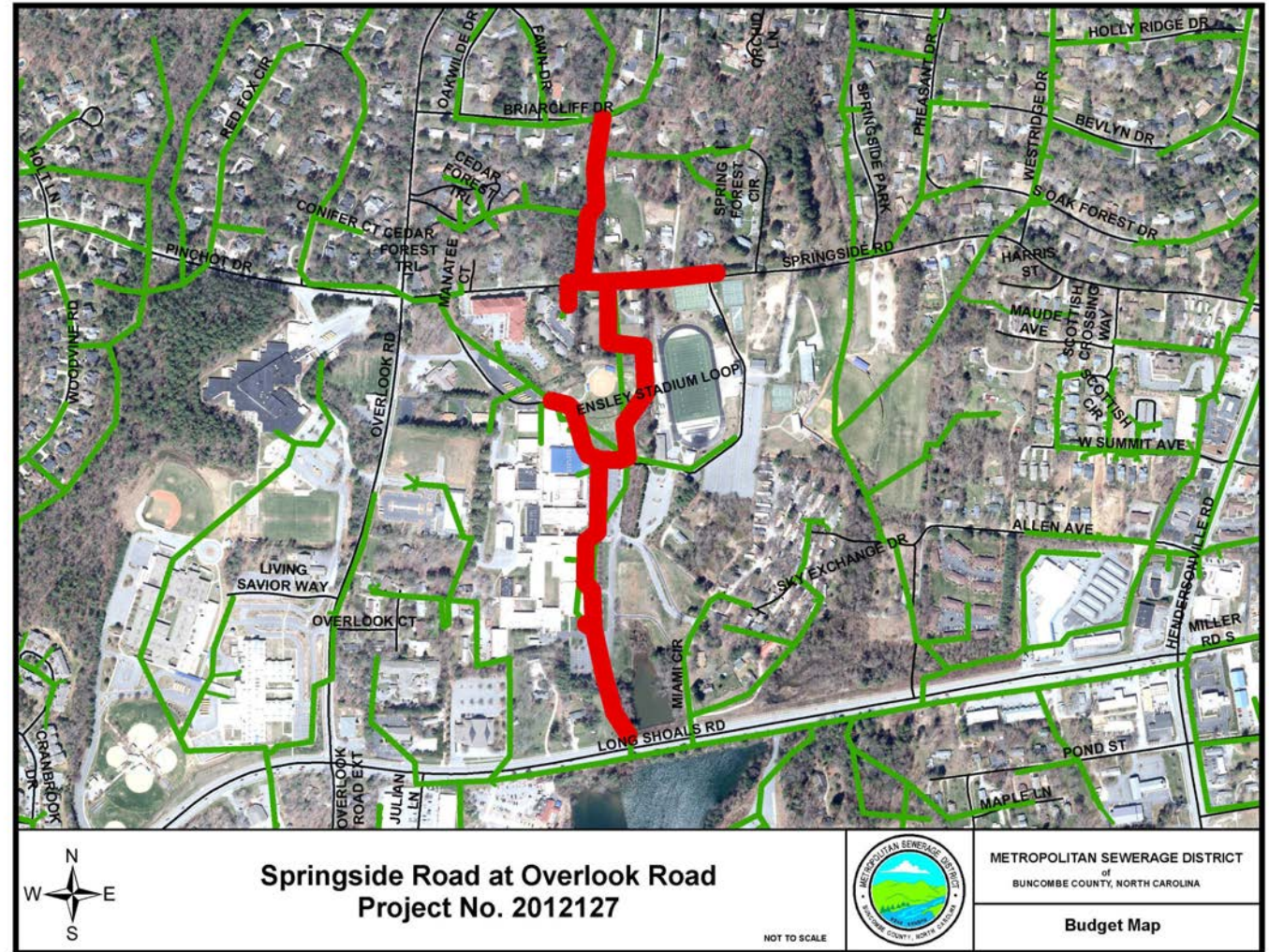
CONTRACTED CIP PROJECTS

RECENTLY COMPLETED OR ONGOING

SPRINGSIDE ROAD @ OVERLOOK ROAD

Project Specifics:

- Length: 3,922 LF (open cut)
- 6" and 8" VCP in very poor condition, runs adjacent to creek, history of SSOs
- Partnership and close coordination with Buncombe County Schools
- Project is ongoing. Awarded to Huntley Construction Co. for \$781k





(Left) Coring manhole for new service line. (Right) Installing 8" main line adjacent to main school entrance



Deteriorated Corrugated Metal Pipe storm drains to be replaced by Huntley Construction following sewer line replacement

BRYSON STREET

Project Specifics:

- Length: 611 LF (110 LF of J&B)
- 4" OB and PVC in poor condition, multiple sags and backups
- Pipe installation complete. Cost share with COA on asphalt paving.
- Awarded to Terry Bros. Construction for \$309k





24" jack and bore auger inside steel casing pipe



Bore pit in parking lot of Eurosport Asheville (top & bottom photos)



Night work required by NCDOT along Bryson Street

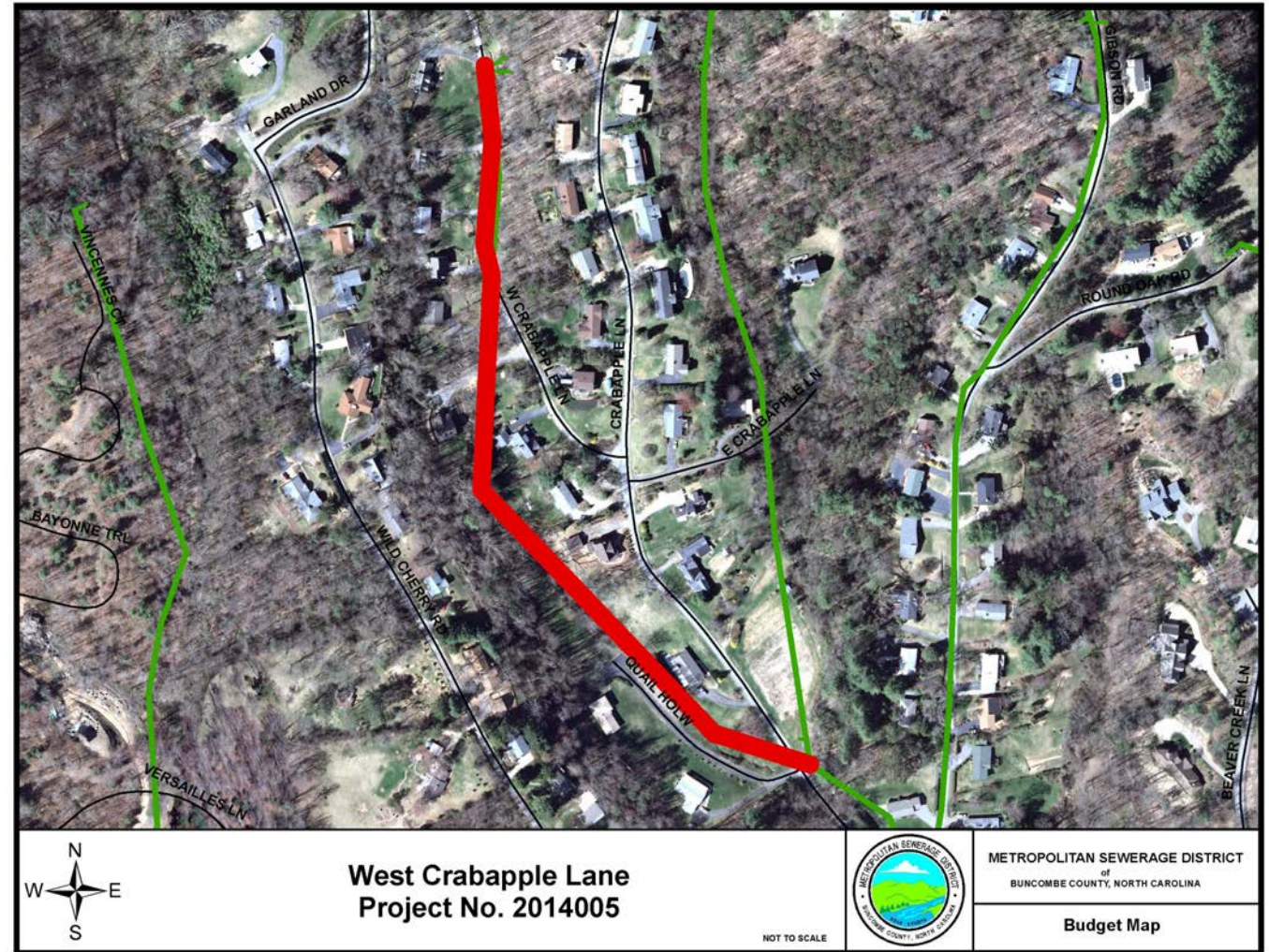


Current street status. Awaiting paving by City of Asheville

WEST CRABAPPLE LANE

Project Specifics:

- Length: 1,774 LF (1,280 LF of pipe bursting)
- 8" VCP in poor structural condition and root problems
- Construction completed by T.P. Howard's Plumbing Co. for \$329k

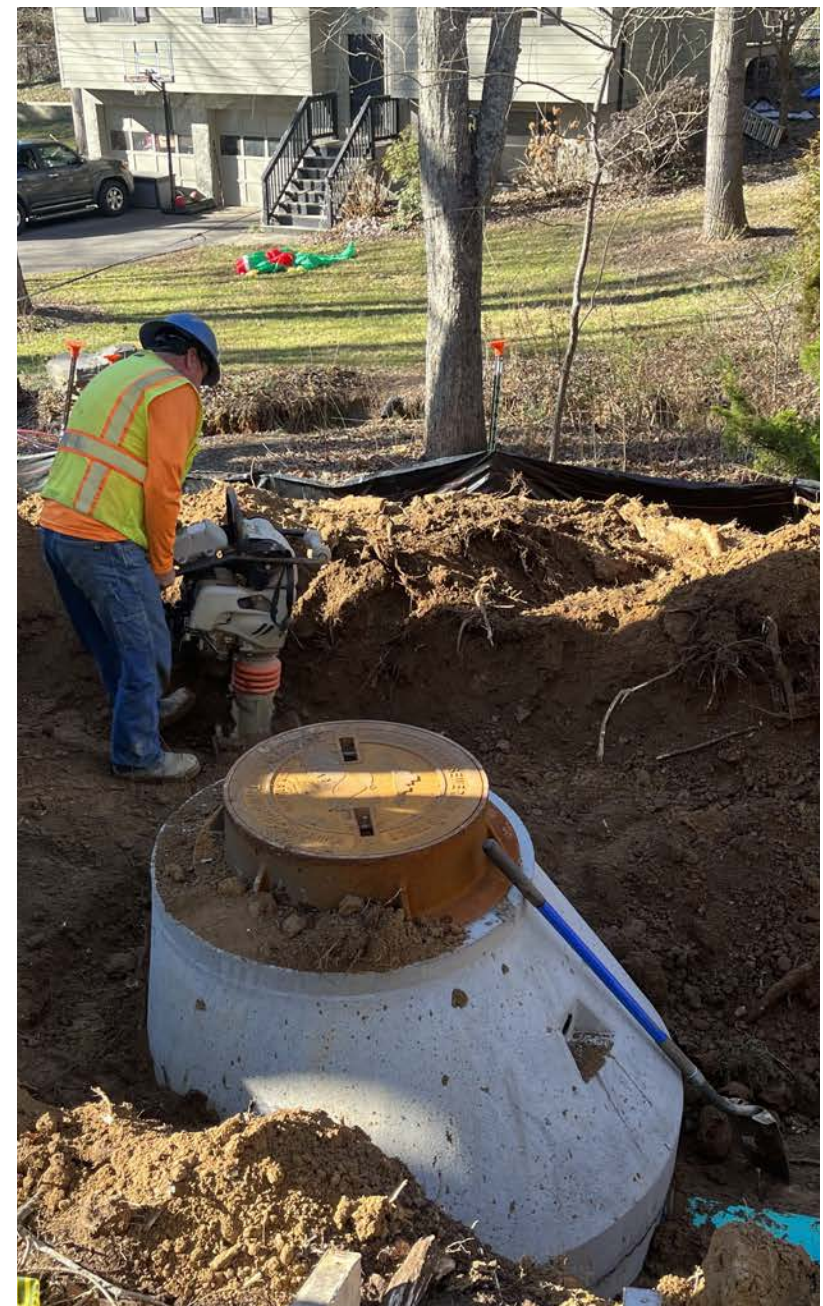




Installing butyl sealant on new manhole base



Installing manhole cone



Manhole frame and cover installed



Pipe bursting bore pit (top left); bursting head and HDPE pipe (top right); winch machine (lower left); bursting head entering old manhole (lower right)





Buried power and communication cables everywhere

MOUNTAINBROOK AT CHUNNS COVE ROAD

Project Specifics:

- Length: 3,204 LF (491 LF of pipe bursting)
- 6" VCP in poor structural condition and difficult to access and maintain.
- Construction completed by Terry Bros. Construction for \$885k






Ductile Iron wye fitting







**Last Fiscal Year ('20/'21),
MSD spent \$1.57M on
asphalt paving**



Installing temporary driving surface with ABC



New surface course – April 19, 2022



Installing 6" asphalt binder course per COA street standards

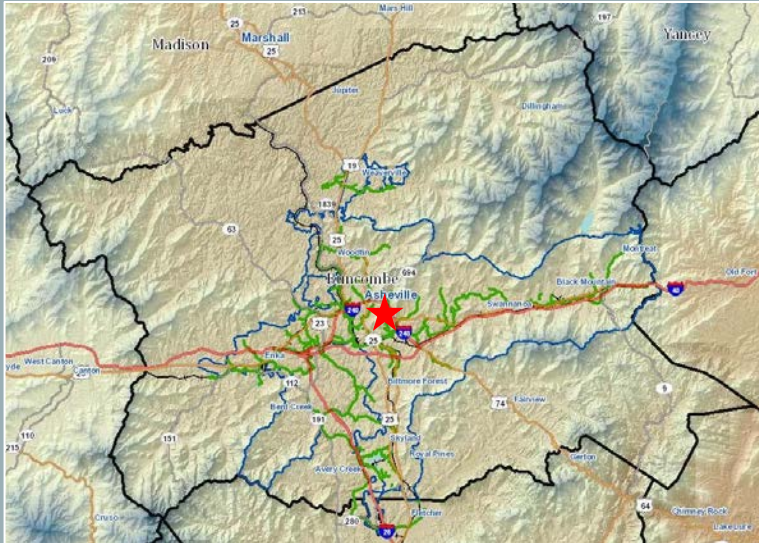


COLLECTION SYSTEM PROJECTS:

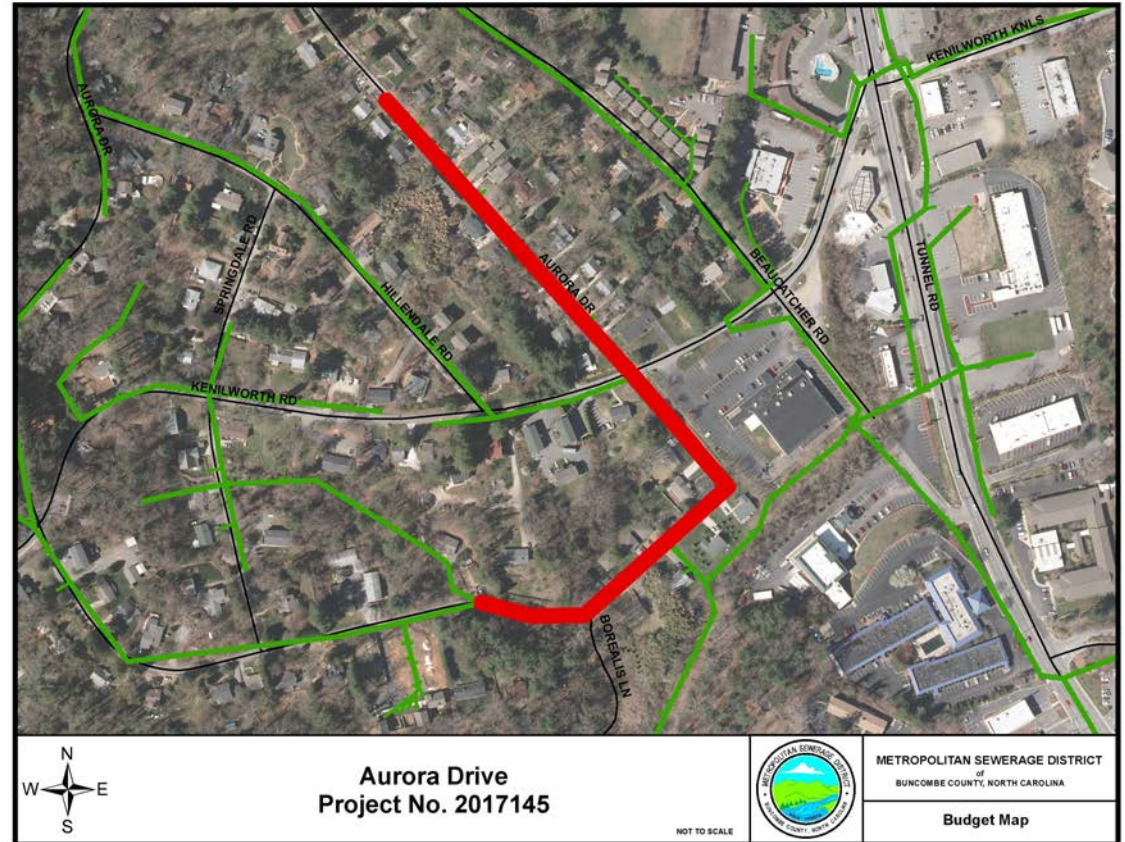
FY22-23 AND BEYOND

AURORA DRIVE

Vicinity Map



Located in Kenilworth, just west of Tunnel Road



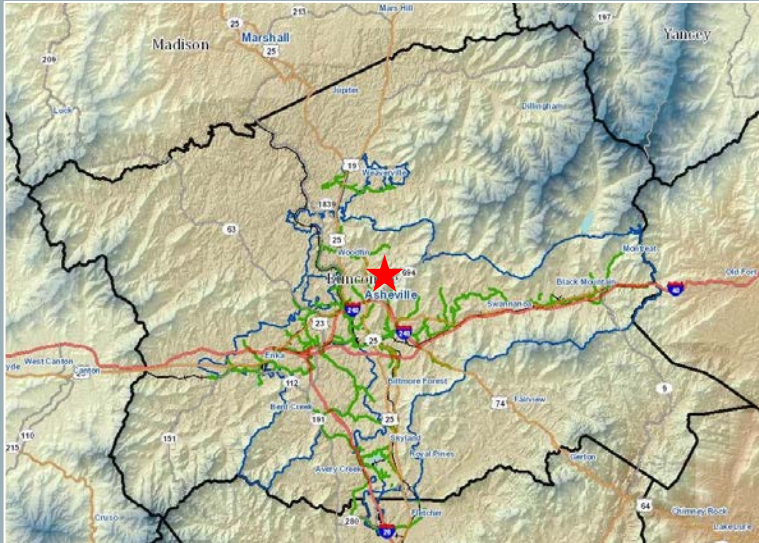
Length: 2,300LF

Need: 6" VCP with structural defects, heavy root intrusion, and deteriorating manholes. I&I observed.

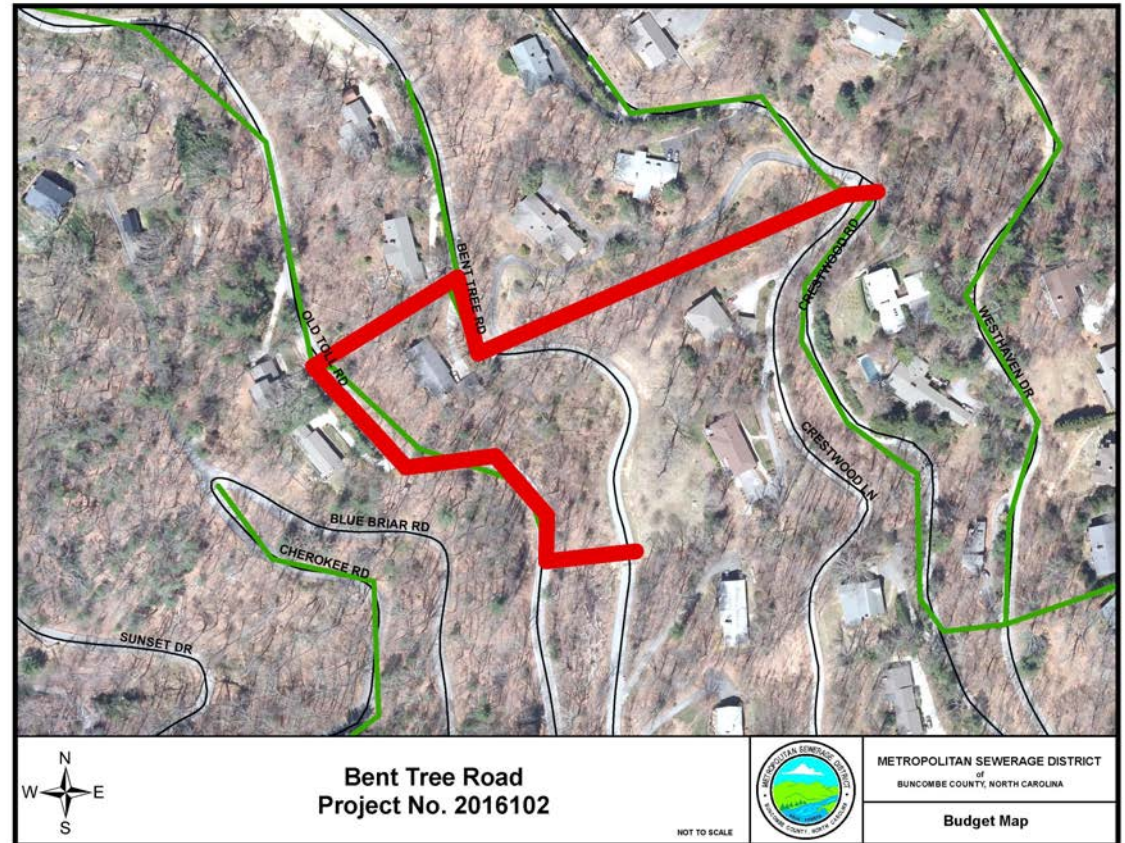
Total Project Cost: \$1.1M

BENT TREE ROAD

Vicinity Map



Located in North Asheville, east of GPI



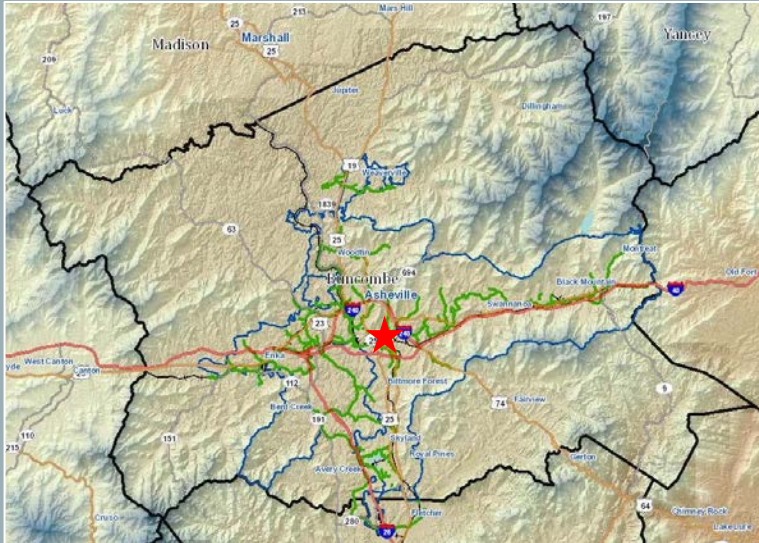
Length: 1,654 LF

Need: 6" VCP with numerous structural problems and bends within the lines. I&I observed.

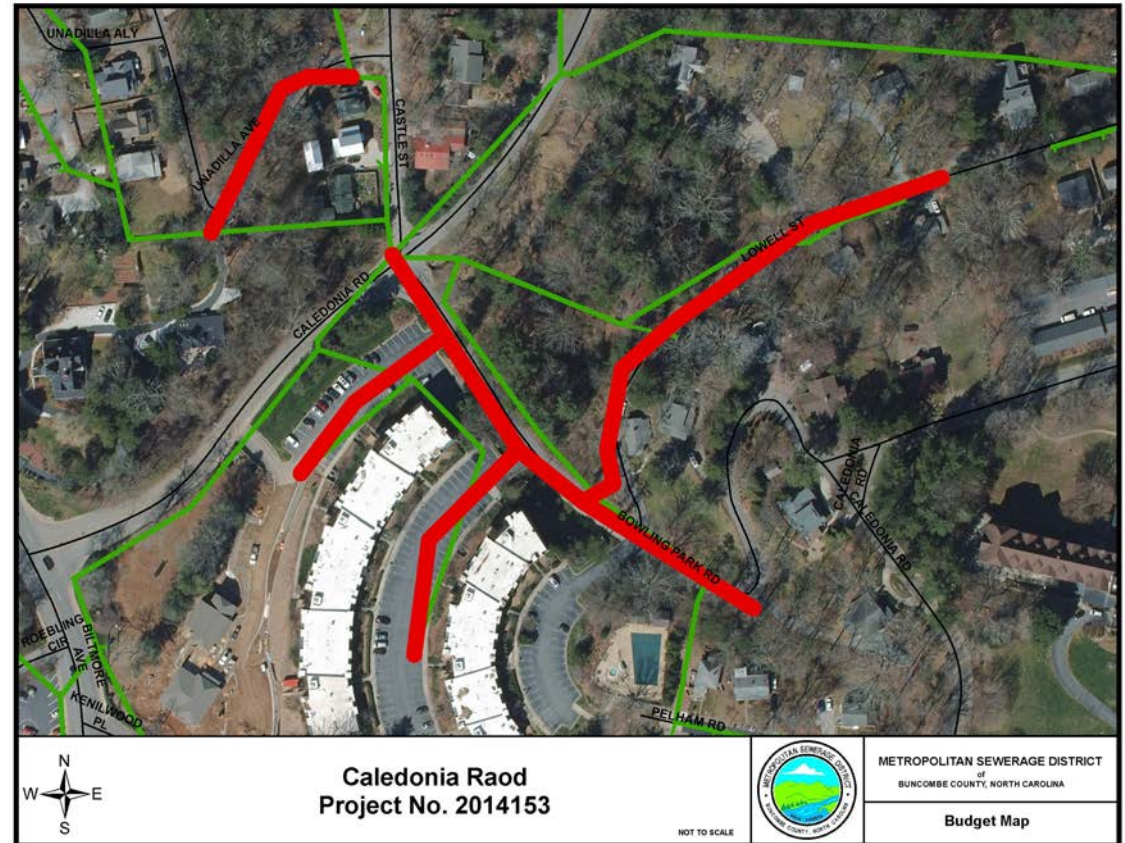
Total Project Cost: \$864K

CALEDONIA ROAD

Vicinity Map



Located in Asheville, west of Kenilworth Inn



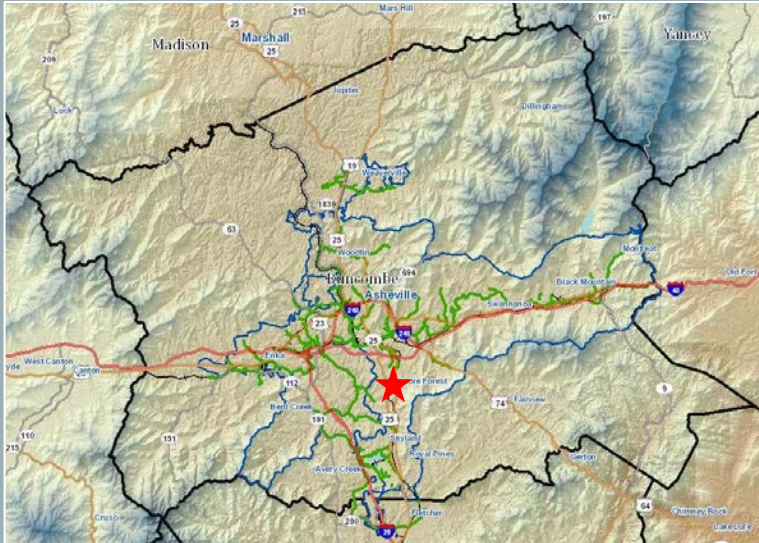
Length: 2,126 LF

Need: 6" VCP and PVC with structural defects which has resulted in multiple SSOs.

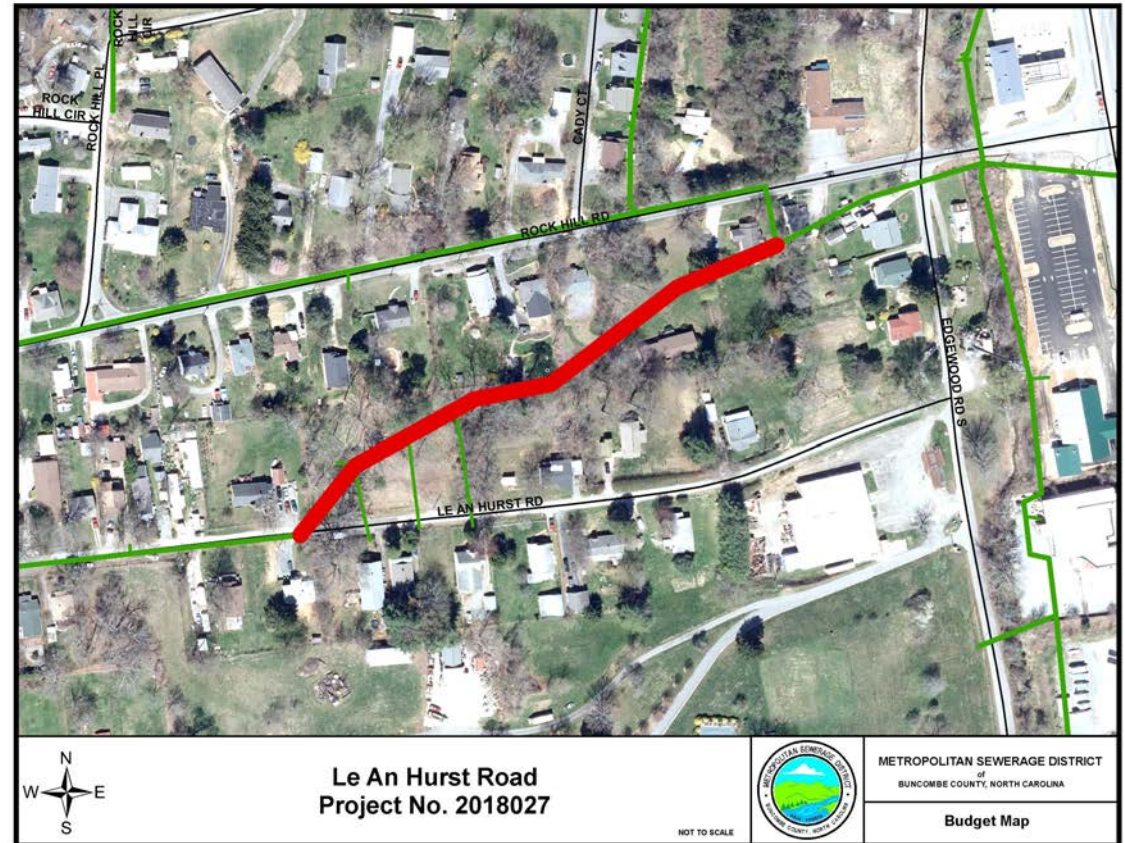
Total Project Cost: \$1.35M

LE AN HURST ROAD

Vicinity Map



Located in South Asheville, east of Biltmore Forest



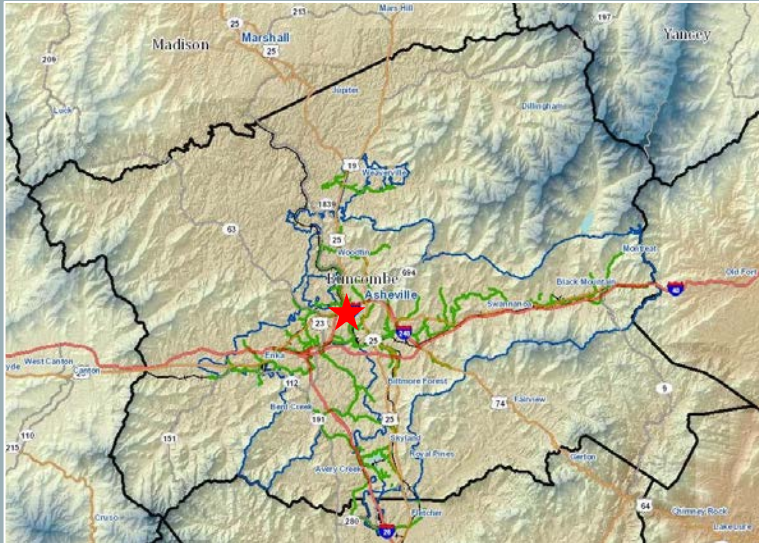
Length: 820 LF

Need: 8" VCP with major structural defects and heavy root intrusion.
Runs along tributary of Sweeten Creek and is source of I&I.

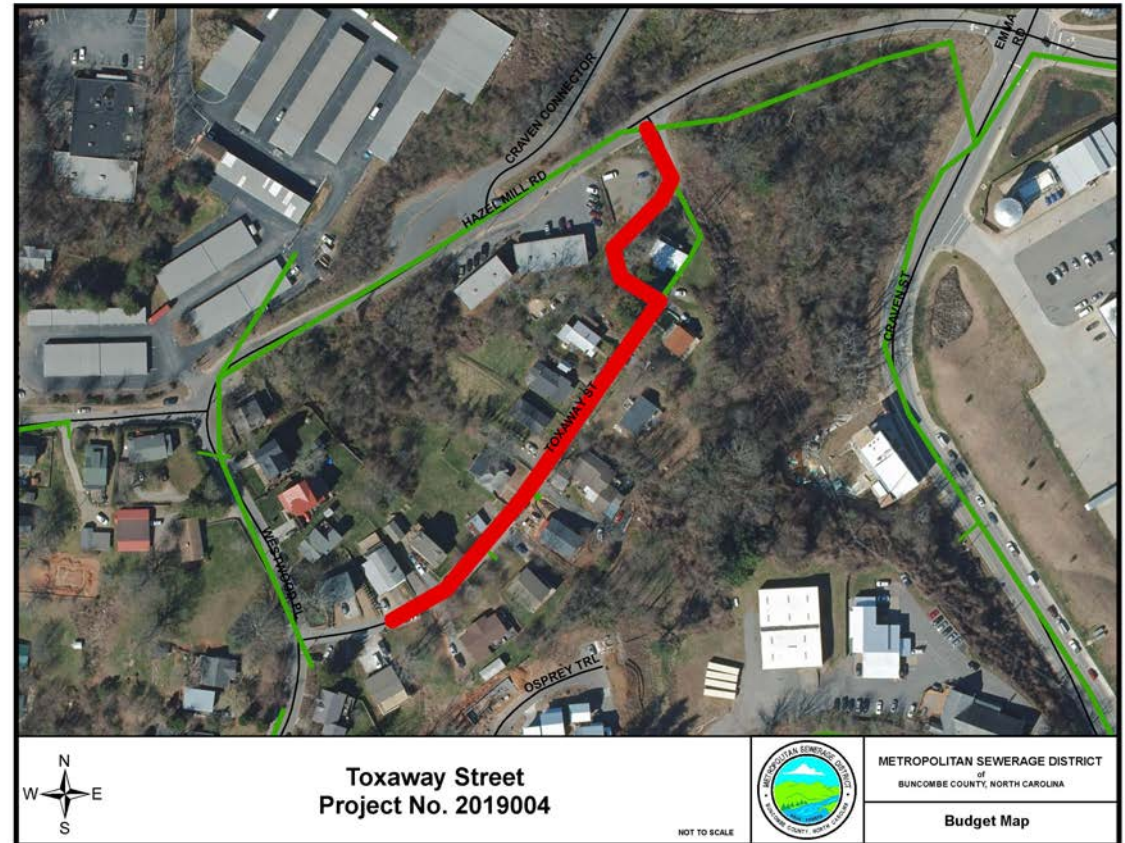
Total Project Cost: \$393k

TOXAWAY STREET

Vicinity Map



Located in Asheville, west of NBB



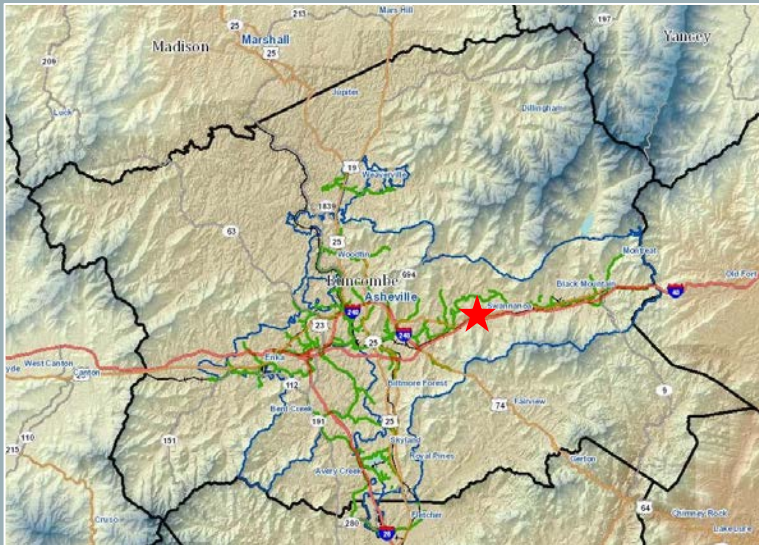
Length: 811 LF

Need: 6" VCP with significant structural defects and heavy root intrusion.

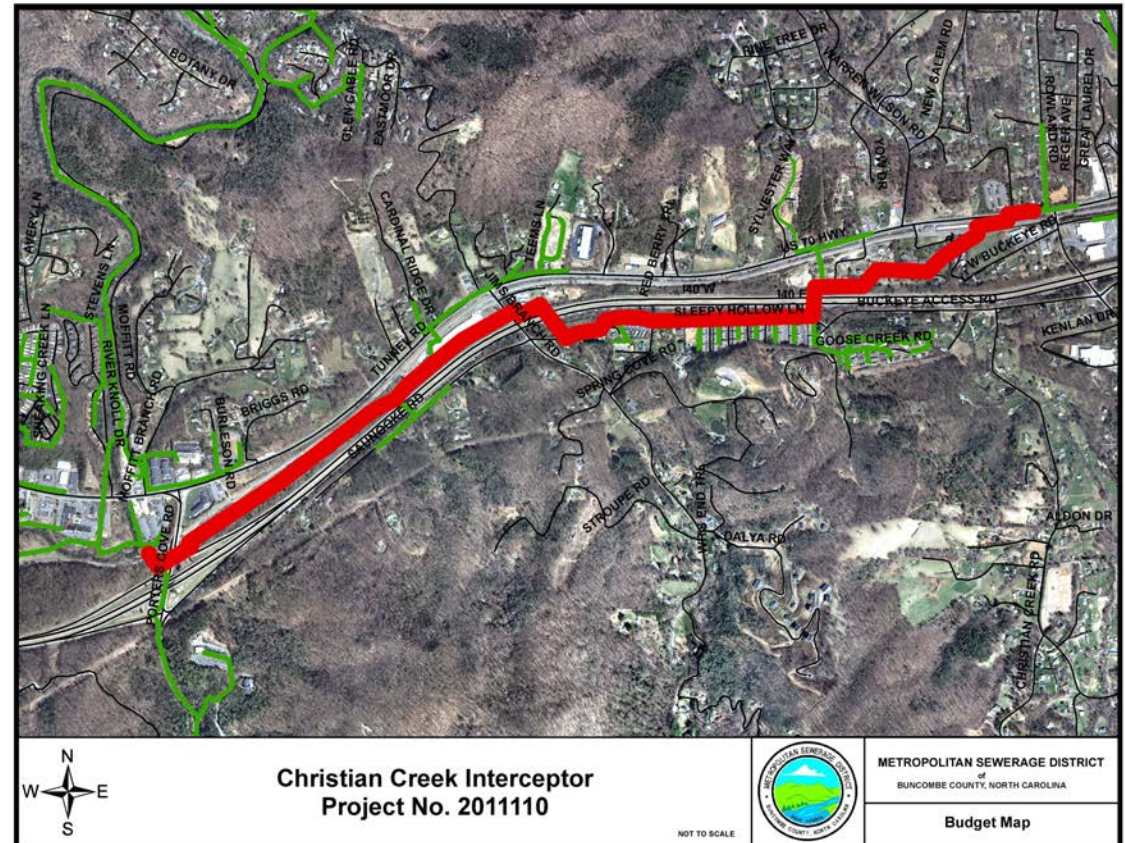
Total Project Cost: \$416k

CHRISTIAN CREEK INTERCEPTOR

Vicinity Map



Located in East Asheville, runs parallel to US 70



Length: 12,226 LF (multi-year construction)

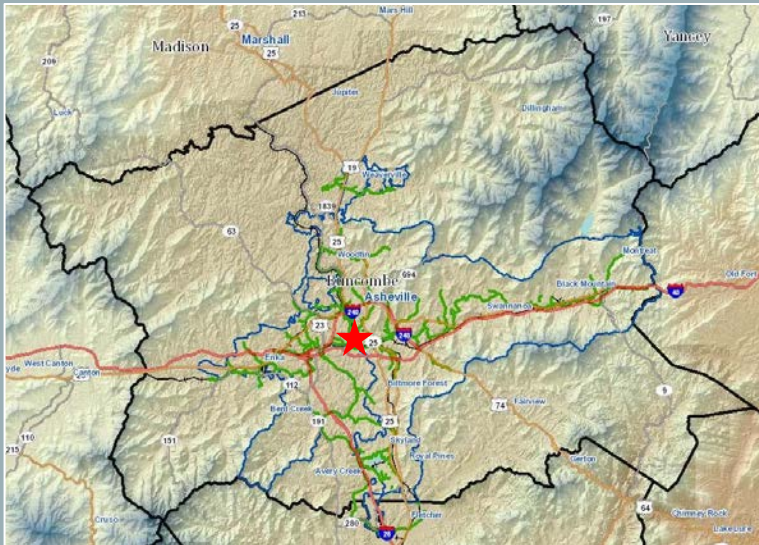
Need: 8" VCP undersized, poor condition, numerous SSOs

Total Project Cost: \$6.37M

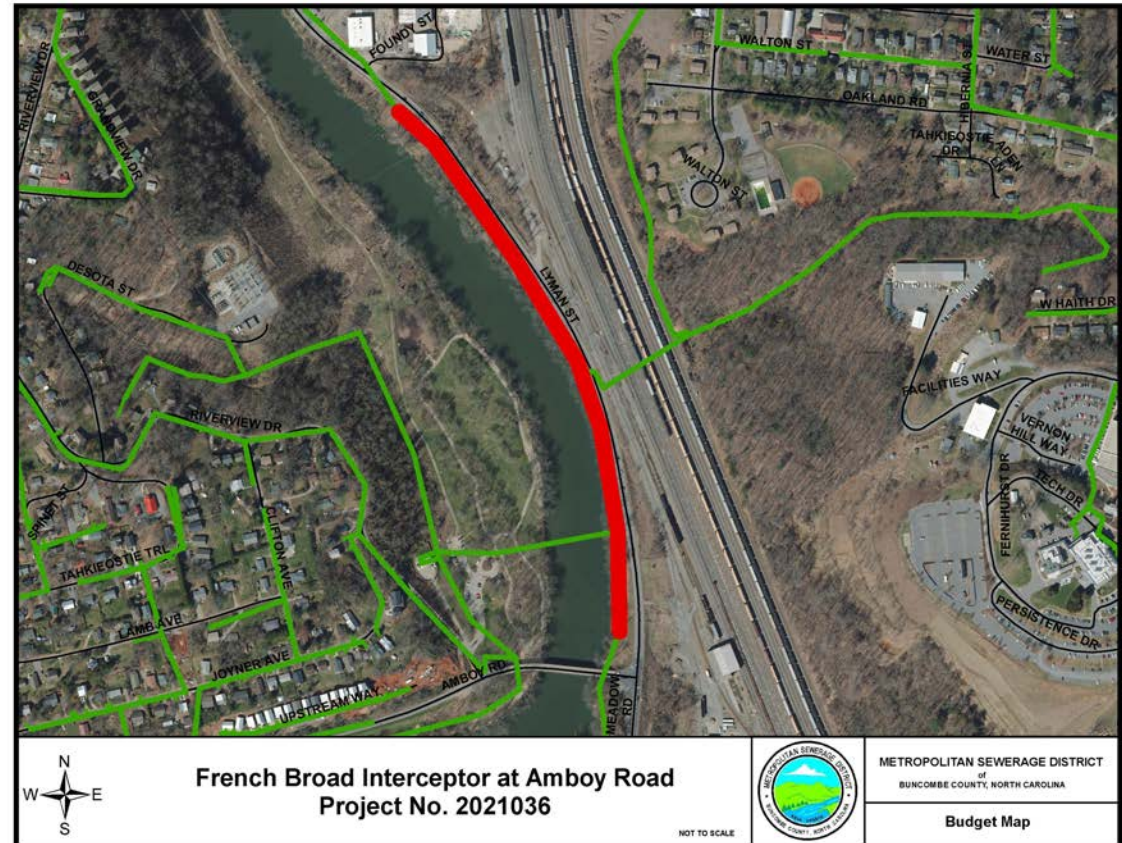
Status: NTP issued March 14, 2022 to Buckeye Bridge; awaiting materials

FRENCH BROAD INTERCEPTOR AT AMBOY ROAD

Vicinity Map



Located in Asheville at Amboy Rd./Lyman St.



Length: 1,100 LF

Need: 48" and 54" RCP in poor condition due to H2S corrosion,

Total Project Cost: \$3.2M

Status: Pipe was pre-ordered due to lead time. Construction Nov. – April



Sinkhole discovered in January 2021



Section of pipe "crown" with reinforcing bars exposed



Metropolitan Sewerage District Future Sewer Replacement Project

THE SEWER LINE IN THIS AREA IS SCHEDULED FOR REPLACEMENT.
THIS FENCING IS TO PROTECT THE PUBLIC - DO NOT ENTER.

THE SEWER REPLACEMENT PROJECT IS SCHEDULED TO BEGIN IN
WINTER 2023 AND IS EXPECTED TO BE COMPLETE IN SUMMER 2023.

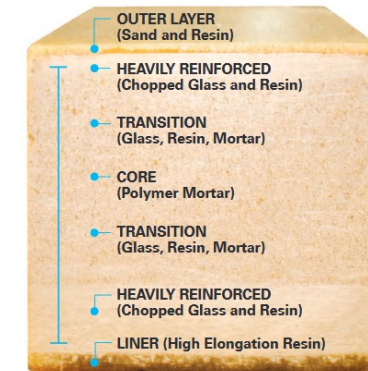
COMPLETE PROJECT INFORMATION IS AVAILABLE AT
WWW.MSDBC.ORG OR BY SCANNING THE QR CODE BELOW.

MSD MONITORS THIS AREA FREQUENTLY.
FOR ANY SEWER RELATED EMERGENCY,
PLEASE CALL 828-255-0061.





Wall Construction:
I-Beam Principle



HOBAS FIBERGLASS-REINFORCED PIPE

JUNCTION BOX FOR PROJECT
NO. 2 TWO 36-INCH FORCE MAINS

APPROXIMATELY 1,100 FEET OF
60-INCH GRAVITY SANITARY
SEWER REPLACEMENT

BYPASS PIPING

BYPASS PIPING

EXISTING 48-INCH AND
54-INCH GRAVITY
SANITARY SEWER

PROJECT NO.1
FRENCH BROAD INTERCEPTOR AT AMBOY ROAD



WEAVERVILLE PUMP STATION REPLACEMENT

- Existing station constructed in early 1980s. Two capacity upgrades since. Current capacity 2.8mgd
- New 5.0mgd station will accommodate growth through 2070
- 18,850 LF of new 24" force main (replace existing 12")
- Total Project Cost: \$13.7M



Weaverville PS No. 1 (Top photo)

Weaverville PS No. 2 (Bottom photo)

- New station designed to pump directly to treatment plant
- Currently in design by CDM Smith
- Construction FY23-24 and FY24-25



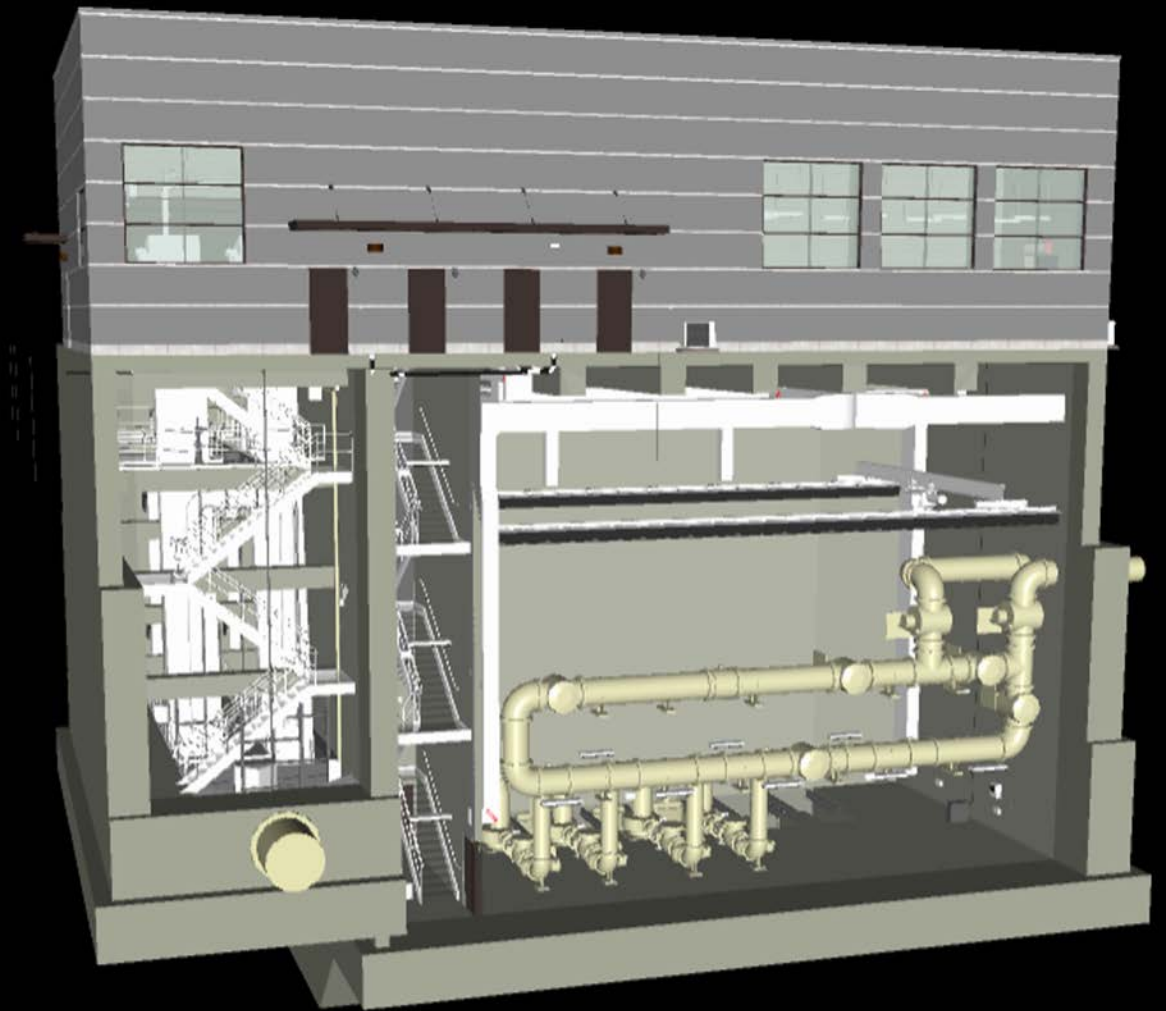
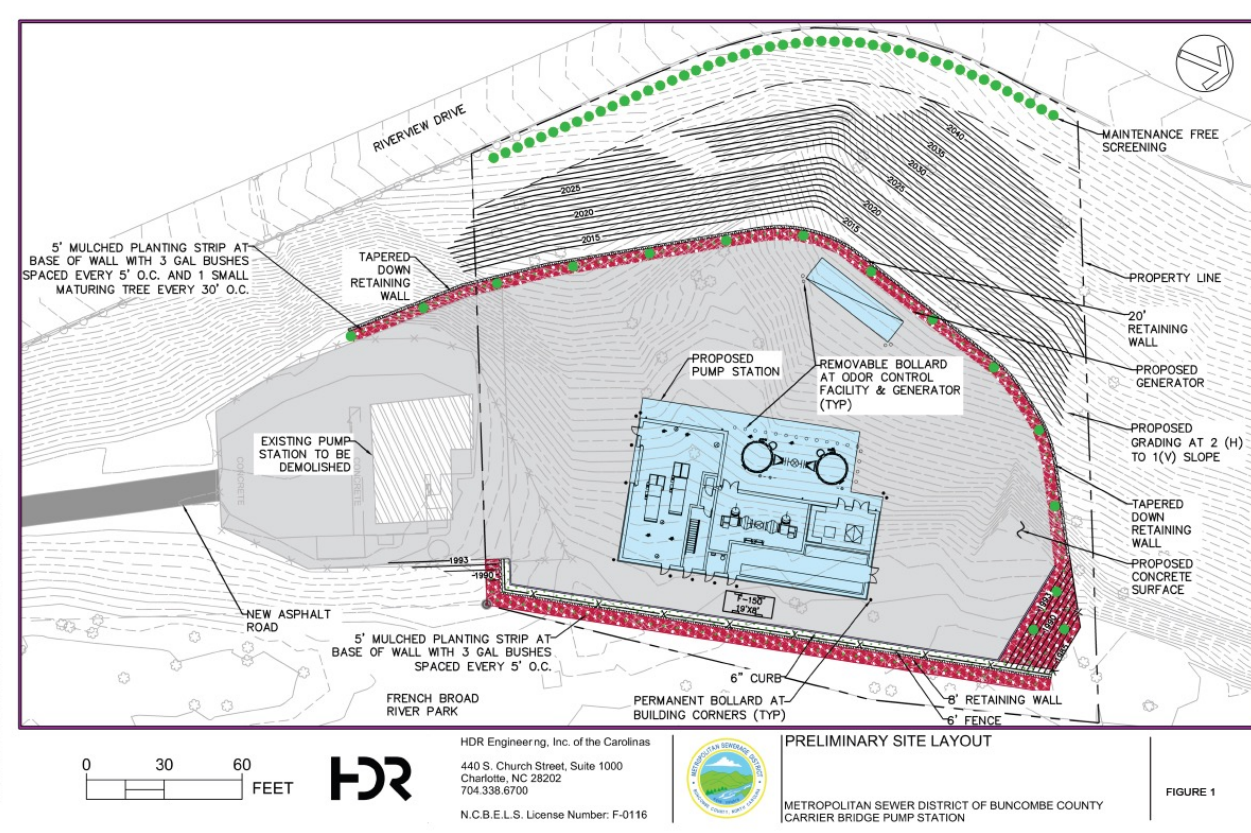
Conceptual design schematic at W'ville PS No. 1





CARRIER BRIDGE PUMP STATION REPLACEMENT

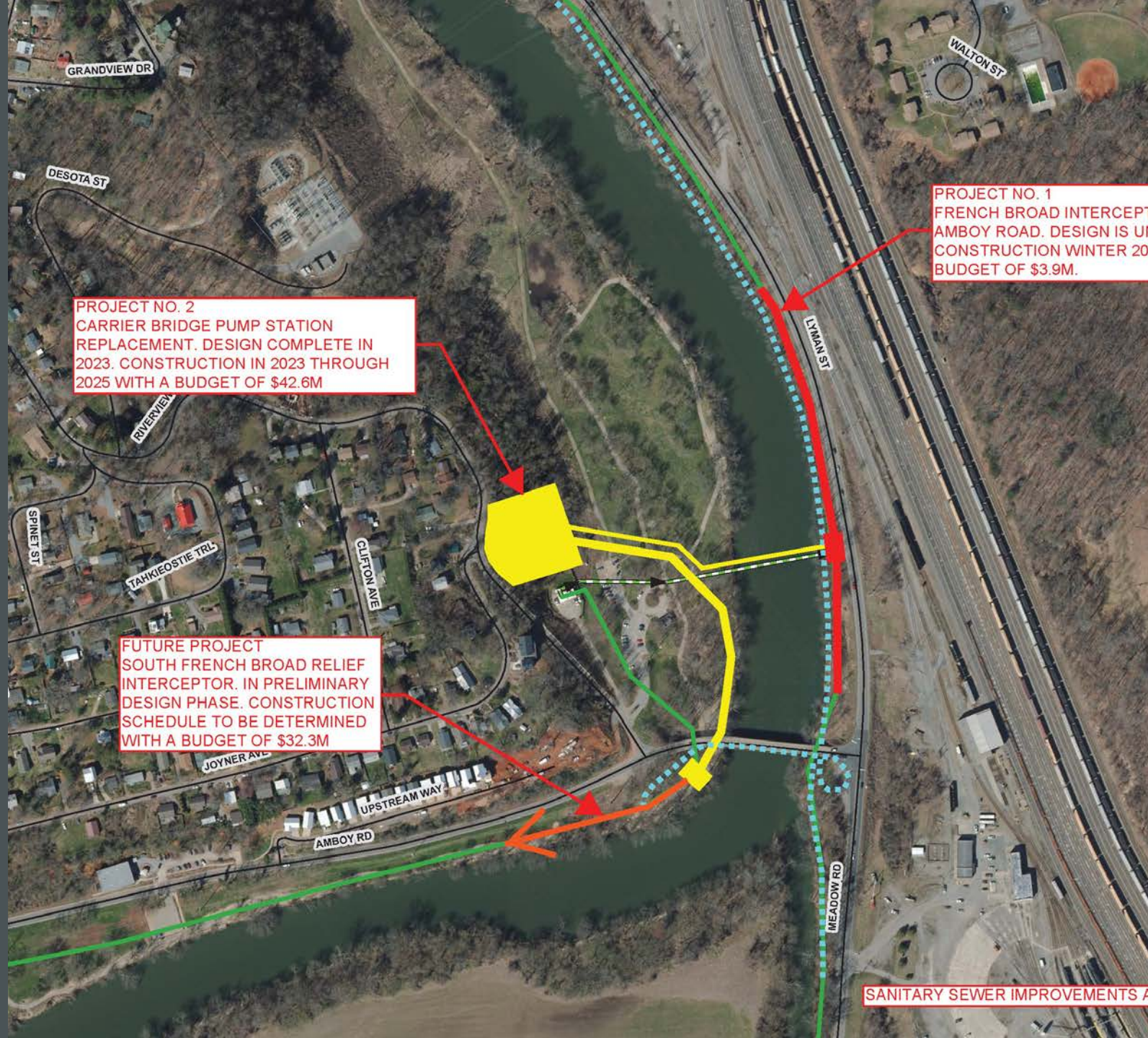
- MSD's largest pump station, constructed in 1966
- Serves large portions of South & West Buncombe, North Henderson
- Capacity increase from 22mgd to 40mgd (2070 flow projection)



- Currently in design by HDR
- Construction anticipated to begin Fall 2023
- \$42M price tag

PROJECT DETAILS

- Located next to existing PS
- 800 LF of new 60-inch inlet piping
- Two (2) 36-inch discharge force mains
 - Exploring “open-cut” option
- Enclosed PS with odor control





EXAMPLES OF COFFERDAMS

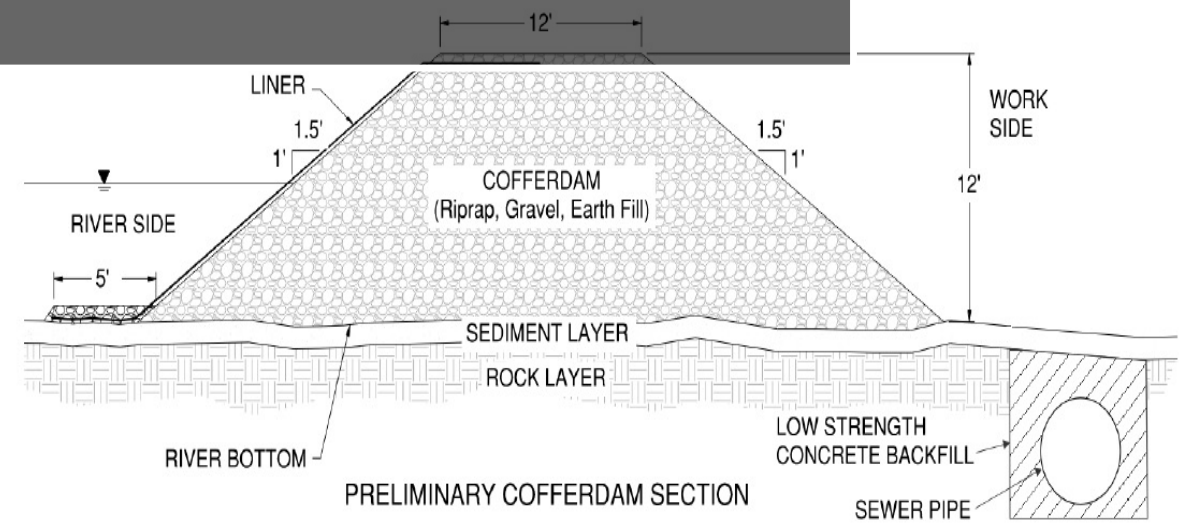


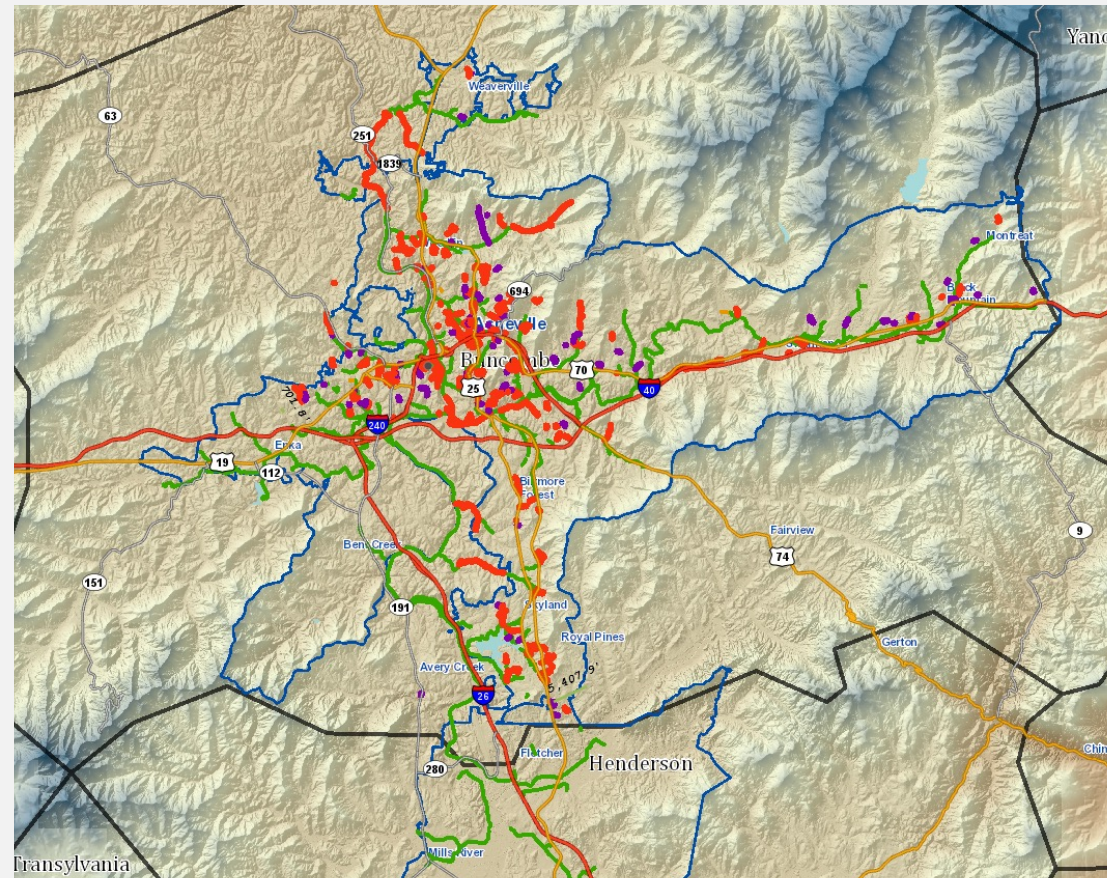
Figure 2 Typical Section View of Cofferdam

SWANNANOA EQUALIZATION TANK

- “EQ” tank helps mitigate surges in the collection system and treatment plant
- Reduces SSOs and improves WRF treatment quality
- Located near Swannanoa River Interceptor. Three sites being evaluated
- Storage volume approx. 8 MG
- Total Project Budget \$26.7M



COLLECTION SYSTEM PROJECTS IN 10-YR CIP

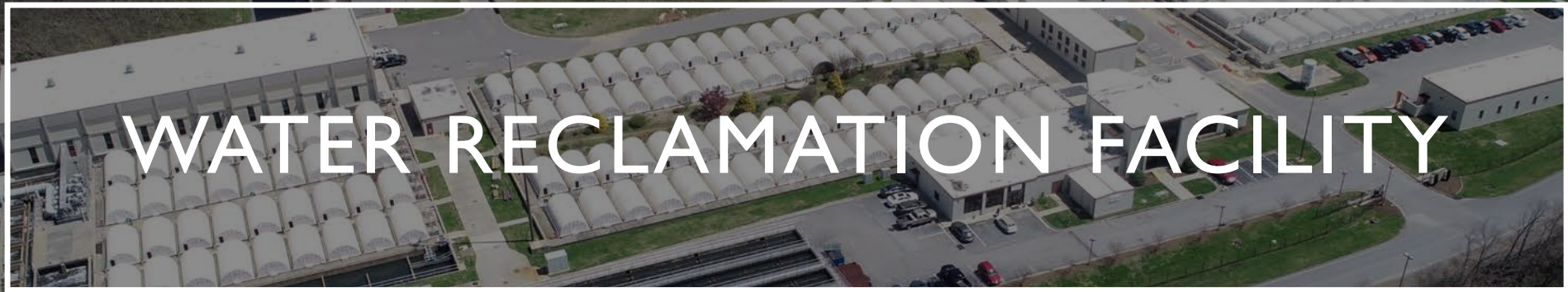


Over 100 projects

- Red – contracted
- Purple – In-House Construction

All are on our website:

<https://geo.msdbc.org/msdgisviewer/>



MSD'S WATER RECLAMATION FACILITY

- Plant is permitted for 40mgd
- Average day flow is 23mgd
- Our wastewater treatment system is considered “attached growth”
 - Microorganisms grow in the surface of the RBCs
 - Each RBC has ~400 acres of surface area....and we have 152 of them!





CIP PROJECTS

RECENTLY COMPLETED OR ONGOING



HIGH RATE PRIMARY TREATMENT



Process removes solids and organics from the wastewater upstream of RBCs



Chemical addition promotes fast settling of solids (i.e. “High Rate”) and allows for tight footprint



Designed to treat 80mgd

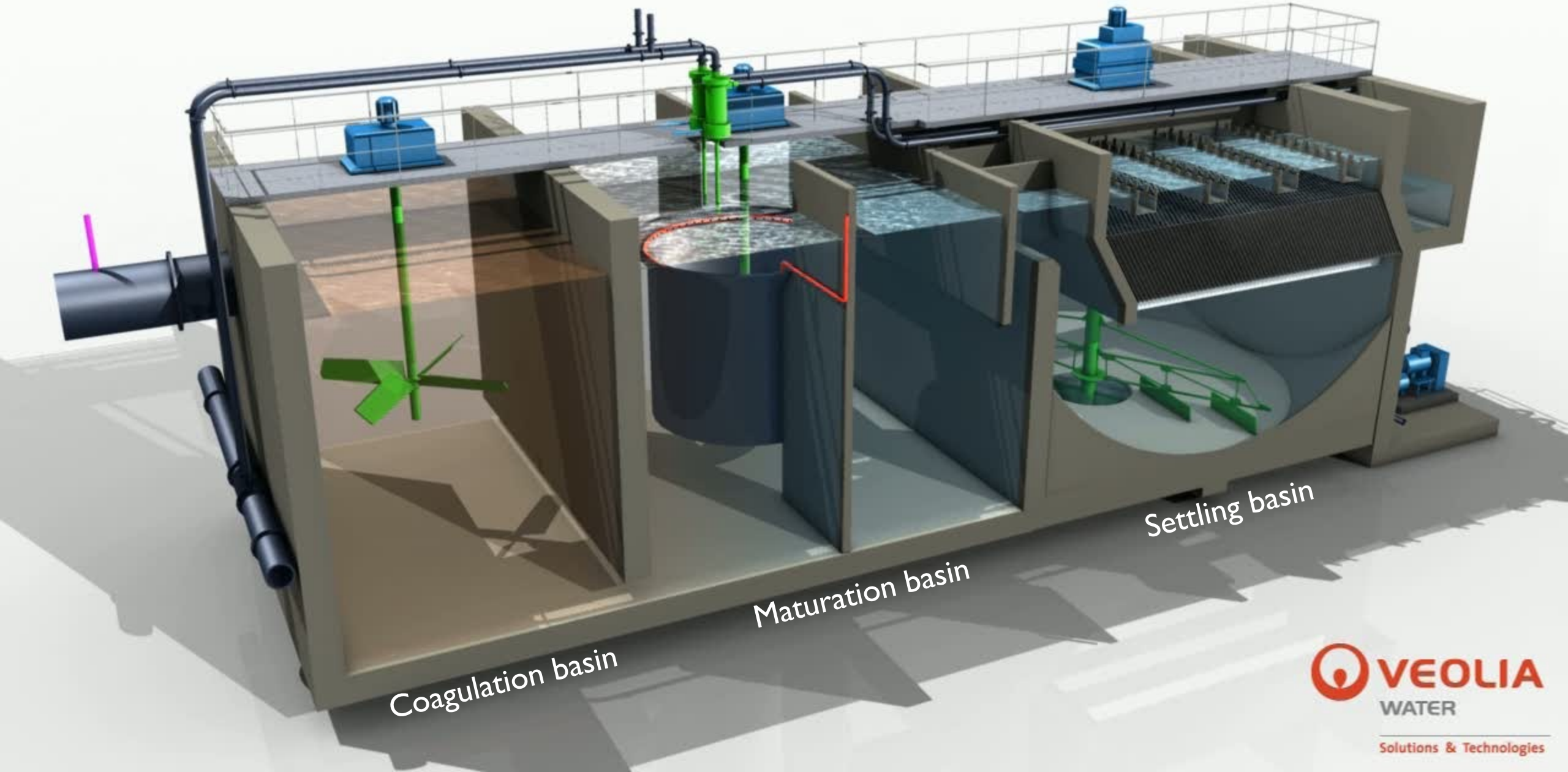


Currently in startup phase



Total project cost = \$17.1M

ACTIFLO®



Coagulation basin

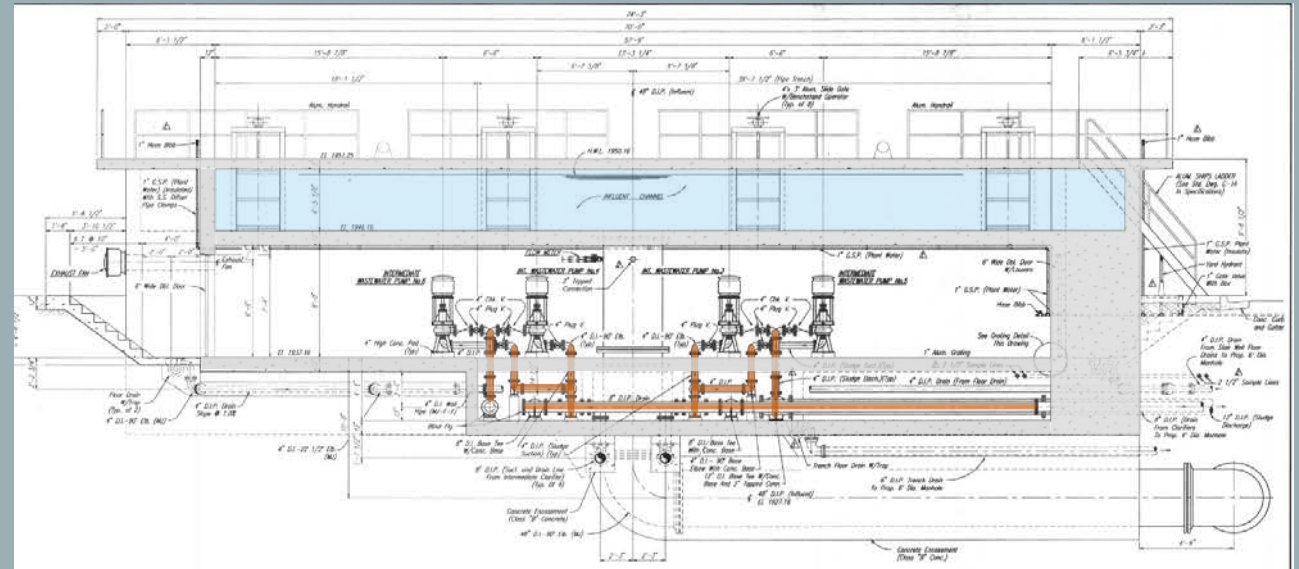
Maturation basin

Settling basin





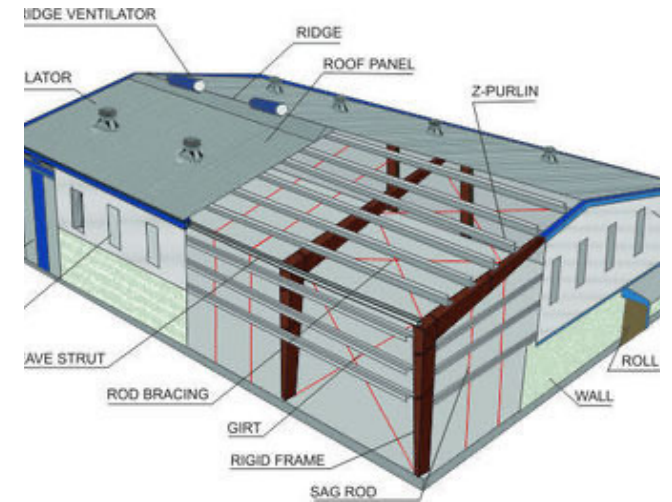






EQUIPMENT STORAGE FACILITY

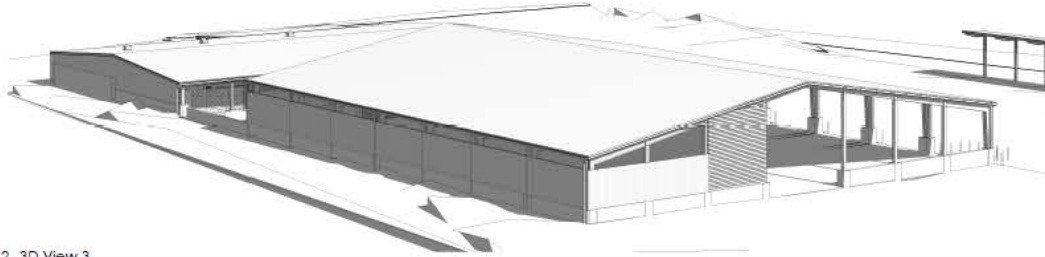
- Project will replace old Nutri-Lime Bldg and will house MSD-owned equipment
- New PEMB with interior/exterior lighting, security features, fire protection and alarm systems
- NTP dated 3/28/22
- 1-year anticipated construction
- Project Cost = \$3.2M



3D Rendering of Equipment Storage Facility



1 3D View 2



2 3D View 3



3 3D View 4



RBC SLIDE GATE REPLACEMENT

- Aluminum slide gates in RBC basins 2 and 3 are severely corroded
- Critical to plant operations and maintenance
- Phase I replacement (i.e. 13 gates) began last week
- Total project cost = \$686k

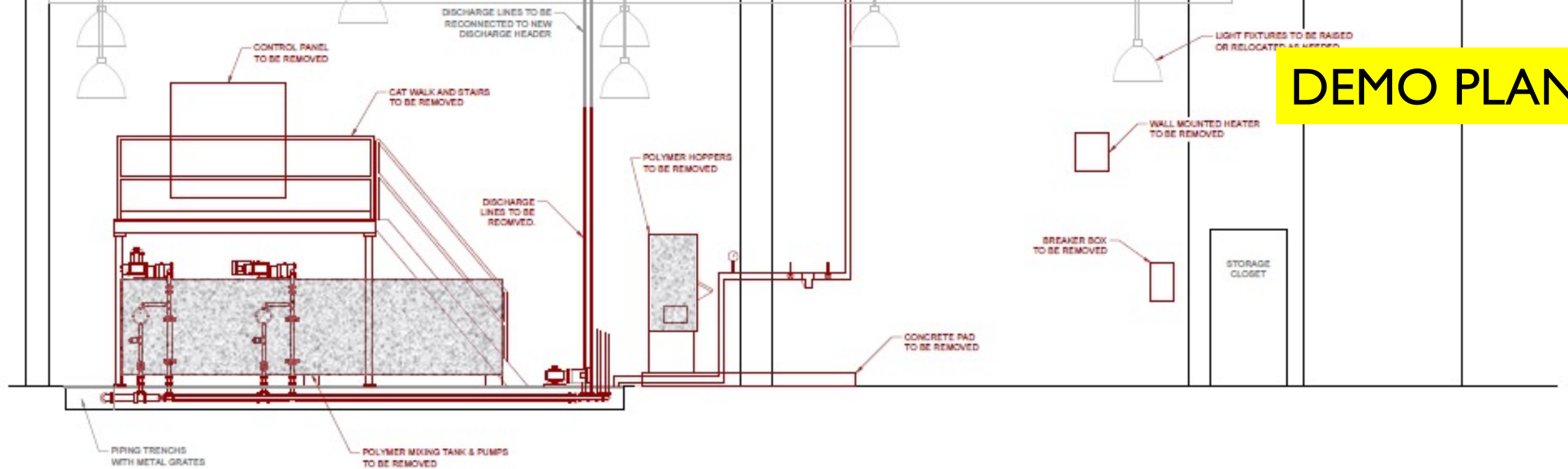




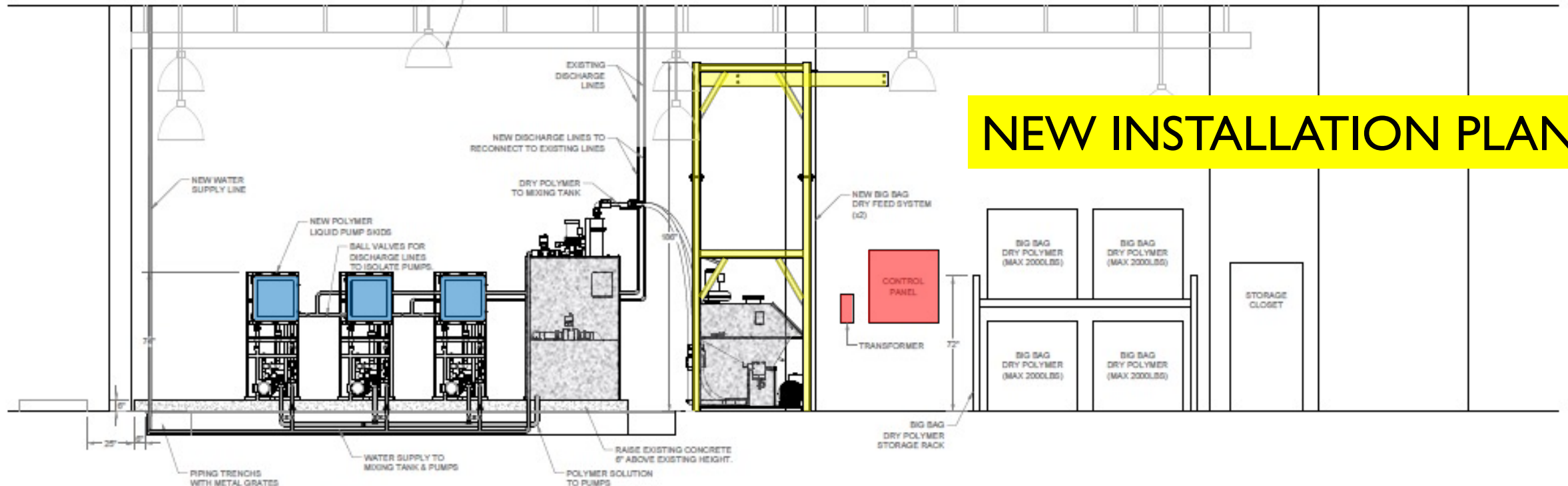
INCINERATOR POLYMER SYSTEM REPLACEMENT

- Existing system is ~30 yrs old and in poor condition
- Polymer improves dewaterability of sludge
- Bid equipment in July 2021; anticipated delivery mid-May 2022
- Installation by MSD staff
 - (mechanical/electrical/bldg. trades/SCADA)
- Total Project Cost = \$352k

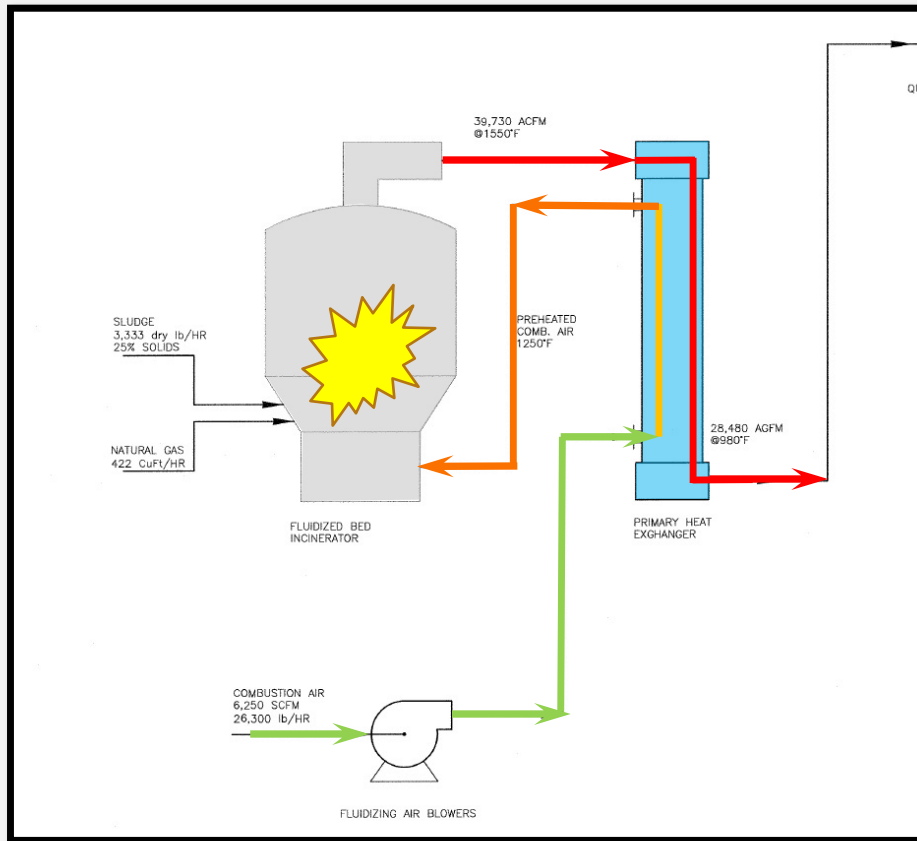
DEMO PLAN



NEW INSTALLATION PLAN



INCINERATOR HEAT EXCHANGER REPLACEMENT



- Heat exchanger showing signs of internal corrosion
- Budget includes installation of new unit, and removal and refurbishment of existing
- Very long lead time anticipated
- Majority of project budget will be paid in FY23/24
- Total project cost = \$1.8M





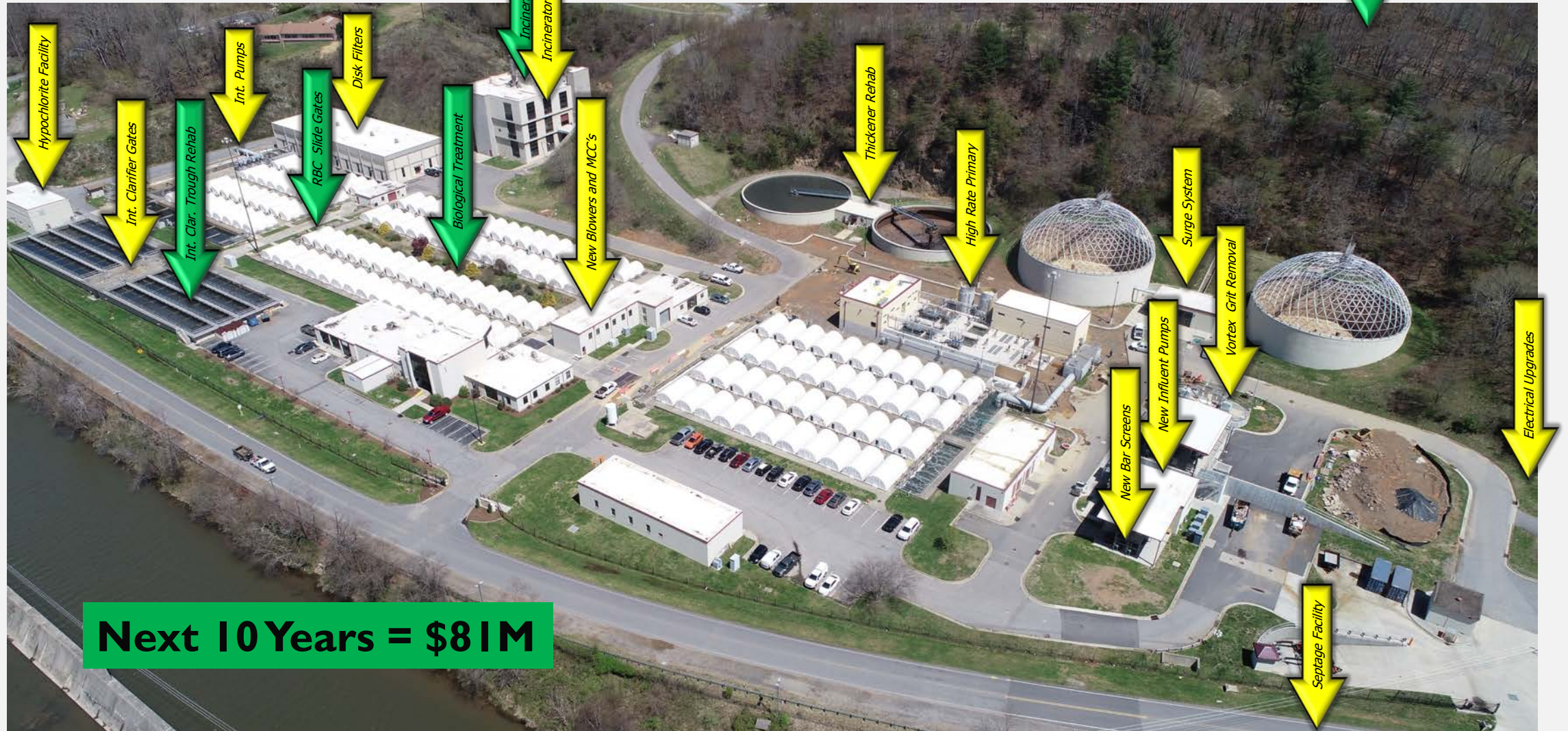
Replacing the heat exchanger in 2015. “Life expectancy 5-8 yrs” (*Industrial Furnace Company*)

BIOLOGICAL TREATMENT REPLACEMENT – *FUTURE PROJECT*

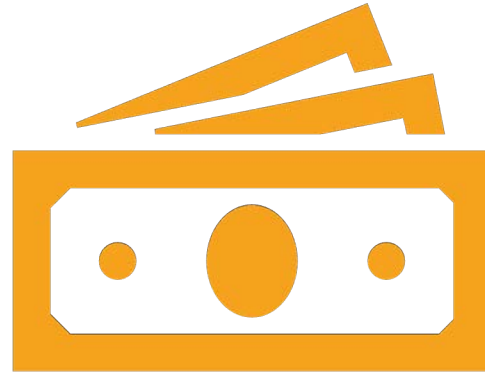


- NPDES permit requires compliance with ammonia limits by Oct. 2030.
- RBCs are 34yrs old and are not likely to meet proposed summer target levels
- Schedule:
 - FY23 – FY24 – Alternatives Eval.
 - FY25 - FY26 – Design
 - FY27 - FY29 – Construction
- Total Project Budget = \$70M

WRF CAPITAL INVESTMENTS



Next 10 Years = \$81M

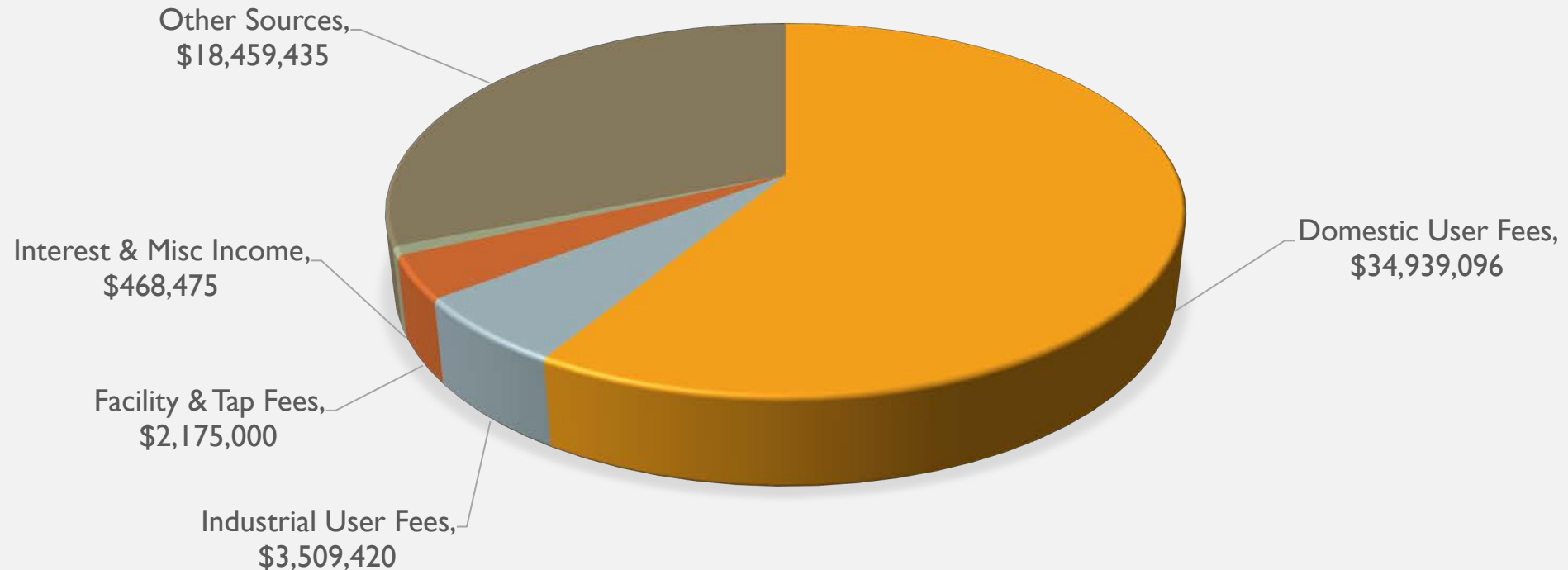


CAPITAL IMPROVEMENT PROGRAM

~FINANCIAL ASPECTS~

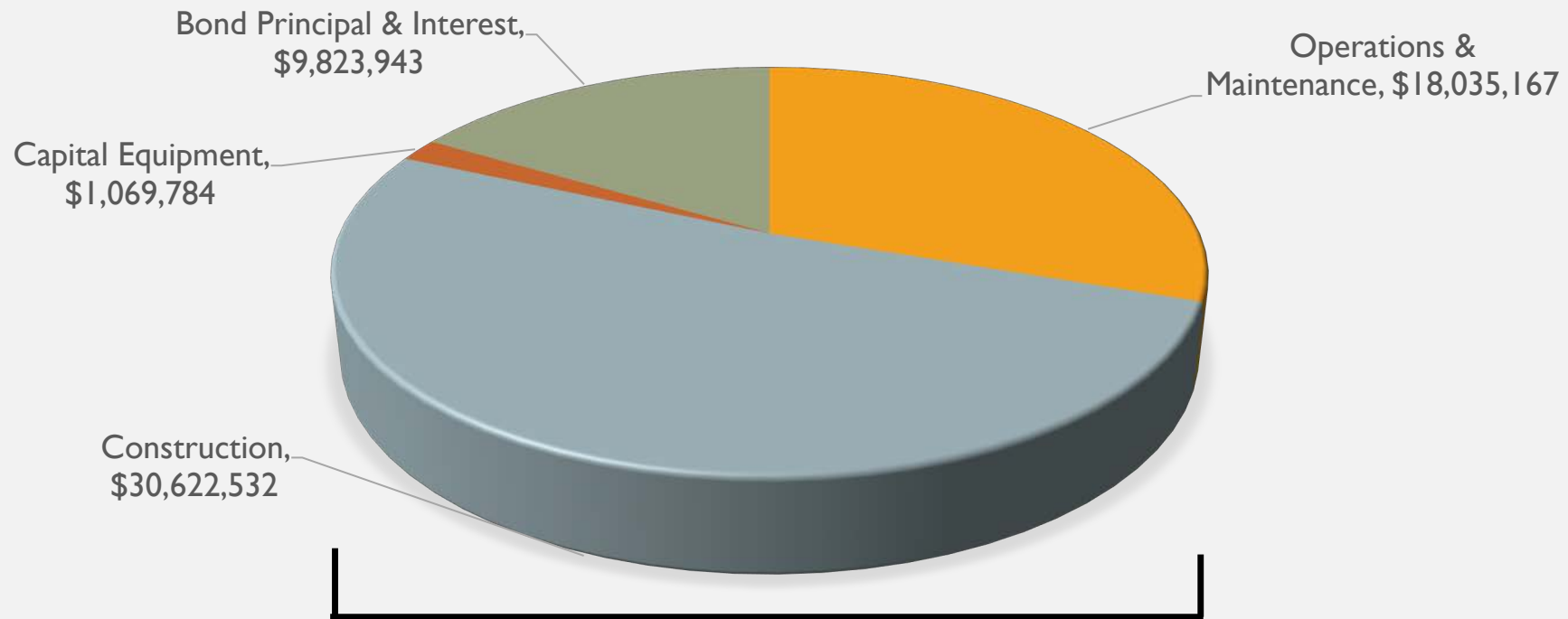
BUDGETED REVENUE FOR FISCAL YEAR 2022

TOTAL BUDGET = \$59,551,426



BUDGETED EXPENDITURES FOR FISCAL YEAR 2022

TOTAL BUDGET = \$59,551,426



About 2/3 of expenditures are project-related

CAPITAL IMPROVEMENT PROGRAM
FY23 THROUGH FY32 (10 YEARS)

- Total Estimated Expenditures over 10-yr CIP

\$389.3M

- Consolidation thru end of FY21 Capital Expenditures total **\$461.1 million.**

Description	Proposed Expenditures
Interceptors/Wet Weather Rehab	\$86.8M
Collection System Rehabilitation	\$110.9M
Treatment Plant & PS	\$153.7M
Reimbursement Projects	\$1.5M
Design/ROW/Const. Mgmt. Expenses	\$35.4M



QUESTIONS

MSD CAPITAL IMPROVEMENT PROGRAM

~ Review of FY23 Budget Recommendations ~

SUMMARY OF PROPOSED CIP BUDGET FOR FISCAL YEAR 2022-2023

▪ Interceptor and Wet-Weather Rehab.....	\$9,380,715
▪ General Sewer Rehabilitation.....	\$9,889,001
▪ Private Sewer Rehabilitation.....	\$210,250
▪ Treatment Plant, PS's, & Gen. Cap. Imprv.....	\$6,148,362
▪ <u>Design, ROW, & Constr. Mgmt. Expenses.....</u>	<u>\$3,096,554</u>
SUBTOTAL	\$28,724,882
▪ Contingency.....	\$1,000,000
▪ <u>Reimbursements.....</u>	<u>590,000</u>
TOTAL	\$30,314,882

NOTE: Future years reflect 2.96% per year inflation, per ENR Construction Cost Index.

~ Entire CIP Budget Document is posted on District's website for public viewing. ~

STAFF RECOMMENDATION

Staff Recommendation: Endorsement of the Capital Improvement Program
Budget for Fiscal Year 2022-2023

Special thanks to:

Darin Prosser, Shaun Armistead, and Tim Hensley – Engineers/Project Managers

Angel Banks – Right of Way Manager

Cheryl Rice – Finance Department

Pam Nolan – ROW

Daniel Marsh – GIS