

CIBO Issues  
Meeting  
November 4, 2022

# MSD Master Plan & Expansion



# MSD History

- **1962** –MSD created by State Statute as a Special District to eliminate direct discharges and to replace ailing sewer infrastructure.
- **1967** – *New Regional Treatment Plant*
- **1984** – New Hydroelectric Facility 2880 KW.
- **1991** – Consolidation of collection system lines from Cities, Towns and Sanitary Districts.



*Above: Hydro Dedication ceremony, 1904*



# Consolidation of Fifteen Separate Sewer Systems in 1991

## Five Municipalities

- City of Asheville
- Town of Biltmore Forest
- Town of Black Mountain
- Town of Montreat
- Town Of Weaverville



**Over 170,000 people**

## Ten Special Districts

- Beaverdam Water and Sewer District
- Busbee Sanitary Sewer District
- Caney Valley Sanitary Sewer District
- Crescent Hill Sanitary Sewer District
- Enka-Candler Water and Sewer District
- Fairview Sanitary Sewer District
- Venable Sanitary District
- Skyland Sanitary Sewer District
- Swannanoa Water and Sewer District
- Woodfin Sanitary Water and Sewer District





# MSD System

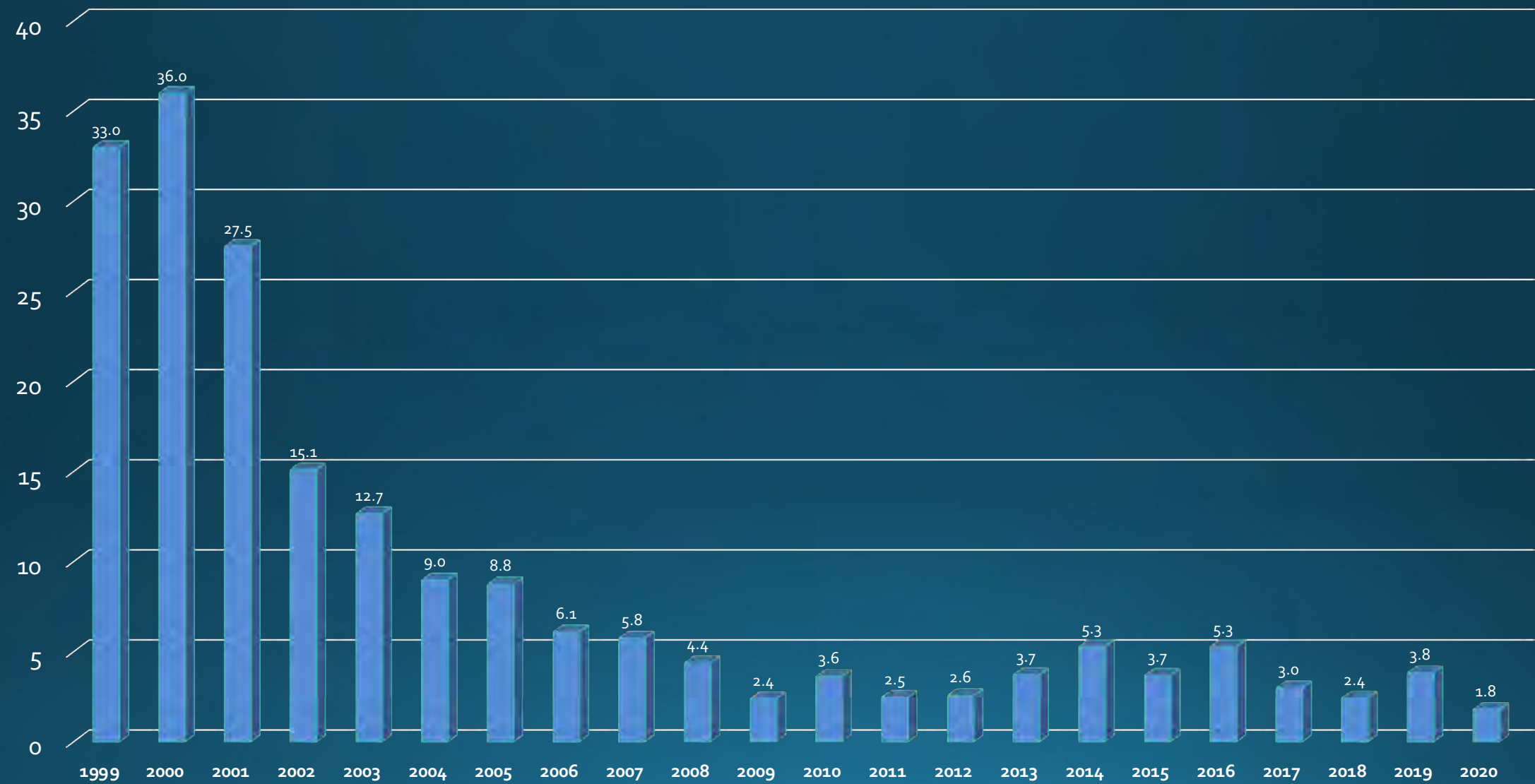
- MSD serves ~201,000 people via 57,000 customer accounts
- MSD currently owns and maintains:
  - 40 MGD Treatment Plant (currently at 20 MGD)
  - Hydroelectric Facility (2880 KW)
  - 1,133 miles of sewer lines
  - 33,581 manholes
  - 40 pump stations



# MSD Mission

- MSD is publicly owned regional utility with a mission to eliminate direct discharges and to replace ailing sewer infrastructure.
- MSD uses equal shares of revenue and Bond funds to fund an aggressive Construction Program to replace and upgrade the Treatment Plant and sewer system.
- MSD has spent \$ 405 Million since Consolidation in 1991 – replacing 28% of the original system.

# SSO's/100 Miles of Sewer per year





# \$17 Million High-Rate Primary Treatment Process





# \$17 Million High-Rate Primary Treatment Process

ACTIFLO®

Sand Recovery

Add Polymer &  
Coagulant – Rapid  
Mix

Add Sand Ballast  
Slower mix

Coagulation basin

Maturation basin

Settling basin





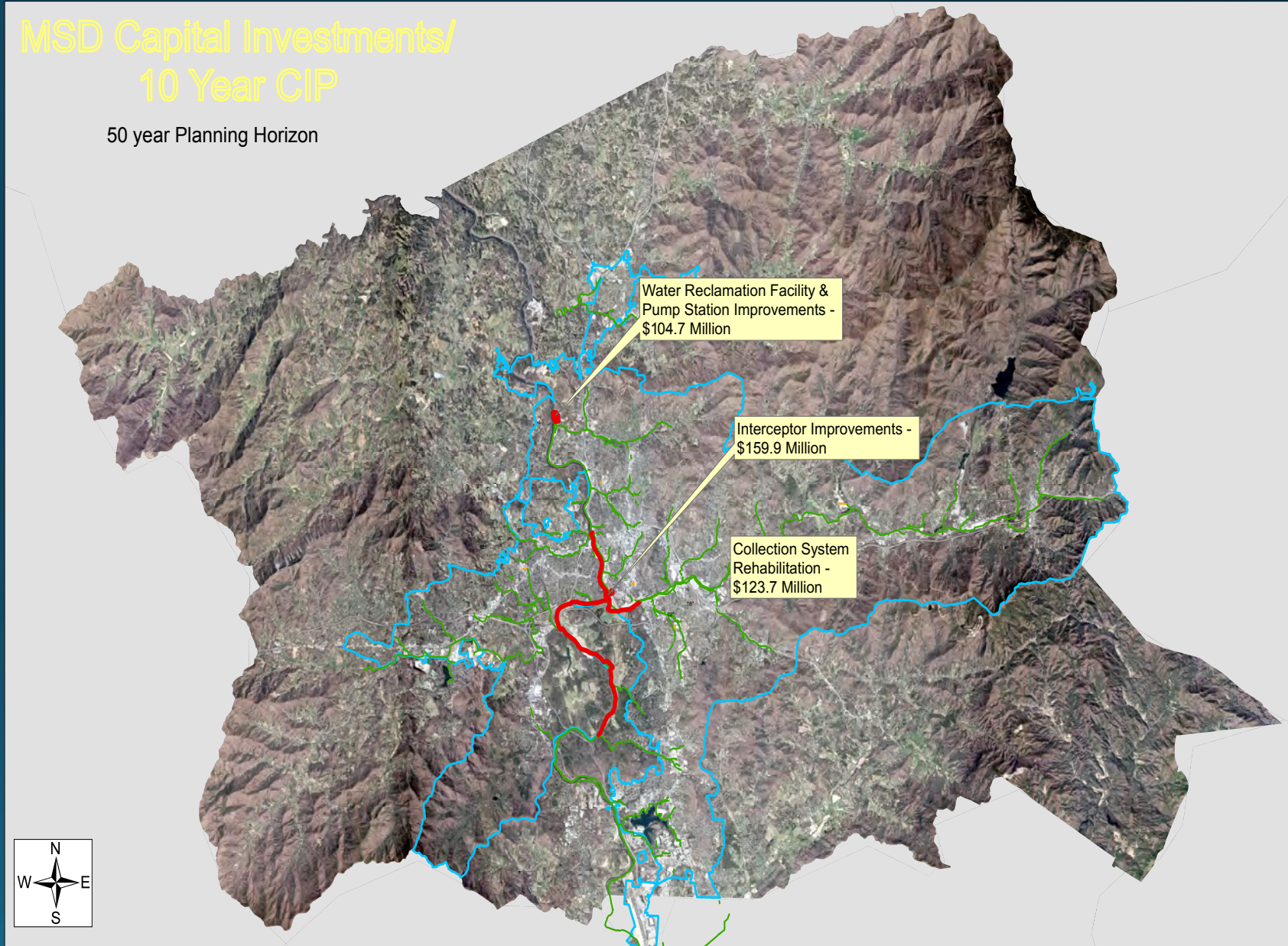


# Capital Reinvestment of \$389 Million over next 10 years for Growth and Future Regulations

*\$105 Million – Upgrade Treatment  
Plant and Major Pump Stations*

*\$160 Million– Interceptor  
Improvements*

*\$ 124 Million – Collection System  
replacement/Upgrades Treatment*







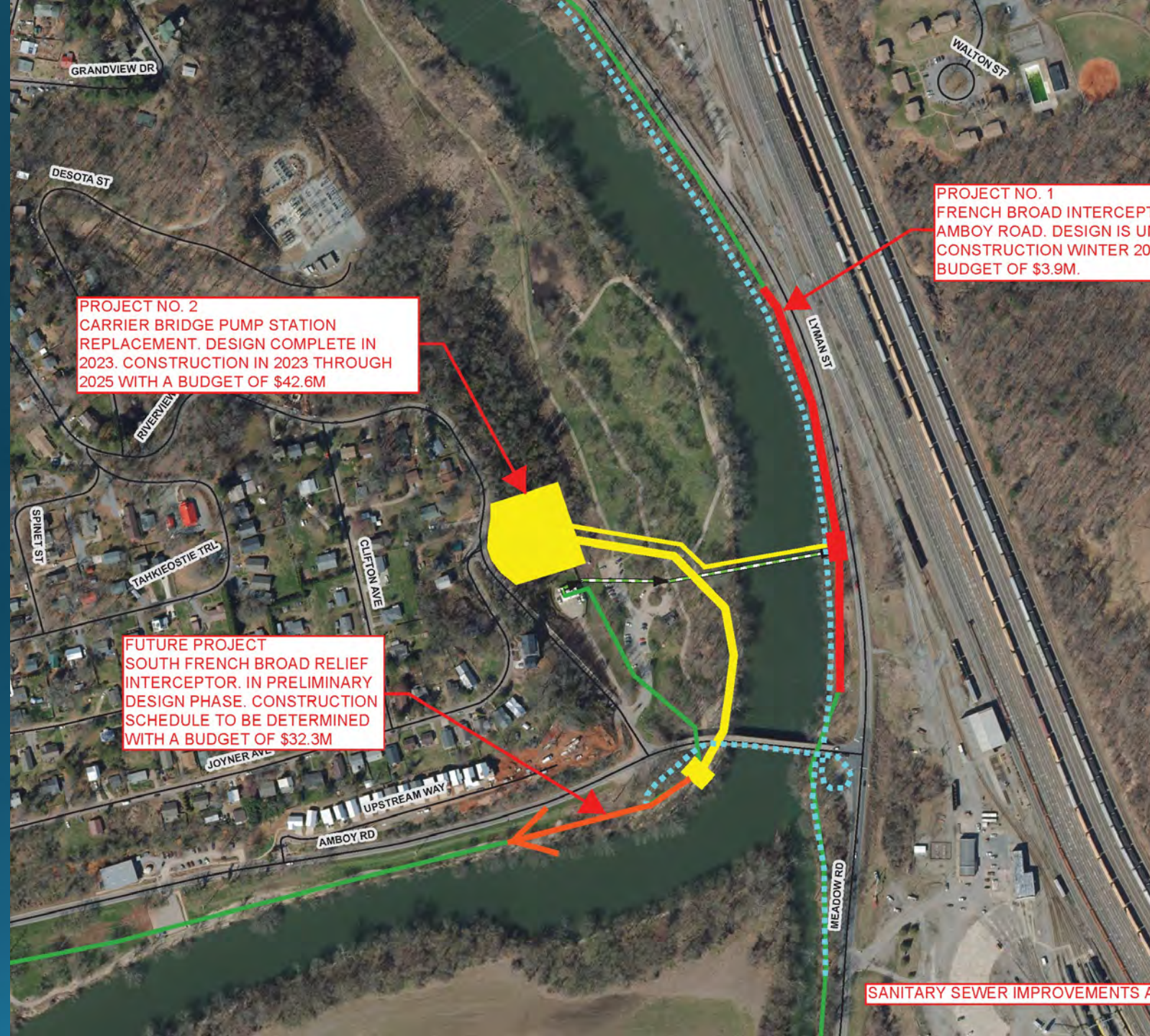
## Carrier bridge pump station replacement

- 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)



# 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







# Development / Expansion

- MSD is not a land planning/zoning decision-making body.
- MSD relies upon local governments planning and zoning efforts and development activity to identify expansion opportunities.
- MSD does not do speculative expansions of the system.
- Sewer Expansions for particular developments are “Developer Driven.”



# Collection System Master Plan

- Incorporates all Member Agency Land Use Plans and Zoning
- Plans for orderly growth of the system.
- Replacement of existing sewers sized for future growth.





# Development / Expansion

- MSD does not have “Special Assessment Authority” like Cities and Counties do.
- Why is this Important?
- So that existing customers don’t fund (with rate increases) new speculative lines - these costs should be largely borne by those who will benefit.



Circa 2005 MSD developed new policies to facilitate the “orderly” expansion of the system by financially participating with new development.



# MSD Financial Partnerships

- Additional Capacity Reimbursements for Master Plan Lines – MSD will provide design and ROW services along with reimbursing the differential cost of the larger line. These are lines that serve the larger basin or subbasin.
- Revenue sharing of Future user charges – 50% revenues shared with developer for 10 years up to cost of extension.
- Economic Development – Fee waiver for Industry employing more than 200 people or using 1,000,000 gallons per month.





# MSD Financial Partnerships

- Failing Septic Tank Emergencies – 10 year estimated revenue up front toward extension.
- New Affordable Housing Projects - 5 years estimated revenue up front toward extension.
- Affordable Housing Rebates – 70% rebate on hook-up fees.
- Developer to Developer Reimbursement – reimburse proportionate share for common line – 10 years.



# Recent Participation Figures

For upgrades at tie ins  
\$303,685

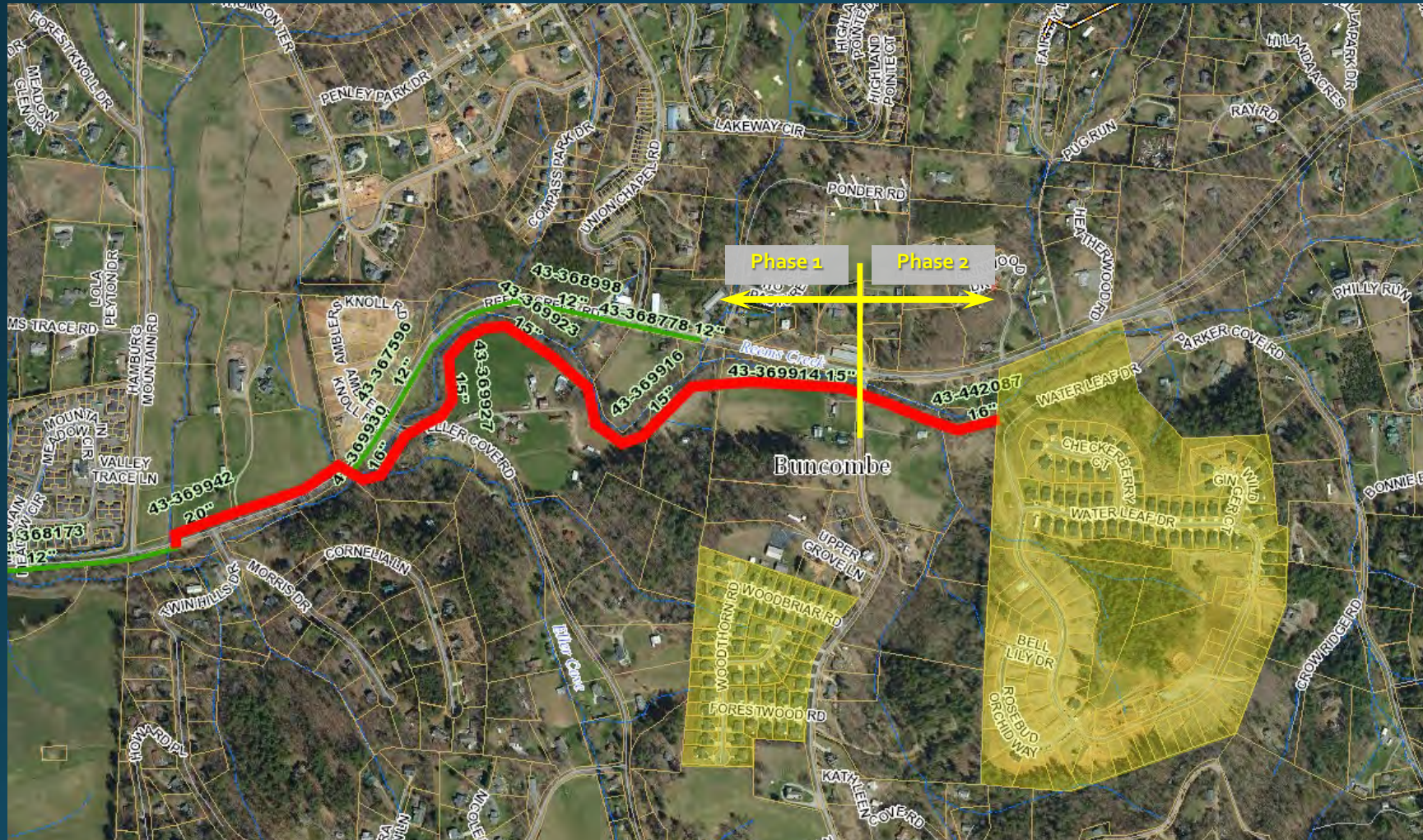
For larger Master Plan  
lines to serve full basins  
\$831,844

Affordable Housing  
Projects  
\$110,035

Revenue sharing,  
Developer to Developer,  
and failing septic tanks –  
No takers



# Reems Creek Master Plan Interceptor Extension



## Phase 1 (Windsor Aughtry)

- \$224,349 reimbursed in 2011
- 6 easements
- 15,600gpd for 52 SFR

## Phase 2 (Windsor Built)

- ▶ \$35,346 reimbursed in 2016
- ▶ 2 easements
- ▶ 42,000gpd for 140 SFR

## Easement Costs:

- ▶ \$75,367 total compensation and legal
- ▶ No Condemnations

**Total MSD Cost: \$335,062**



# West French Broad Master Plan Interceptor Extension

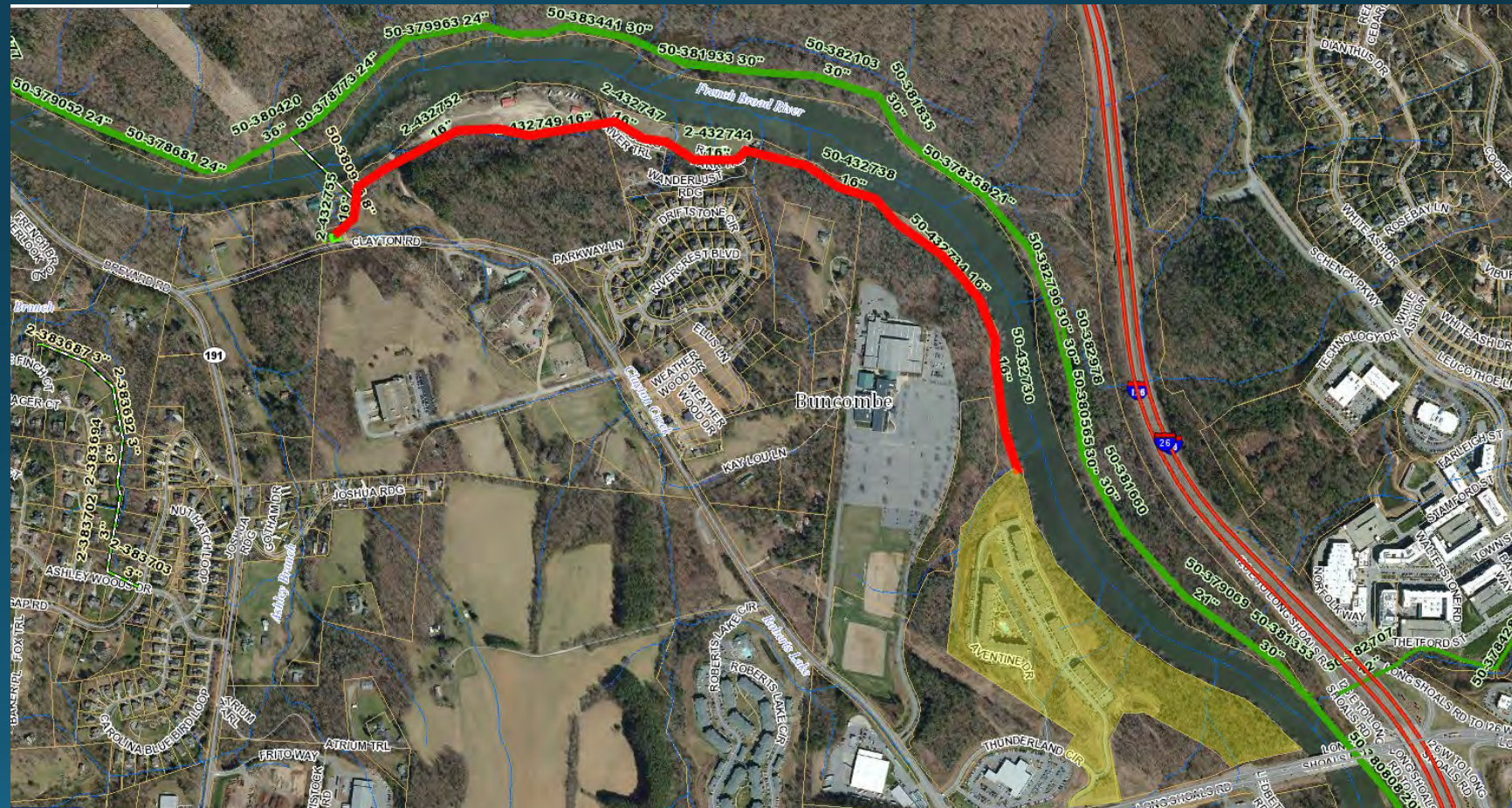
## Biltmore Farms

- ▶ \$173,222 reimbursed in 2014
- ▶ 4 easements
- ▶ 73,000gpd for 300 MFR

## Easement Costs:

- ▶ \$295,000 condemnation
- ▶ \$42,316 court costs
- ▶ \$130,407 negotiated compensation and legal costs

**Total MSD Cost: \$640,945**



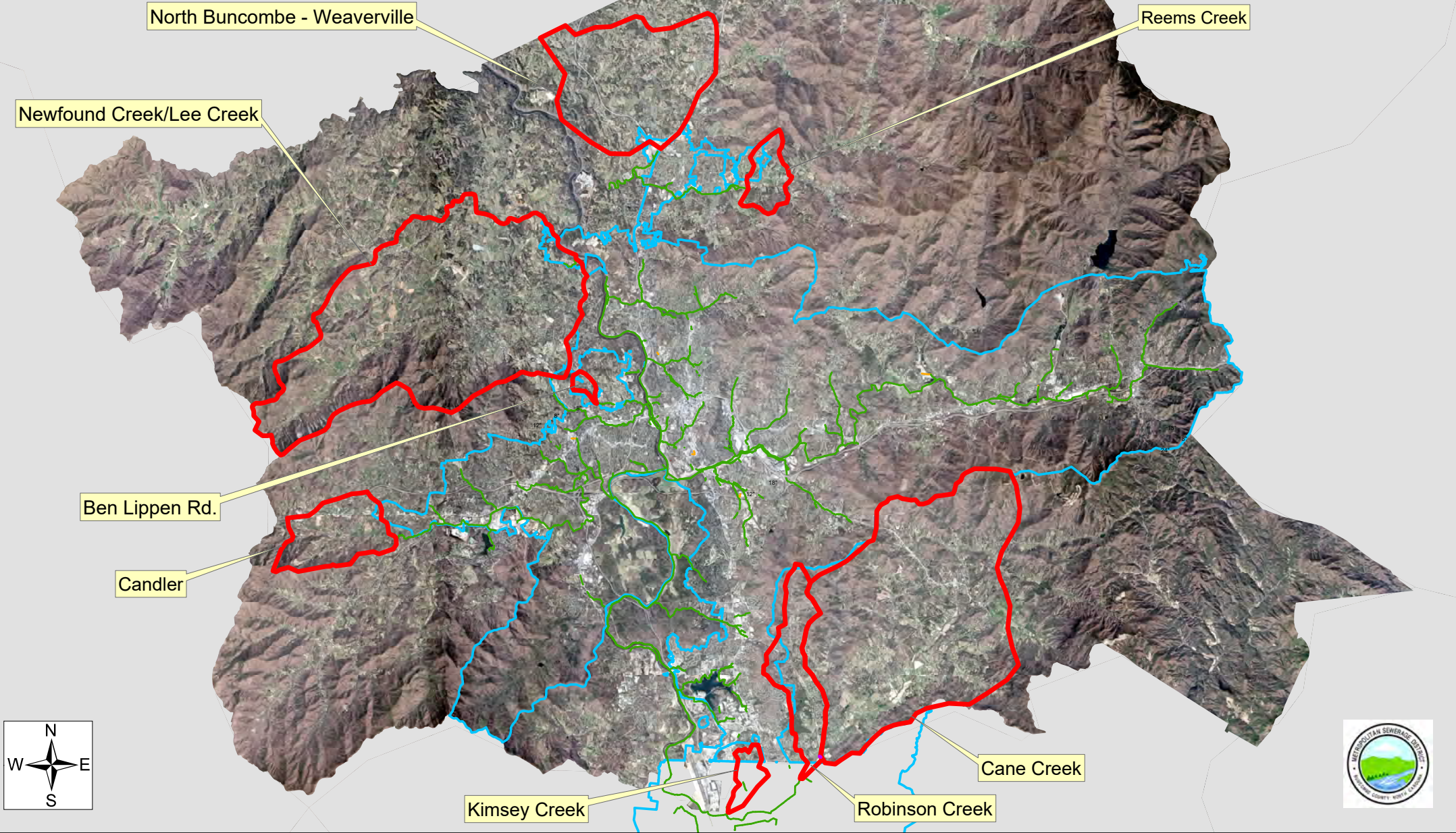


# Unsewered Areas of Interest





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# Sewer Challenges and Costs

- Gravity Sewers that serve basins and sub-basins run “on-grade” along stream features.
- Typically run 8 - 20 feet deep(water lines at 3 feet).
- Require large amount of rock blasting and removal.
- Require easements from private owners who may not want the development to occur.





# Summary of Expansion Costs

Project	Estimated Square Mileage	Estimated Cost*	Estimated Lots Impacted*		MSD Participation theoretical
Newfound/Lee Creek	40.0	\$58.6 M	6,000		\$24.9 M
Cane Creek	45.0	\$87.6 M	5,500		\$46.2 M
Candler	14.0	\$12.7 M	4,050		\$3.8 M
Robinson Creek	4.5	\$8.7	3,200		
North Buncombe/ Weaverville	14.5	\$16.8M	3,200		
Reems Creek	2.3	\$2.4M	1,375		Complete
Ben Lippen Rd	1.3	\$1.5M	350		
Kimsey Creek	1.0	\$0.3	190 (1.15k Henderson Co)		

Note: \*These are estimates and are subject to change. Construction costs are highly volatile and estimated lots impacted are based on GIS analysis and users may not opt into new service. These do not include the last quarter mile of lines to particular establishments.



Questions?



# CANDLER AREA

Exit 37

Approx. 3,200 LF 12-inch line  
extending to Smokey Park Hwy  
and N. Morgan Branch

Existing MSD Sewer

Approx. 5,200 LF 8-inch line extending  
to Smokey Park Hwy and Wiggins Road

Approx. 13,000 LF 12-inch to  
24-inch interceptor line along  
Hominy Creek

Hominy Creek Sewer Extension  
Design, Right-of-Way, Construction  
Approximately \$12.7 Million











Three Direct Dischargers could be eliminated and flow back to the MSD Regional Treatment Plant.





# Why small pump stations are not allowed

- Septicity and odor issues for existing customers
- Have more failures and overflows – mechanical and electrical
- Electrical Costs and Maintenance Costs forever
- Increased greenhouse emissions
- Limited on how many served – creates winners and losers
- Eventually replace with gravity throwing good money after bad.