



City of Hendersonville Water and Sewer System Development Fees

October 23, 2023



Agenda

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- 1) Background
- 2) Approach
- 3) Calculations
- 4) Resulting System Development Fees
- 5) Water and Sewer Rate Impacts



- Fees charged for new connections joining the water and wastewater system and connections requiring additional system capacity
- Intended to recover the cost of constructing water and wastewater capacity, “growth pays for growth”
- Fees are applied based on units of service (representing potential demand on utility system / large user vs. small user)
- Hendersonville charged SDFs until 2016



- SDFs allow community to recover at least a portion of cost of constructing system infrastructure
- Lack of SDFs places full cost of infrastructure on user rates
- SDFs have potential impact on development but are very common in North Carolina
 - 81 NC utilities charge SDFs (2018/2019)
- Requirements and limitations on the use of SDFs given legislation
 - Analysis prepared by financial professional
 - Public comment period and public hearing
 - Separate tracking of revenues from SDFs
 - Limitations on use of proceeds depending on approach

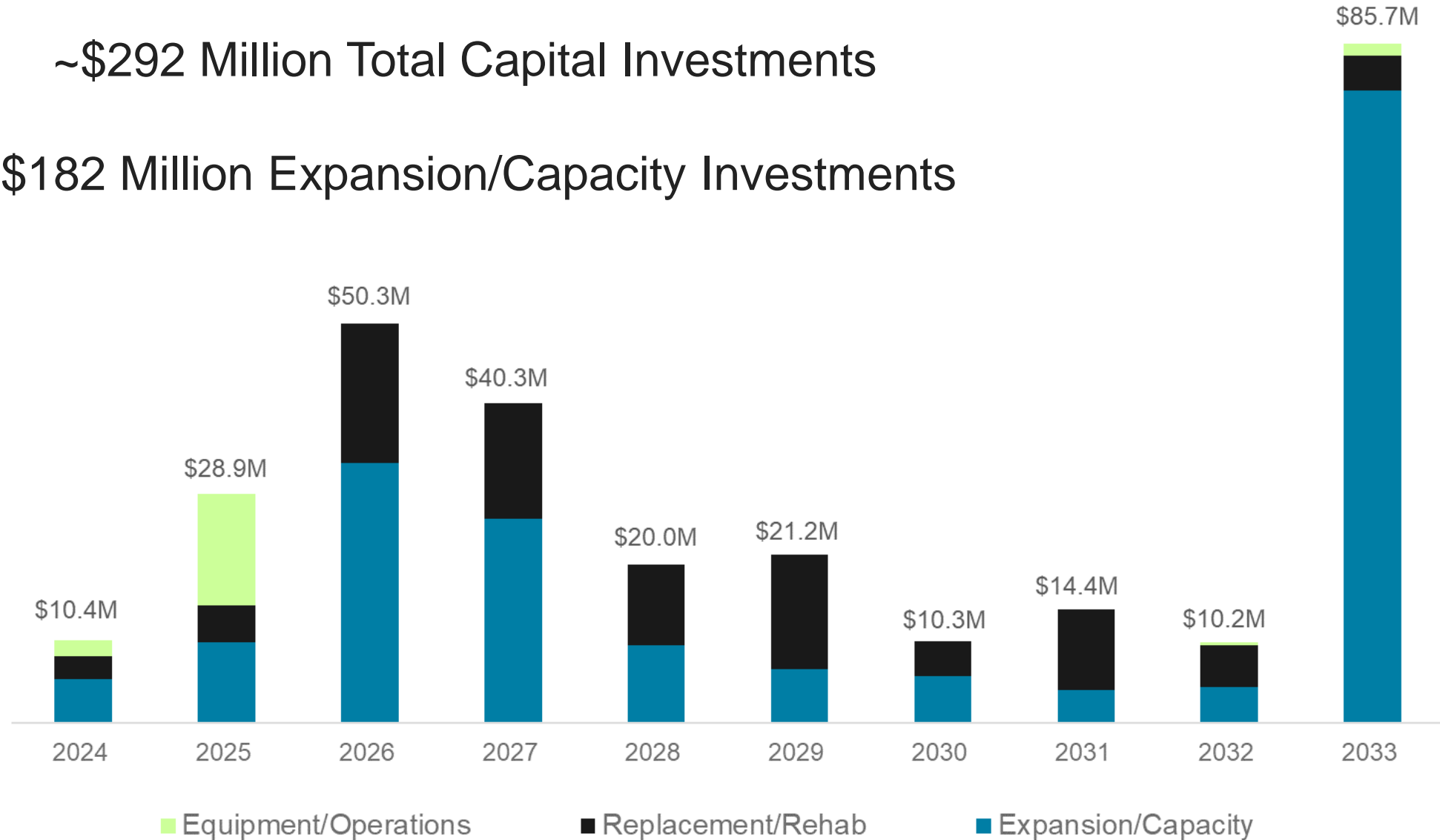


Capital Improvement Plan FY2023

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~\$292 Million Total Capital Investments

~\$182 Million Expansion/Capacity Investments



Methodology	Description	Appropriate For
Buy-In Method	Fees are based on cost of constructing existing utility system	System with ample existing capacity to sell
Incremental Cost Method	Fees are based on planned growth-related capital improvements	System with limited or no existing capacity to sell
Combined Method	Fees are based on cost of existing system and planned capital improvements	System with existing capacity to sell and with planning growth-related capital projects

Recommend the use of the **combined method** for water and sewer SDFs for City



$$\text{System Development Fee} = \frac{\text{Value of System} - \text{Credit}}{\text{System Capacity}}$$

1) Value of Utility System

- Depreciated value of current assets in place, escalated to current replacement cost
- Plus: The value of future planned capital projects that will **add** capacity to the system (*10-Year Capital Plan*)

2) Credits

- Outstanding principal on existing utility debt
- NPV of principal on future debt over planning period (must equal at least 25% of expansion capital projects, if not additional credit required)
- Donated/contributed and non-core system assets

3) System Capacity

- Total capacity in the utility system measured in units of service (Equivalent Residential Units or ERUs) with the existing system and expansion of the system



Units of Service

Water System (based on system demands)

Type	Average Consumption (gpd)
Single Family (1 equivalent residential unit - ERU)	136
Multi-Family	85
Mobile / Manufactured Home	133

Water System ERU Calculation	
Daily Usage per ERU (gpd)	136
Max Day Peaking Factor	1.5
Peak Day Usage per ERU (gpd)	204
Multi-Family Units (ERUs per Unit)	0.63

Sewer System (NC Planning Requirements)

Sewer System ERU Calculation	
State Standard Flow Rate (gpd) per Bedroom	120
Planning # of Bedrooms	2
Sewer Use per ERU (gpd)	240
Multi-Family Units (ERUs per Unit)	0.63



Water SDF Calculation

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	Source / Treatment	Transmission / Distribution	Total
Replacement Value of Existing Depreciated Assets	\$35,827,300	\$60,665,774	\$96,493,074
Expansion Capital Projects	\$63,485,535	\$45,005,000	\$108,490,535
Total Value	\$99,312,835	\$105,670,774	\$204,983,609
<i>Less Credits</i>			
Outstanding Debt Principal	(\$6,704,970)	(\$11,353,414)	(\$18,058,384)
Donated and Non-Core Assets	(1,219,302)	(8,960,275)	(10,179,577)
Revenue Credit (NPV of future debt principal over period)	(29,570,505)	(20,962,580)	(50,533,085)
Net System Value	\$61,818,058	\$64,394,506	\$126,212,563
System Capacity - Million Gallons per Day*	18	18	
Level of Service per ERU (gallons per day)	204	204	
Equivalent Residential Units (ERU)	88,235	88,235	
Water System Development Fee Per ERU	\$701	\$730	\$1,431

**Includes 6 MGD WTP plant expansion*

Water Calculated SDF - \$7.01 per gallon per day



Sewer SDF Calculation

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	Treatment	Conveyance / Collection	Total
Replacement Value of Existing Depreciated Assets	\$28,145,176	\$35,802,595	\$63,947,771
Expansion Capital Projects	\$57,750,769	\$16,212,000	\$73,962,769
Total Value	\$85,895,945	\$52,014,595	\$137,910,540
<i>Less Credits</i>			
Outstanding Debt Principal	(6,446,996)	(8,201,021)	(14,648,017)
Donated and Non-Core Assets	(63,282)	(2,629,945)	(2,693,227)
Revenue Credit (NPV of future debt principal over period)	(26,899,347)	(7,551,280)	(34,450,627)
Net System Value	\$52,486,320	\$33,632,349	\$86,118,669
System Capacity - Million Gallons per Day*	7.8	7.8	
Level of Service per ERU (gallons per day)	240	240	
Equivalent Residential Units (ERU)	32,500	32,500	
Wastewater System Development Fee Per ERU	\$1,615	\$1,035	\$2,650

**Includes 3 MGD WWTP plant expansion*

Sewer Calculated SDF - \$11.04 per gallon per day



Assessment of System Development Fees

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- SDFs must be applied based on units of service (represents potential demand)
- SDFs can be scaled by:
 - American Water Works Association (AWWA) meter equivalents
 - Heated square footage
 - Customer type
 - Combination of methods

Meter size	Equivalent Residential Units (ERU)
3/4"	1.00
1"	1.67
1 1/2"	3.33
2"	5.33
3"	11.67
4"	21.00
6"	43.33
8"	93.33
Multi-Family (per unit)	0.63

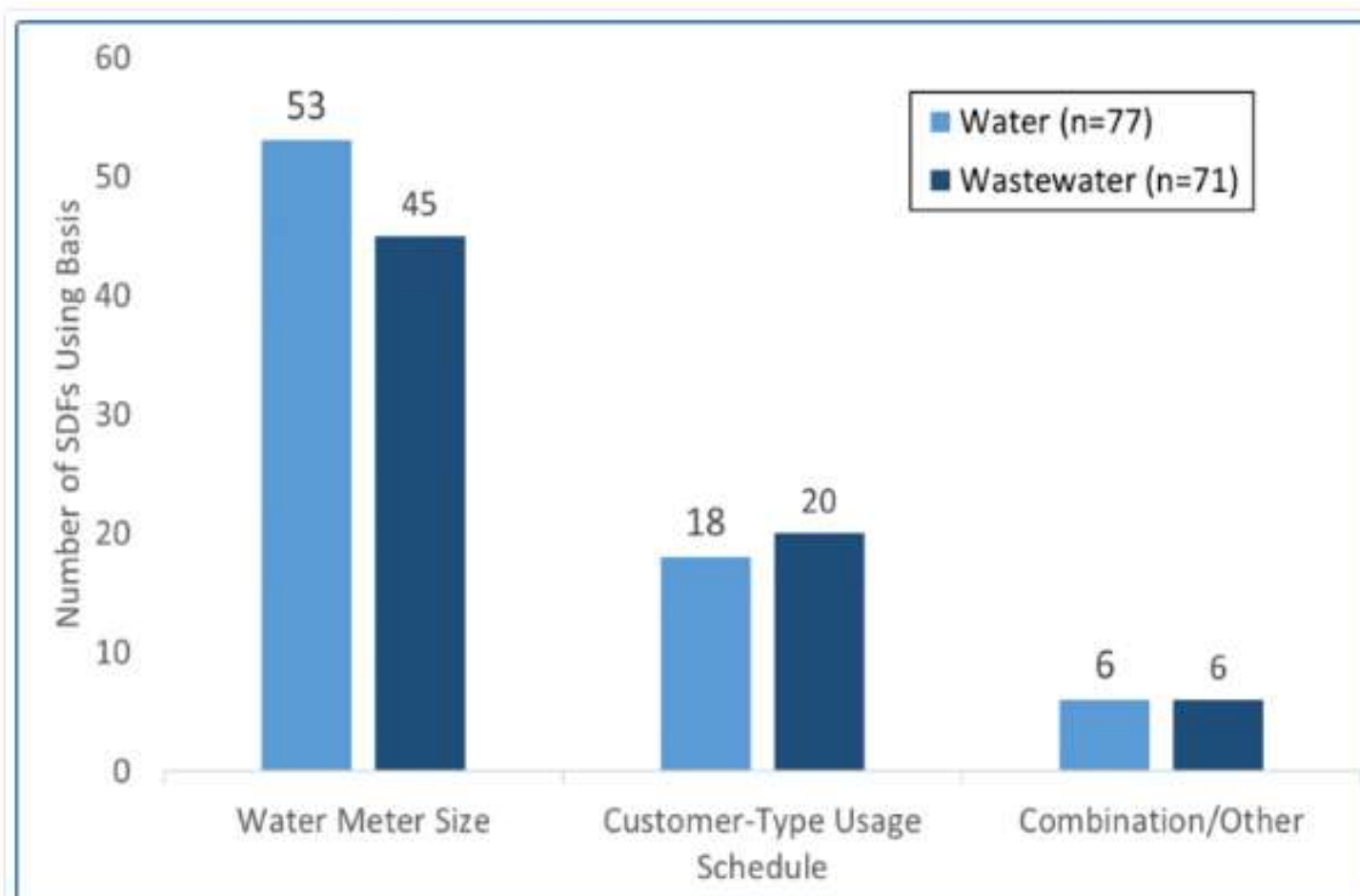


Figure 2: Number of System Development Fees by Fee Basis

Source: UNC School of Government Environmental Finance Center.
System Development Fees in North Carolina After the New Law. September 24, 2019

Water System (based on historical demands)

Property Type	Average Usage (gpd)	Peaking Factor	Max Day Units of Service (gpd)
Single Family (Heated sq. ft.)			
<1,000	118	1.50	178
1,000 - 1,500	127	1.50	190
1,501 - 2,000	129	1.50	194
2,001 - 2,500	137	1.50	206
2,501 - 3,000	143	1.50	214
3,001 - 3,500	153	1.50	230
3,501 - 4,000	164	1.50	246
Over 4,000	189	1.50	284
Multi-Family per unit	85	1.50	128
Mobile/Manufactured Home	133	1.50	200
Non-Residential (3/4" water meter)	237	1.50	356

Sewer System (based on NC planning requirement and historical demands)

Property Type	Water Use Ratios	Units of Service (gpd)
Single Family (Heated sq. ft.)		
<1,000	87%	209
1,000 - 1,500	93%	223
1,501 - 2,000	95%	228
2,001 - 2,500	101%	242
2,501 - 3,000	105%	252
3,001 - 3,500	113%	271
3,501 - 4,000	121%	289
Over 4,000	139%	334
Multi-Family per unit	63%	150
Mobile/Manufactured Home	98%	235
Non-Residential (3/4" water meter)	174%	418

Water Use Ratio : Property Type Usage / ERU usage of 136 gpd

Dwelling Heated Sq Ft	Calculated Water SDF	Calculated Wastewater SDF	Combined SDF
<1000	\$1,247	\$2,309	\$3,555
1,000 - 1,500	\$1,332	\$2,466	\$3,797
1,501 - 2,000	\$1,359	\$2,517	\$3,876
2,001 - 2,500	\$1,443	\$2,672	\$4,115
2,501 - 3,000	\$1,500	\$2,778	\$4,278
3,001 - 3,500	\$1,613	\$2,987	\$4,600
3,501 - 4,000	\$1,724	\$3,193	\$4,981
4,000+	\$1,992	\$3,689	\$ 5,681
Multi-Family (per unit)	\$894	\$1,656	\$2,551



Non-Residential Calculated SDFs

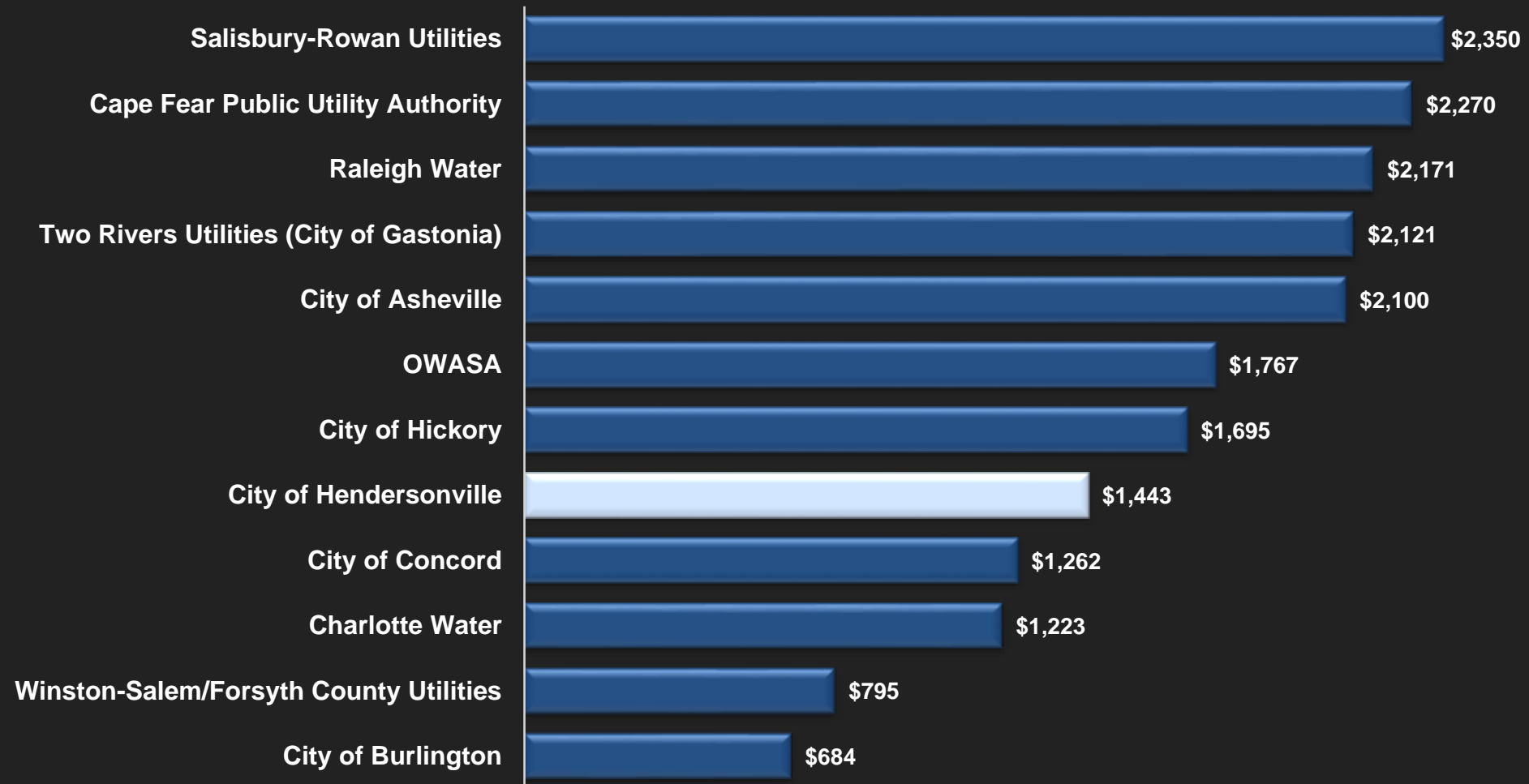
Meter Size	Calculated Water SDF	Calculated Wastewater SDF	Combined SDF	Current No. of Non-Res. Customers
3/4"	\$2,494	\$4,618	\$7,112	1784
1"	\$4,156	\$7,697	\$11,853	378
1 1/2"	\$8,312	\$15,393	\$23,706	271
2"	\$13,300	\$24,629	\$37,929	113
3"	\$29,093	\$53,877	\$82,970	22
4"	\$52,368	\$96,978	\$149,347	12
6"	\$108,062	\$200,114	\$308,176	11
8"	\$232,748	\$431,015	\$663,763	0
10"	\$349,122	\$646,522	\$995,644	0



Water SDF Comparison - Residential

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Water System Development Fees (Residential 2,100 Sq. Ft.)

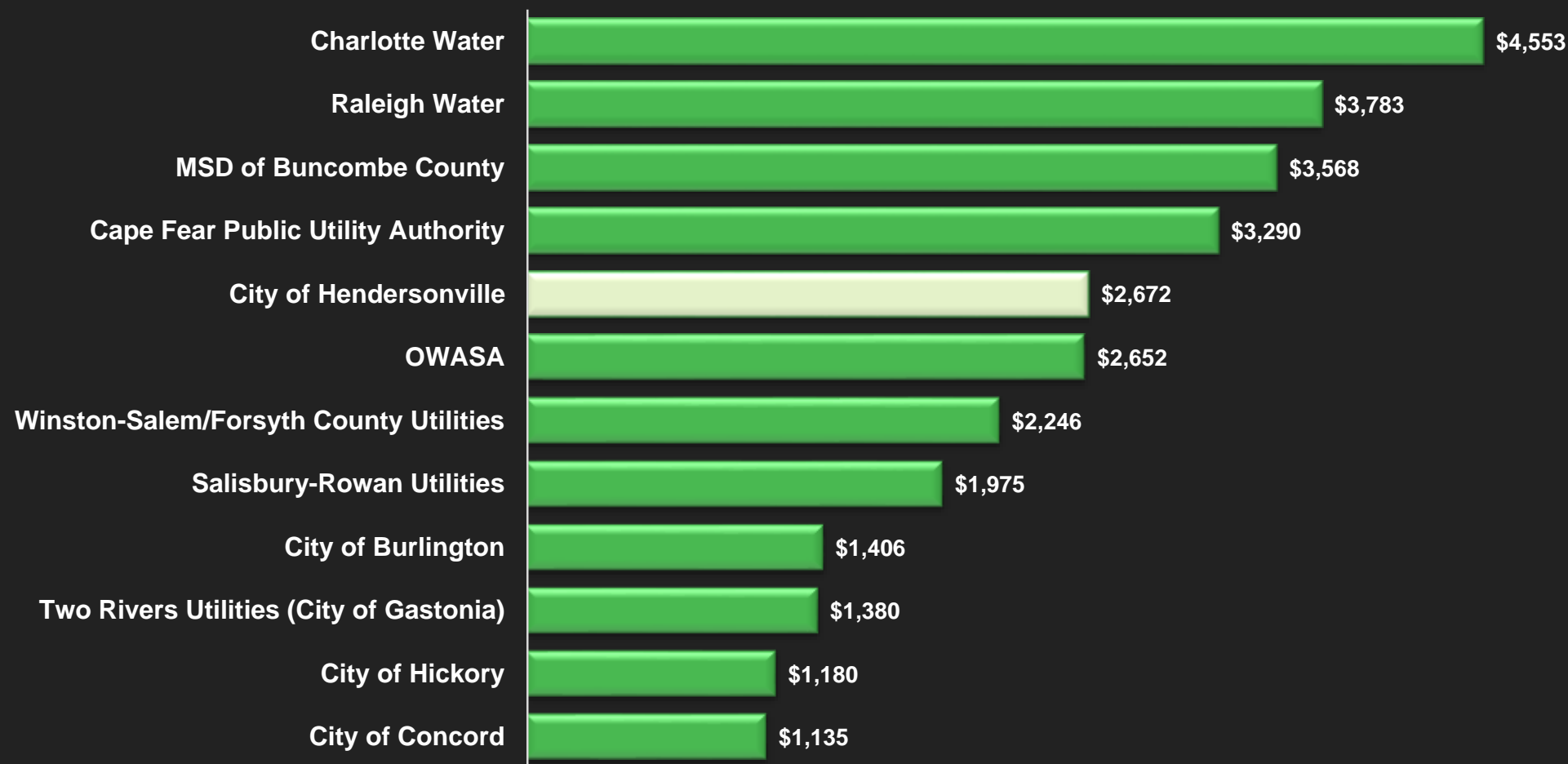




Sewer SDF Comparison - Residential

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Sewer System Development Fees (Residential 2,100 Sq. Ft.)



MSD of Buncombe County: - Multi-Family per unit \$2,390 (67% of single family)

Installation	Single Family Size	Calculated Water SDF	Calculated Sewer SDF	Water Tap/Meter	Sewer Tap	Total Cost
City-Installed (3/4") meter	2,001 - 2,500	\$1,443	\$2,672	\$1,625	\$1,600	\$7,340
Developer- Installed (3/4" meter)	2,001 - 2,500	\$1,443	\$2,672	\$350	\$0	\$4,465



	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32	FY33
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No SDF

Water Rate increase	11.00%	11.00%	11.00%	11.00%	11.00%	3.00%	3.00%	3.00%	3.00%
Sewer Rate Increase	12.00%	12.00%	12.00%	12.00%	12.00%	3.00%	3.00%	3.00%	3.00%

High Case (with SDF)

Water Rate increase	9.00%	9.00%	9.00%	9.00%	9.00%	3.00%	3.00%	3.00%	3.00%
Sewer Rate Increase	10.00%	10.00%	10.00%	10.00%	10.00%	3.00%	3.00%	3.00%	3.00%

Mid Case (with SDF)

Water Rate increase	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	3.00%	3.00%	3.00%
Sewer Rate Increase	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	3.00%	3.00%	3.00%

Low Case (with SDF)

Water Rate increase	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	3.00%	3.00%	3.00%
Sewer Rate Increase	11.25%	11.25%	11.25%	11.25%	11.25%	11.25%	3.00%	3.00%	3.00%

1. “High” Assumption - Based on current level of development at 80% completion rate
2. “Mid” Assumption - Based on current level of development at 60% of completion rate
3. “Low” Assumption - Current level of development at 20% completion rate over next 2 years



Customer Impacts - Residential (5,000 gallons per month)

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	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32	FY33
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No SDF

Monthly Bill	\$61.83	\$68.98	\$76.95	\$85.87	\$95.81	\$106.89	\$110.10	\$113.40	\$115.65
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High Case (with SDF)

Monthly Bill	\$60.72	\$66.54	\$72.91	\$79.88	\$87.52	\$95.90	\$98.79	\$101.77	\$103.78
Annual Difference	\$13	\$29	\$48	\$72	\$99	\$132	\$136	\$140	\$142
Cumulative									\$812

Mid Case (with SDF)

Monthly Bill	\$60.97	\$67.11	\$73.88	\$81.31	\$89.50	\$98.52	\$101.50	\$104.53	\$106.57
Annual Difference	\$10	\$22	\$37	\$55	\$76	\$100	\$103	\$106	\$109
Cumulative									\$619

Low Case (with SDF)

Monthly Bill	\$61.41	\$68.05	\$75.42	\$83.58	\$92.61	\$102.63	\$105.71	\$108.91	\$111.04
Annual Difference	\$5	\$11	\$18	\$27	\$38	\$51	\$53	\$54	\$55
Cumulative									\$313

1. "High" Assumption - Based on current level of development at 80% completion rate
2. "Mid" Assumption - Based on current level of development at 60% of completion rate
3. "Low" Assumption - Current level of development at 20% completion rate over next 2 years



Customer Impacts - Non-Res (80,000 gallons per month)

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	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32	FY33
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No SDF

Monthly Bill	\$1,105	\$1,233	\$1,376	\$1,535	\$1,714	\$1,913	\$1,970	\$2,029	\$2,089
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High Case (with SDF)

Monthly Bill	\$1,086	\$1,189	\$1,304	\$1,429	\$1,567	\$1,717	\$1,769	\$1,822	\$1,875
Annual Difference	\$236	\$520	\$864	\$1,276	\$1,767	\$2,346	\$2,415	\$2,484	\$2,560
Cumulative									\$14,467

Mid Case (with SDF)

Monthly Bill	\$1,090	\$1,200	\$1,321	\$1,454	\$1,602	\$1,764	\$1,817	\$1,872	\$1,927
Annual Difference	\$177	\$393	\$658	\$972	\$1,345	\$1,787	\$1,836	\$1,885	\$1,943
Cumulative									\$10,995

Low Case (with SDF)

Monthly Bill	\$1,098	\$1,217	\$1,350	\$1,496	\$1,658	\$1,838	\$1,893	\$1,950	\$2,008
Annual Difference	\$88	\$187	\$314	\$471	\$668	\$893	\$923	\$943	\$971
Cumulative									\$5,459

1. "High" Assumption - Based on current level of development at 80% completion rate
2. "Mid" Assumption - Based on current level of development at 60% of completion rate
3. "Low" Assumption - Current level of development at 20% completion rate over next 2 years



- SDF revenues can only be used for capital related expenditures including:
 - Cash funded capital projects (growth-related and rehabilitation)
 - Annual debt service
- SDF revenues can be pledged as revenues to support debt service coverage requirements
- SDF revenues must be account for in a separate fund (capital reserve fund) and use of funds should be tracked
- Common practice to cash fund growth related projects with SDFs resulting in reduced costs (avoided interest expense)



- Fees assessed to new connections or connections requiring additional capacity.
- Fees recovers costs necessary for system expansion and additional capacity
 - “Growth pays for Growth”
- Lack of SDFs places full cost of infrastructure on user rates
- Reduction in future rate increases possible along with reduced borrowing requirements
- Fees assessed equitably based on demands placed on the systems



Process and Engagement

- October 2022 - System Development Fee 101 presentation
- April 2023 - Initial SDF results presentations
- Summer 2023 - Introduction presentations
- September 4, 2023 - SDF Report posted online for public comment (no comments received)
- October 2023 - Final presentations

Group	Action	Date	Time
Business Advisory Committee (BAC)	Intro. presentation	07/10/23	11:30am
Water & Sewer Advisory Council (WSAC)	Intro. presentation	07/24/23	6:00pm
City Council	Intro. presentation	08/23/23	4:00pm
City Staff	Analysis published on website	09/04/23	5:00pm
Business Advisory Committee (BAC)	Final presentation & board recommendations	10/09/23	11:30am
Water & Sewer Advisory Council (WSAC)	Final presentation & board recommendations	10/23/23	6:00pm
City Council	Second presentation & board recommendation	10/25/23	4:00pm
Chamber of Commerce-Public Policy Committee	Final presentation	10/26/23	8:30am
City Council	Final presentation/adoption	01/04/24	5:45pm



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Additional Questions/Discussion