Town of Pilot Mountain
Town Hall 124 West Main Street Pilot Mountain, NC 27041
Monday, April 12, 2021, 7:00 PM
This meeting will be held via Zoom and is available to the public via Facebook Live.

BOARD OF COMMISSIONERS REGULAR MEETING AGENDA

Call to Order/Moment of Silence/Pledge of Allegiance

Adoption of Agenda

Public Comment
Please email comments to publiccomment@pilotmountainnc.org.

Consent Agenda

1. Approval of Minutes

Board & Committee Reports

2. ABC Board Report

Unfinished Business

3. Landscaping/Brush/Leaves Contract
4. AMP Final Report

New Business

5. FY 2022 Budget Presentation

Administrative Reports

6. Town Manager and Staff Reports

Mayor and Commissioners Comments

Other Business

Adjourn

Town of Pilot Mountain
Board of Commissioners Meeting
Monday, March 8, 2021
Regular Meeting via Zoom 7:00 PM

Members Present: Mayor Evan Cockerham, Commissioner Rachel Gilley, Commissioner Donna Kiger, Commissioner Scott Needham and Commissioner Dwight Atkins

Staff Present: Town Manager, Michael Boaz, Town Clerk, Holly Utt and Police Chief Robbie Jackson

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Call to order 7:00 PM
Mayor Cockerham called the meeting to order at 7:00 PM. After a moment of silence, Commissioner Kiger led the Pledge of Allegiance.

Adoption of Agenda
Commissioner Atkins made a motion to adopt the agenda as presented and it was unanimous.

Public Hearing

1. **Road Project Financing – Public Hearing**

   Mayor Cockerham opened the public hearing for the Road Financing Project. No comments. Mayor Cockerham closed the public hearing.

2. **UDO Text Amendments – Public Hearing**

   Mayor Cockerham opened the public hearing for the UDO Text Amendments. No comments. Mayor Cockerham closed the public hearing.

Public Comment
No comments

Consent Agenda

- January 11, 2021 Minutes
- February 18, 2021 Special Meeting Minutes

Commissioner Needham made a motion to approve the consent agenda and it was unanimous.

Board & Committee Reports
January 2021 sales were $171,447, an increase of 55.1% over January 2020 sales of $108,305. On behalf of Billy Pell, Mr. Boaz commended the employees of the ABC Store for their hard work and especially store manager, Paula Jones.

New Business
National Poetry Month Resolution 2021-5
Diane Palmieri, Associate Librarian at Charles H. Stone Memorial Library, presented an update to the Board. She asked that the Board declare April as Poetry Month in Pilot Mountain. There will be several

activities in the downtown area to promote reading and poetry for the entire family. The library will be sponsoring a poetry contest for the businesses located in Pilot Mountain. Information for the contest will be available at the library and participating businesses. These activities will be available throughout the month of April. Commissioner Atkins made a motion to adopt Resolution 2021-5 and it was unanimous.

FY 2021 Budget Amendment 2

Mr. Boaz stated that this budget amendment would recognize some of the additional sales tax revenues that has been collected this year as well as an additional grant that was received from the State that was used to buy a security system for East Surry High School. This amendment will also remove the fund balance appropriated earlier in the year. Commissioner Needham made a motion to approve FY 2021 Budget Amendment 2 and it was unanimous.

Solid Waste Collection Proposals

The contract with Waste Management expires June 30, 2021. Mr. Boaz sent out RFP's for solid waste collection and three proposals had been received from Waste Management, Foothill Waste Solutions and ABC Garbage. As part of the process, he gave the companies the option to include brush and bulky item pick up. This would eliminate the temporary workers for brush pick up and contract out the landscaping and save the town close to $10K. The lowest bid was received from Waste Management. Discussion ensued about the brush pick up and the process to get that picked up. Commissioner Needham made a motion to have Mr. Boaz finalize the details on solid waste and recycling with Waste Management and work with staff on a brush pick up solution and it was unanimous.

Road Project Interim Financing

UDO Text Amendments

Mr. Boaz stated that the Board would not be able to vote on these two items at this meeting. Since the meeting is held via Zoom, the residents have 24 hours to submit comment after the public hearing. It was the consensus of the Board to take action on these items at the March 18, 2021 work shop.

Administrative Reports

Town Manager's Report

- The finance report will be sent tomorrow
- The Streetscape Project is wrapping up. More information has been received from Duke Energy moving that process forward
- Staff are working on preliminary events for June and July
- The Comprehensive Plan Project is moving along. The first public involvement session will begin on March 15th and it will run through April 3rd. Those interested can participate online and also in person at the Charles H. Stone Library during regular business hours.
- The grant has been received for the dual electric vehicle charging station. The charging station will be located in the town hall parking lot and should be completed in the next few months.
- Chemical Spill update – Police Chief, Robbie Jackson, and his team have been trying to track down the company responsible for the accidental spill. He thanked all the local departments for coming out and helping get that cleaned up.

Mayor and Commissioners Comments

Commissioner Atkins: Looking forward to events and heading back to some sense of normalcy. He commended the ABC Store employees and asked that other Board members go by and show their support. Commissioner Atkins also expressed his appreciation to Andy Goodall and staff for the work done on the UDO. He thanked Diane Palmieri for working on the events at the library to benefit the community.

Commissioner Kiger: Thanked everyone for doing the Pledge of Allegiance at the meeting. She also thanked Chief Jackson for training his whole department so well in dealing with the chemical spill. She thanked Diane Palmieri for everything that she does at the library which helps make Pilot Mountain a great place to live.

Commissioner Needham: Commended the PMPD, the VFD and Ultimate Towing for assisting with the chemical spill in such a short amount of time. What could have become a dangerous situation was avoided due to their quick response.

Commissioner Collins: Thanked Diane and the library with the work they do for the community. She also commended Chief Jackson and the PMPD for all the work that they do and having a relationship with the citizens. Commissioner Collins mentioned Savannah Denny, a business owner in the community that lost her home due to a fire. There is a Go Fund Me page set up for that cause and Grace and Sparrow are also taking donations for her.

Mayor Cockerham: Thanked the PMPD for their quick response and the first responders that came out and assisted with the chemical spill. He noted that the town had begun the program with the NC Main Street through the associate program. They are working with the Main Street Coordinator, Jenny Kindy, and things are going well. He welcomed the new businesses on Main Street. He also thanked everyone who coordinates events on Main Street for their work in preparing the events to take place this year if permitted.

Closed Session: NCGS §143-318.11(a)(6) Personnel

Commissioner Atkins made a motion to enter into closed session and it was unanimous.

Commissioner Needham made a motion to come out of closes session and it was unanimous.

Other Business

No other business to discuss.

Adjourn or Recess

Commissioner Atkins made a motion to adjourn and it was unanimous.

Respectfully Submitted:

_____
Holly Utt
Town Clerk

Attest:

_____
Evan Cockerham
Mayor

ABC Board Report	
Background Information:	
ABC Board Chairman Billy Pell provided the monthly report on the ABC Store. February 2020: 113,732 February 2021: 150,924 Increase of 32.96%	
Staff Recommendation:	Information only
Possible Board of Commissioner Actions	
• Take no action	
Attachments	
• None	

Landscaping/Brush/Leaves Contract
Background Information:
After the last meeting, I met with the contractors for the landscaping and brush services that we discussed. During these discussions, the contractor offered to take on leaf collection at no additional cost to the Town. The attached contract includes those services as well.

Staff Recommendation:	Staff recommends the Board adopt the proposed contract as written.

Possible Board of Commissioner Actions

- Adopt proposed contract as written.
- Make changes to proposed contract and adopt.
- Deny approval of proposed contract.
- Take no action.

Attachments

- Proposed Landscaping Contract

SERVICE CONTRACT
LAWN CARE & LANDSCAPING & BRUSH SERVICES

THIS AGREEMENT made and entered into this _____day of April, 2021 by and between the Town of Pilot Mountain, State of North Carolina, a municipal corporation, hereinafter called "Town", and Mrs. Ashley Livengood, owner of Pilot Knob Landscaping, an independent contractor, hereinafter called "Contractor".

WHEREAS, the Contractor is qualified to provide lawn, landscaping and brush services and the Town desires the Contractor to provide lawn, landscaping, and brush services.

NOW, THEREFORE, in consideration of mutual agreements and considerations contained herein, the Town and Contractor hereby agree as follows:

1. **Scope of Services:**
    a. **Lawn Services:** Contractor will furnish all necessary labor and equipment to mow, trim, and provide general landscaping maintenance for the following Town owned facilities:
        i. Town Cemetery
        ii. Pilot Center
        iii. Charles H. Stone Memorial Library
        iv. Twenty sewer lift stations (see Attachment A for list)
        v. Town Hall

    These services shall include the following:

- Contractor shall trim along all structures, signs, sidewalks, cemetery markers, telephone poles, etc. each time properties are mowed and apply necessary pesticides and other chemicals as needed (no chemicals may be used around headstones or other monuments), but at a minimum edge all walks, curbs and other hard surfaces every other mowing.
- When mowing, any, branches, trash or other debris will be removed beforehand by the contractor. Contractor shall not mow over trash.
- Backpack blow all hard surfaces after each mowing.
- Quickly be responsive to reasonable citizen complaints as communicated by town management.
- Use caution as to not damage monuments or any other manmade structures.

    b. **Landscaping Services:** Maintain all landscape areas at the Town Hall and Library including trimming bushes, plantings as necessary, etc. The Town will provide plant material and mulch at its expense or the contractor may purchase these materials and bill the Town for them separately.

    c. **Downtown Maintenance Services:** Maintain all flower plots and other planting areas in the downtown area. Empty all trash and recycling bins in the downtown area on Wednesday evening. Empty and refill dog waste stations as necessary. The Town will provide all bags for the trash/recycle bins and the dog waste stations.

    d. **Brush Services:** Contractor shall collect brush from all single family residences in Town at least every other week. Brush collection should include limbs, grass clippings, trimmings, and other similar yard waste.

    e. **Leaf Collection Services:** Contractor shall collect leaves from the curb from October 15 through January 15 of each year.

2. **Term:** The term of the Agreement shall be for a period of three (3) years subject to extension or termination by either party with 30 days' notice. The landscaping portion of this contract shall be effective from April 1, 2021. The brush services portion shall come into effect on July 1, 2021. The 3 year term of the contract shall run from July 1, 2021.

3. **Hours of Work/Frequency/Schedule:** Both parties understand and agree that work provided is on an "as needed" basis and as such no set hours are required. Allowances may be considered regarding the above mowing schedule as determined jointly by the mowing contractor and the Town. All mowing should occur as needed, but not to exceed 30 times per year.

   The following priorities should be observed regarding the mowing of the Cemetery
   - November - just prior to Veteran's Day and Thanksgiving.
   - December - just prior to Christmas
   - April - just prior to Easter.
   - May - just prior to Mother's Day and Memorial Day
   - June - just prior to Father's Day and in preparation for Independence Day

4. **Rate:** The cost and availability of all equipment, materials, and supplies associated with performing the services described herein have been determined and included in the proposed cost. All labor costs, direct and indirect, have been determined and included in the proposed cost. Any anticipated increase in costs beginning July 1, 2022 shall be communicated in writing to the Town Manager prior to March 30 in order to prepare for the annual budget. The annual fee for these services shall be $70,000.

5. **Schedule of Payment:** The amount due to the Contractor shall be paid on a bi-weekly basis on or before the last working day of each calendar month. The Town will pay the contractor 1/26 of the annual every two weeks.

6. **Insurance:** The contractor shall submit a certificate of comprehensive general and automobile liability insurance within five (5) days of executing the agreement. Such insurance must remain in full force and effect so long as the contractor is engaged by the Town of Pilot Mountain. The Contractor will provide a new certificate of insurance if any changes are made to the policy.

7. **Indemnification:** The Contractor agrees to defend, indemnify and hold the Town harmless from and against any claim, liability, or loss (including reasonable attorneys' fees incurred by the Town in pursuing such indemnification or in defending any such claim) arising from any negligent act or failure to act on the part of the Contractor during its performance of the services contemplated hereunder. The Town will be reimbursed for any assessment of taxes/penalties that IRS/NC DOR may or might access if contractor is deemed to be an employee and not an independent contractor.

8. **Independent Contractor Status:** The Town and Contractor agree that in the performance of this agreement, the Contractor shall be acting as an independent contractor. Nothing herein shall constitute or be construed to be or create a partnership, agency, joint venture, or other similar relationship between the Town and Contractor. The Contractor agrees that it will not represent to anyone that its relationship to the Town is other than that of an independent contractor, and the Town and Contractor may so inform any parties with whom they deal and may take any other reasonable steps to carry out the intent of this section. The Contractor shall be fully and solely responsible for its own acts for its own acts and omissions. The Contractor shall maintain appropriate insurances, comply with the Occupational Safety and Health Act, and further comply with all applicable state and federal regulations.

9. **Amendment/ Governing Law:** No modification or waiver of any provision of this agreement shall be valid unless in writing and signed by both parties. This agreement shall be governed by the laws of the State of North Carolina as to both interpretation and performance, except as to conflict of laws.

This agreement is executed and effective this the ____ day of April, 2021.

TOWN: Town of Pilot Mountain

By: _____
James Michael Boaz, Town Manager

CONTRACTOR: Pilot Knob Landscaping

By: _____
Ashley Livengood, Owner

Attest:

Seal:

_____
Holly Utt, Town Clerk

This instrument has been pre-audited in the manner required by the NC Local Government Budget and Fiscal Control Act.

_____
James Michael Boaz, Town Manager/Finance Officer

AMP Final Report

Background Information:

Attached is the final report from WithersRavenel for our AIA project. This report contains all the information that the WR engineers found when checking out our system. It also contains three different proposed Capital Improvement Plans for the Board's consideration. I am calling these plans the minimal, moderate, and full plans. The minimal plan essentially maintains the status quo and does not plan for addressing any of the projects on the CIP that can't be paid for with cash. This plan does not help us maintain our system and will likely lead to larger rate increases in the future. The moderate plan calls for two debt issuances and associated rate increases. This plan makes a dent in our needed capital projects and has the benefit of very moderate rate increases both immediately and in the future. The third plan, or the full CIP plan, is designed to accomplish all of the projects listed on the CIP. This plan would require larger rate increases in FY 2022 and FY 2023 and then moderate rate increases in the remaining years of the plan.

I strongly recommend that the Board adopt the Full CIP plan. There are a lot of projects that need to be accomplished as a result of the study that was conducted. We need to attack these as quickly as possible for a couple of reasons. First, the projects will only get more expensive as time goes on. Second, as other parts of the system age more projects will be added. If we do not attempt to get these projects completed over the next 10 years, we will be that much further behind. I realize that a rate increase of 17% in each of the next two years will be difficult, but there are still rate increases required in each of the two less aggressive plans. In addition, the long term rate increases, years 3-10, are not that much different in any of the three plans. I am still working with the document and I think we may be able to get that rate increase down some, but I wanted to go ahead and present the final report to the Board as a worst case scenario.

Staff Recommendation:	Staff recommends the Board adopt the AMP with the aggressive CIP option.

Possible Board of Commissioner Actions

- Adopt AMP with Full CIP option.
- Adopt AMP with Moderate CIP option.
- Adopt AMP with Minimal CIP option.

Attachments

- Final AMP
- Financial Analysis with different CIP Options

TABLE 1-B
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
CAPITAL IMPROVEMENTS PLAN

PROJECT NUMBER	PROJECT LOCATION	2022 COST	INFLATED COST	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031	YEARS 11+ 2032+
	WATER IMPROVEMENTS													
	Water Distribution													
1	Extreme Risk Water Main Rehabilitation	28,030	28,030	28,030										
2	High Risk Water Main Rehabilitation	922,457	1,134,505								1,134,505			
3	Significant Risk Main Rehabilitation	1,305,920	0											
4	Install Additional Water Mains	583,932	657,221					657,221						
	Hydrants and Valves													
5	Replace Hydrant Assembly	142,960	336,726					160,903			175,823			
6	Install Additional Water Main Valves	100,000	112,551					112,551						
	Water Storage Tanks													
7	Install Altitude Valve on Pilot Center Tank	58,000	61,532			61,532								
8	Install Tank Mixing Equipment for Golf Course Rd Tank	34,000	37,153				37,153							
	WATER SUBTOTAL		2,367,717	28,030	0	61,532	37,153	930,675	0	0	1,310,328	0	0	0
	WASTEWATER IMPROVEMENTS													
	Sewer Collection													
9	Extreme Risk Gravity Main Rehabilitation	681,379	766,898					766,898						
10	High Risk Gravity Main Rehabilitation	2,632,636	3,237,810								3,237,810			
11	Significant Risk Gravity Main Rehabilitation	1,659,068	0											
	Lift Station													
12	Offsite Pump Station (No. 18) and Aerial Crossing	552,000	621,281					621,281						
13	Upgrade Lola Lane Pump Station	880,000	0											
	WASTEWATER IMPROVMENTS SUBTOTAL		4,625,988	0	0	0	0	1,388,179	0	0	3,237,810	0	0	0
	TOTAL		6,993,706	28,030	0	61,532	37,153	2,318,854	0	0	4,548,138	0	0	0
								DEBT PKG 1			DEBT PKG 2			
	DEBT PACKAGES		6,866,991					2,318,854			4,548,138			
	ANNUAL DEBT		6,866,991	0	0	0	0	2,318,854	0	0	4,548,138	0	0	
	ANNUAL CAPITAL OUTLAY		126,715	28,030	0	61,532	37,153	0	0	0	0	0	0	

TABLE 1-A
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
CAPITAL IMPROVEMENTS PLAN

PROJECT NUMBER	PROJECT LOCATION	2022 COST	INFLATED COST	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031	YEARS 11+ 2032+
	WATER IMPROVEMENTS													
	Water Distribution													
1	Extreme Risk Water Main Rehabilitation	28,030	28,030	28,030										
2	High Risk Water Main Rehabilitation	922,457	1,038,233					1,038,233						
3	Significant Risk Main Rehabilitation	1,305,920	1,606,117								1,606,117			
4	Install Additional Water Mains	583,932	601,450		601,450									
	Hydrants and Valves													
5	Replace Hydrant Assembly	142,960	308,152		147,249			160,903						
6	Install Additional Water Main Valves	100,000	103,000		103,000									
	Water Storage Tanks													
7	Install Altitude Valve on Pilot Center Tank	58,000	61,532			61,532								
8	Install Tank Mixing Equipment for Golf Course Rd Tank	34,000	37,153				37,153							
	WATER SUBTOTAL		3,783,667	28,030	851,699	61,532	37,153	1,199,136	0	0	1,606,117	0	0	0
	WASTEWATER IMPROVEMENTS													
	Sewer Collection													
9	Extreme Risk Gravity Main Rehabilitation	681,379	701,820		701,820									
10	High Risk Gravity Main Rehabilitation	2,632,636	2,963,054					2,963,054						
11	Significant Risk Gravity Main Rehabilitation	1,659,068	2,040,444								2,040,444			
	Lift Station													
12	Offsite Pump Station (No. 18) and Aerial Crossing	552,000	568,560		568,560									
13	Upgrade Lola Lane Pump Station	880,000	1,082,289								1,082,289			
	WASTEWATER IMPROVMENTS SUBTOTAL		7,356,168	0	1,270,380	0	0	2,963,054	0	0	3,122,733	0	0	0
	TOTAL		11,139,834	28,030	2,122,079	61,532	37,153	4,162,190	0	0	4,728,850	0	0	0
					DEBT PKG 1			DEBT PKG 2			DEBT PKG 3			
	DEBT PACKAGES		11,013,120		2,122,079			4,162,190			4,728,850			
	ANNUAL DEBT		11,013,120	0	2,122,079	0	0	4,162,190	0	0	4,728,850	0	0	
	ANNUAL CAPITAL OUTLAY		126,715	28,030	0	61,532	37,153	0	0	0	0	0	0	

TABLE 2
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
DEBT SERVICE SUMMARY

TYPE	NAME	2021	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031
CURRENT DEBT												
WATER	H-SRG-W-98-0831, DRINKING WATER	30,012	29,312	28,613	27,914							
WATER	USDA WATER	18,900	18,200	17,500	16,800	16,100	15,400	14,700				
BOTH	REGIONS BANK EQUIPMENT LOAN	18,318										
BOTH	CAPITAL BANK - TRACTOR	8,586	8,402	8,220	8,039							
WATER	CAPITAL BANK WATER METERS	54,792	54,792	54,792	54,792							
SEWER	SUNSET SEWER REHAB		50,302	50,302	50,302	50,302	50,302	50,302	50,302	50,302	50,302	50,302
WATER	SUNSET WATER		5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810
WATER	INTERCONNECT (NET CONTRIBUTIONS)			56,583	56,583	56,583	56,583	56,583	56,583	56,583	56,583	56,583
TOTAL CURRENT DEBT		**130,607**	**166,818**	**221,821**	**220,240**	**128,795**	**128,095**	**127,395**	**112,695**	**112,695**	**112,695**	**112,695**

TABLE 3-A
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
FINANCIAL ANALYSIS WITH FULL CIP

LINE ITEM	AUDIT 2015	AUDIT 2016	AUDIT 2017	AUDIT 2018	AUDIT 2019	AUDIT 2020	ESTIMATE 2021	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031
REVENUES:																	
WATER SALES	405,865	468,070	480,393	454,681	460,163	485,555	507,000	509,535	512,083	514,643	517,216	519,802	522,401	525,013	527,638	530,277	532,928
SEWER CHARGES	309,588	339,224	359,261	358,878	337,448	345,723	364,000	365,820	367,649	369,487	371,335	373,191	375,057	376,933	378,817	380,711	382,615
INFRASTRUCTURE INVESTMENT FEE							54,990	55,265	55,541	55,819	56,098	56,379	56,660	56,944	57,228	57,515	57,802
TAPS AND CONNECTION FEES	2,215	3,990	14,874	14,982	1,660	3,245	15,000	15,075	15,150	15,226	15,302	15,379	15,456	15,533	15,611	15,689	15,767
OTHER	32,466	40,937	32,710	6,661	88,921	80,577	12,660	12,723	12,787	12,851	12,915	12,980	13,045	13,110	13,175	13,241	13,307
NONOPERATING INCOME:																	
SALE OF CAPITAL ASSETS			8,891	497	10,831		50,000										
TRANSFERS (IN)		29,106		24,990		72,943											
FINANCING SOURCES		86,221	405,000														
FUND BALANCE APPROPRIATED																	
TOTAL REVENUES	750,134	967,548	1,301,129	860,689	899,023	988,043	1,003,650	958,418	963,210	968,026	972,867	977,731	982,620	987,533	992,470	997,433	1,002,420
NEW SOURCES OF REVENUE:																	
REVENUE FROM WATER RATE INCREASE								86,621	188,907	225,077	263,373	303,914	346,826	392,238	440,292	491,132	544,913
PERCENTAGE INCREASE								17.0%	17.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
REVENUE FROM SEWER RATE INCREASE								62,189	135,626	161,593	189,088	218,195	249,003	281,607	316,107	352,607	391,220
PERCENTAGE INCREASE								17.0%	17.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
REVENUE FROM INFRASTRUCTURE INVESTMENT FEE INCREASE								9,395	20,489	24,412	28,566	32,963	37,617	42,543	47,755	53,269	59,102
PERCENTAGE INCREASE								17.0%	17.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
TOTAL REVENUES	750,134	967,548	1,301,129	860,689	899,023	988,043	1,003,650	1,116,624	1,308,233	1,379,109	1,453,893	1,532,803	1,616,066	1,703,921	1,796,623	1,894,440	1,997,654
EXPENDITURES:																	
SEWER DEPARTMENT:																	
SALARIES AND BENEFITS	123,853	103,373	2,043				66,700	68,368	70,077	71,829	73,624	75,465	77,352	79,285	81,267	83,299	85,382
UNIFORMS	225						450	461	473	485	497	509	522	535	548	562	576
PROFESSIONAL SERVICES	6,805	7,827	6,405	7,210	6,438	12,638	0	0	0	0	0	0	0	0	0	0	0
UTILITIES	58,128	57,565	56,806	52,886	73,203	76,220	40,000	40,800	41,616	42,448	43,297	44,163	45,046	45,947	46,866	47,804	48,760
MAINTENANCE & REPAIRS	21,268	62,126	23,509	5,912	15,745	16,162	25,500	26,010	26,530	27,061	27,602	28,154	28,717	29,291	29,877	30,475	31,084
CHEMICALS	6,514	6,726	4,793	6,002	5,898	5,562	8,800	8,976	9,156	9,339	9,525	9,716	9,910	10,108	10,311	10,517	10,727
SUPPLIES	7,890	12,307	2,912	2,111	4,693	2,359	1,000	1,020	1,040	1,061	1,082	1,104	1,126	1,149	1,172	1,195	1,219
CONTRACTED SERVICES	53,876	61,287	85,752	83,345	92,314	97,965	5,570	5,709	5,852	5,998	6,148	6,302	6,459	6,621	6,787	6,956	7,130
INSURANCE AND BONDS	6,638	6,633	4,600	5,000	2,810	2,800	5,790	5,906	6,024	6,144	6,267	6,393	6,520	6,651	6,784	6,920	7,058
MISCELLANEOUS	6,990	9,728	6,220	33,511	4,551	1,036	11,720	11,954	12,193	12,437	12,686	12,940	13,199	13,463	13,732	14,006	14,287
WATER ADMINISTRATION:																	
SALARIES AND BENEFITS	208,507	187,629	63,056	66,130	73,707	90,516	92,760	96,470	100,329	104,342	108,516	112,857	117,371	122,066	126,948	132,026	137,307
UNIFORMS	594	761															
PROFESSIONAL SERVICES	4,676	6,056	11,920	16,301	28,069	33,282	28,740	29,459	30,195	30,950	31,724	32,517	33,330	34,163	35,017	35,892	36,790
UTILITIES	40,307	46,356	909	1,035	1,072	876	990	990	990	990	990	990	990	990	990	990	990
MAINTENANCE & REPAIRS	27,403	30,220															
CHEMICALS	12,216	17,855															
SUPPLIES	14,706	14,090	1,025	3,040	2,219	3,036	910	928	947	966	985	1,005	1,025	1,045	1,066	1,088	1,109
CONTRACTED SERVICES	382	32,995															
INSURANCE AND BONDS	6,638	6,633	4,600	7,710	1,942	3,024	4,340	4,427	4,515	4,606	4,698	4,792	4,888	4,985	5,085	5,187	5,290
MISCELLANEOUS	3,191	9,514	6,030	16,014	6,582	8,070	7,050	7,191	7,335	7,482	7,631	7,784	7,939	8,098	8,260	8,425	8,594
SEWER TREATMENT:																	
SALARIES AND BENEFITS			108,797	124,228	107,028	98,497											
PROFESSIONAL SERVICES			9,503	7,718	4,872	6,681											
UTILITIES			45,083	44,344	40,466	43,687	72,000	73,440	74,909	76,407	77,935	79,494	81,084	82,705	84,359	86,047	87,768
MAINTENANCE & REPAIRS			10,571	10,158	1,197	7,081	23,500	23,970	24,449	24,938	25,437	25,946	26,465	26,994	27,534	28,085	28,646
CHEMICALS			16,509	15,667	16,219	17,525	5,800	5,916	6,034	6,155	6,278	6,404	6,532	6,662	6,796	6,932	7,070
SUPPLIES			3,879	1,510	1,402	1,989	1,200	1,224	1,248	1,273	1,299	1,325	1,351	1,378	1,406	1,434	1,463
CONTRACTED SERVICES			4,618	4,160	4,933	25,283	128,690	131,907	135,205	138,585	142,050	145,601	149,241	152,972	156,796	160,716	164,734
INSURANCE AND BONDS			4,600	3,290	5,011	5,190	3,340	3,407	3,475	3,544	3,615	3,688	3,761	3,837	3,913	3,992	4,071
MISCELLANEOUS			6,919	6,319	3,262	3,516	20,260	20,665	21,079	21,500	21,930	22,369	22,816	23,272	23,738	24,213	24,697

TABLE 3-A
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
FINANCIAL ANALYSIS WITH FULL CIP

LINE ITEM	AUDIT 2015	AUDIT 2016	AUDIT 2017	AUDIT 2018	AUDIT 2019	AUDIT 2020	ESTIMATE 2021	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031
LINE MAINTENANCE:																	
SALARIES AND BENEFITS			83,563	89,342	77,801	55,217	70,350	73,164	76,091	79,134	82,300	85,592	89,015	92,576	96,279	100,130	104,135
PROFESSIONAL SERVICES			2,769	1,800	450	14	0	0	0	0	0	0	0	0	0	0	0
UTILITIES			1,280	924	1,301	1,658	660	686	714	742	772	803	835	869	903	939	977
MAINTENANCE & REPAIRS			31,086	23,728	12,908	38,904	39,500	40,290	41,096	41,918	42,756	43,611	44,483	45,373	46,281	47,206	48,150
SUPPLIES			8,176	16,198	10,434	10,703	10,000	10,200	10,404	10,612	10,824	11,041	11,262	11,487	11,717	11,951	12,190
CONTRACTED SERVICES			20,900	5,111	3,806	6,823	37,500	38,438	39,398	40,383	41,393	42,428	43,489	44,576	45,690	46,832	48,003
INSURANCE AND BONDS			4,600	2,545	6,833	4,806	5,140	5,243	5,348	5,455	5,564	5,675	5,788	5,904	6,022	6,143	6,266
MISCELLANEOUS			9,745	10,584	75,507	58,622	61,210	62,434	63,683	64,957	66,256	67,581	68,932	70,311	71,717	73,152	74,615
TOTAL OPERATING EXPENDITURES	610,807	679,681	653,178	673,833	692,673	739,742	779,470	799,653	820,405	841,742	863,682	886,245	909,449	933,315	957,862	983,113	1,009,088
CAPITAL OUTLAY *	31,198	110,748	72,501	63,856	40,997	6,623	10,800	28,030	0	61,532	37,153	0	0	0	0	0	0
TRANSFER TO CAPITAL RESERVE FUND							54,990	55,265	55,541	55,819	56,098	56,379	56,660	56,944	57,228	57,515	57,802
DEBT:																	
EXISTING DEBT SERVICE	116,322	113,951	129,253	138,187	131,679	132,187	130,607	166,818	221,821	220,240	128,795	128,095	127,395	112,695	112,695	112,695	112,695
NEW DEBT SERVICE								0	0	140,526	140,526	140,526	430,208	430,208	430,208	764,974	764,974
TRANSFERS (OUT)		41,341		91,421	34,164												
TOTAL EXPENDITURES	758,327	945,721	854,932	967,297	899,513	878,552	975,867	1,049,766	1,097,767	1,319,859	1,226,254	1,211,245	1,523,713	1,533,162	1,557,994	1,918,297	1,944,560
REVENUES OVER EXPENDITURES	-8,193	21,827	446,197	-106,608	-490	109,491	27,783	66,857	210,466	59,250	227,639	321,558	92,353	170,759	238,629	-23,857	53,094
ACCRUAL ADJUSTMENTS	-139,884	6,252	-507,373	-11,578	-58,516	378,277											
NET INCOME	-148,077	28,079	-61,176	-118,186	-59,006	487,768	27,783	66,857	210,466	59,250	227,639	321,558	92,353	170,759	238,629	-23,857	53,094
UNRESTRICTED NET ASSETS	-9,995	160,684	273,963	213,650	-166,047	62,611	90,394	157,251	367,717	426,967	654,606	976,164	1,068,517	1,239,276	1,477,906	1,454,049	1,507,143
UNRESTRICTED NET ASSETS / TOTAL EXPEND	-1.32%	16.99%	32.05%	22.09%	-18.46%	7.13%	9.26%	14.98%	33.50%	32.35%	53.38%	80.59%	70.13%	80.83%	94.86%	75.80%	77.51%
CAPITAL PROJECTS AND RESERVE FUNDS						80,000	134,990	190,255	45,796	101,615	157,713	14,092	70,752	127,696	34,925	92,439	150,241

NEW DEBT:	DEBT 1	DEBT 1	DEBT 2
PROJECT AMOUNT	2,122,079	4,162,190	4,728,850
RESERVES CONTRIBUTION	200,000	200,000	150,000
LOAN AMOUNT	1,922,079	3,962,190	4,578,850
PAYMENT	70,263	144,841	167,383
ANNUAL PAYMENTS	140,526	289,682	334,767
RATE	4.00%	4.00%	4.00%
TERM	20	20	20

TABLE 3-B
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
FINANCIAL ANALYSIS WITH MODERATE CIP

LINE ITEM	AUDIT 2015	AUDIT 2016	AUDIT 2017	AUDIT 2018	AUDIT 2019	AUDIT 2020	ESTIMATE 2021	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031
REVENUES:																	
WATER SALES	405,865	468,070	480,393	454,681	460,163	485,555	507,000	509,535	512,083	514,643	517,216	519,802	522,401	525,013	527,638	530,277	532,928
SEWER CHARGES	309,588	339,224	359,261	358,878	337,448	345,723	364,000	365,820	367,649	369,487	371,335	373,191	375,057	376,933	378,817	380,711	382,615
INFRASTRUCTURE INVESTMENT FEE							54,990	55,265	55,541	55,819	56,098	56,379	56,660	56,944	57,228	57,515	57,802
TAPS AND CONNECTION FEES	2,215	3,990	14,874	14,982	1,660	3,245	15,000	15,075	15,150	15,226	15,302	15,379	15,456	15,533	15,611	15,689	15,767
OTHER	32,466	40,937	32,710	6,661	88,921	80,577	12,660	12,723	12,787	12,851	12,915	12,980	13,045	13,110	13,175	13,241	13,307
NONOPERATING INCOME:																	
SALE OF CAPITAL ASSETS			8,891	497	10,831		50,000										
TRANSFERS (IN)		29,106		24,990		72,943											
FINANCING SOURCES		86,221	405,000														
FUND BALANCE APPROPRIATED																	
TOTAL REVENUES	750,134	967,548	1,301,129	860,689	899,023	988,043	1,003,650	958,418	963,210	968,026	972,867	977,731	982,620	987,533	992,470	997,433	1,002,420
NEW SOURCES OF REVENUE:																	
REVENUE FROM WATER RATE INCREASE								56,049	118,854	141,642	165,435	190,274	216,203	243,264	271,505	300,972	331,716
PERCENTAGE INCREASE								11.0%	11.0%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
REVENUE FROM SEWER RATE INCREASE								40,240	85,331	101,692	118,774	136,607	155,222	174,651	194,926	216,082	238,155
PERCENTAGE INCREASE								11.0%	11.0%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
REVENUE FROM INFRASTRUCTURE INVESTMENT FEE INCREASE								6,079	12,891	15,363	17,943	20,637	23,450	26,385	29,448	32,644	35,978
PERCENTAGE INCREASE								11.0%	11.0%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
TOTAL REVENUES	750,134	967,548	1,301,129	860,689	899,023	988,043	1,003,650	1,060,786	1,180,287	1,226,723	1,275,019	1,325,250	1,377,494	1,431,833	1,488,349	1,547,131	1,608,269
EXPENDITURES:																	
SEWER DEPARTMENT:																	
SALARIES AND BENEFITS	123,853	103,373	2,043				66,700	68,368	70,077	71,829	73,624	75,465	77,352	79,285	81,267	83,299	85,382
UNIFORMS	225						450	461	473	485	497	509	522	535	548	562	576
PROFESSIONAL SERVICES	6,805	7,827	6,405	7,210	6,438	12,638	0	0	0	0	0	0	0	0	0	0	0
UTILITIES	58,128	57,565	56,806	52,886	73,203	76,220	40,000	40,800	41,616	42,448	43,297	44,163	45,046	45,947	46,866	47,804	48,760
MAINTENANCE & REPAIRS	21,268	62,126	23,509	5,912	15,745	16,162	25,500	26,010	26,530	27,061	27,602	28,154	28,717	29,291	29,877	30,475	31,084
CHEMICALS	6,514	6,726	4,793	6,002	5,898	5,562	8,800	8,976	9,156	9,339	9,525	9,716	9,910	10,108	10,311	10,517	10,727
SUPPLIES	7,890	12,307	2,912	2,111	4,693	2,359	1,000	1,020	1,040	1,061	1,082	1,104	1,126	1,149	1,172	1,195	1,219
CONTRACTED SERVICES	53,876	61,287	85,752	83,345	92,314	97,965	5,570	5,709	5,852	5,998	6,148	6,302	6,459	6,621	6,787	6,956	7,130
INSURANCE AND BONDS	6,638	6,633	4,600	5,000	2,810	2,800	5,790	5,906	6,024	6,144	6,267	6,393	6,520	6,651	6,784	6,920	7,058
MISCELLANEOUS	6,990	9,728	6,220	33,511	4,551	1,036	11,720	11,954	12,193	12,437	12,686	12,940	13,199	13,463	13,732	14,006	14,287
WATER ADMINISTRATION:																	
SALARIES AND BENEFITS	208,507	187,629	63,056	66,130	73,707	90,516	92,760	96,470	100,329	104,342	108,516	112,857	117,371	122,066	126,948	132,026	137,307
UNIFORMS	594	761															
PROFESSIONAL SERVICES	4,676	6,056	11,920	16,301	28,069	33,282	28,740	29,459	30,195	30,950	31,724	32,517	33,330	34,163	35,017	35,892	36,790
UTILITIES	40,307	46,356	909	1,035	1,072	876	990	990	990	990	990	990	990	990	990	990	990
MAINTENANCE & REPAIRS	27,403	30,220															
CHEMICALS	12,216	17,855															
SUPPLIES	14,706	14,090	1,025	3,040	2,219	3,036	910	928	947	966	985	1,005	1,025	1,045	1,066	1,088	1,109
CONTRACTED SERVICES	382	32,995															
INSURANCE AND BONDS	6,638	6,633	4,600	7,710	1,942	3,024	4,340	4,427	4,515	4,606	4,698	4,792	4,888	4,985	5,085	5,187	5,290
MISCELLANEOUS	3,191	9,514	6,030	16,014	6,582	8,070	7,050	7,191	7,335	7,482	7,631	7,784	7,939	8,098	8,260	8,425	8,594
SEWER TREATMENT:																	
SALARIES AND BENEFITS			108,797	124,228	107,028	98,497											
PROFESSIONAL SERVICES			9,503	7,718	4,872	6,681											
UTILITIES			45,083	44,344	40,466	43,687	72,000	73,440	74,909	76,407	77,935	79,494	81,084	82,705	84,359	86,047	87,768
MAINTENANCE & REPAIRS			10,571	10,158	1,197	7,081	23,500	23,970	24,449	24,938	25,437	25,946	26,465	26,994	27,534	28,085	28,646
CHEMICALS			16,509	15,667	16,219	17,525	5,800	5,916	6,034	6,155	6,278	6,404	6,532	6,662	6,796	6,932	7,070
SUPPLIES			3,879	1,510	1,402	1,989	1,200	1,224	1,248	1,273	1,299	1,325	1,351	1,378	1,406	1,434	1,463
CONTRACTED SERVICES			4,618	4,160	4,933	25,283	128,690	131,907	135,205	138,585	142,050	145,601	149,241	152,972	156,796	160,716	164,734
INSURANCE AND BONDS			4,600	3,290	5,011	5,190	3,340	3,407	3,475	3,544	3,615	3,688	3,761	3,837	3,913	3,992	4,071
MISCELLANEOUS			6,919	6,319	3,262	3,516	20,260	20,665	21,079	21,500	21,930	22,369	22,816	23,272	23,738	24,213	24,697

TABLE 3-B
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
FINANCIAL ANALYSIS WITH MODERATE CIP

LINE ITEM	AUDIT 2015	AUDIT 2016	AUDIT 2017	AUDIT 2018	AUDIT 2019	AUDIT 2020	ESTIMATE 2021	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031
LINE MAINTENANCE:																	
SALARIES AND BENEFITS			83,563	89,342	77,801	55,217	70,350	73,164	76,091	79,134	82,300	85,592	89,015	92,576	96,279	100,130	104,135
PROFESSIONAL SERVICES			2,769	1,800	450	14	0	0	0	0	0	0	0	0	0	0	0
UTILITIES			1,280	924	1,301	1,658	660	686	714	742	772	803	835	869	903	939	977
MAINTENANCE & REPAIRS			31,086	23,728	12,908	38,904	39,500	40,290	41,096	41,918	42,756	43,611	44,483	45,373	46,281	47,206	48,150
SUPPLIES			8,176	16,198	10,434	10,703	10,000	10,200	10,404	10,612	10,824	11,041	11,262	11,487	11,717	11,951	12,190
CONTRACTED SERVICES			20,900	5,111	3,806	6,823	37,500	38,438	39,398	40,383	41,393	42,428	43,489	44,576	45,690	46,832	48,003
INSURANCE AND BONDS			4,600	2,545	6,833	4,806	5,140	5,243	5,348	5,455	5,564	5,675	5,788	5,904	6,022	6,143	6,266
MISCELLANEOUS			9,745	10,584	75,507	58,622	61,210	62,434	63,683	64,957	66,256	67,581	68,932	70,311	71,717	73,152	74,615
TOTAL OPERATING EXPENDITURES	610,807	679,681	653,178	673,833	692,673	739,742	779,470	799,653	820,405	841,742	863,682	886,245	909,449	933,315	957,862	983,113	1,009,088
CAPITAL OUTLAY *	31,198	110,748	72,501	63,856	40,997	6,623	10,800	28,030	0	61,532	37,153	0	0	0	0	0	0
TRANSFER TO CAPITAL RESERVE FUND							54,990	55,265	55,541	55,819	56,098	56,379	56,660	56,944	57,228	57,515	57,802
DEBT:																	
EXISTING DEBT SERVICE	116,322	113,951	129,253	138,187	131,679	132,187	130,607	166,818	221,821	220,240	128,795	128,095	127,395	112,695	112,695	112,695	112,695
NEW DEBT SERVICE								0	0	0	0	0	140,290	140,290	140,290	461,845	461,845
TRANSFERS (OUT)		41,341		91,421	34,164												
TOTAL EXPENDITURES	758,327	945,721	854,932	967,297	899,513	878,552	975,867	1,049,766	1,097,767	1,179,333	1,085,728	1,070,719	1,233,795	1,243,244	1,268,076	1,615,168	1,641,431
REVENUES OVER EXPENDITURES	-8,193	21,827	446,197	-106,608	-490	109,491	27,783	11,020	82,521	47,390	189,290	254,531	143,699	188,588	220,273	-68,037	-33,162
ACCRUAL ADJUSTMENTS	-139,884	6,252	-507,373	-11,578	-58,516	378,277											
NET INCOME	-148,077	28,079	-61,176	-118,186	-59,006	487,768	27,783	11,020	82,521	47,390	189,290	254,531	143,699	188,588	220,273	-68,037	-33,162
UNRESTRICTED NET ASSETS	-9,995	160,684	273,963	213,650	-166,047	62,611	90,394	101,414	183,935	231,325	420,615	675,146	818,845	1,007,433	1,227,706	1,159,669	1,126,508
UNRESTRICTED NET ASSETS / TOTAL EXPEND	-1.32%	16.99%	32.05%	22.09%	-18.46%	7.13%	9.26%	9.66%	16.76%	19.61%	38.74%	63.06%	66.37%	81.03%	96.82%	71.80%	68.63%
CAPITAL PROJECTS AND RESERVE FUNDS						80,000	134,990	190,255	245,796	301,615	357,713	14,092	70,752	127,696	34,925	92,439	150,241

NEW DEBT:	DEBT 1	DEBT 2
PROJECT AMOUNT	2,318,854	4,548,138
RESERVES CONTRIBUTION	400,000	150,000
LOAN AMOUNT	1,918,854	4,398,138
PAYMENT	70,145	160,777
ANNUAL PAYMENTS	140,290	321,554
RATE	4.00%	4.00%
TERM	20	20

TABLE 3-C
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
FINANCIAL ANALYSIS WITH MINIMAL CAPITAL

LINE ITEM	AUDIT 2015	AUDIT 2016	AUDIT 2017	AUDIT 2018	AUDIT 2019	AUDIT 2020	ESTIMATE 2021	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031
REVENUES:																	
WATER SALES	405,865	468,070	480,393	454,681	460,163	485,555	507,000	509,535	512,083	514,643	517,216	519,802	522,401	525,013	527,638	530,277	532,928
SEWER CHARGES	309,588	339,224	359,261	358,878	337,448	345,723	364,000	365,820	367,649	369,487	371,335	373,191	375,057	376,933	378,817	380,711	382,615
INFRASTRUCTURE INVESTMENT FEE							54,990	55,265	55,541	55,819	56,098	56,379	56,660	56,944	57,228	57,515	57,802
TAPS AND CONNECTION FEES	2,215	3,990	14,874	14,982	1,660	3,245	15,000	15,075	15,150	15,226	15,302	15,379	15,456	15,533	15,611	15,689	15,767
OTHER	32,466	40,937	32,710	6,661	88,921	80,577	12,660	12,723	12,787	12,851	12,915	12,980	13,045	13,110	13,175	13,241	13,307
NONOPERATING INCOME:																	
SALE OF CAPITAL ASSETS			8,891	497	10,831		50,000										
TRANSFERS (IN)		29,106		24,990		72,943											
FINANCING SOURCES		86,221	405,000														
FUND BALANCE APPROPRIATED																	
TOTAL REVENUES	750,134	967,548	1,301,129	860,689	899,023	988,043	1,003,650	958,418	963,210	968,026	972,867	977,731	982,620	987,533	992,470	997,433	1,002,420
NEW SOURCES OF REVENUE:																	
REVENUE FROM WATER RATE INCREASE								76,430	100,368	125,491	151,851	152,611	153,374	154,141	154,911	155,686	156,464
PERCENTAGE INCREASE								15.0%	4.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
REVENUE FROM SEWER RATE INCREASE								54,873	72,059	90,096	109,022	109,567	110,114	110,665	111,218	111,774	112,333
PERCENTAGE INCREASE								15.0%	4.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
REVENUE FROM INFRASTRUCTURE INVESTMENT FEE INCREASE								8,290	10,886	13,611	16,470	16,552	16,635	16,718	16,802	16,886	16,970
PERCENTAGE INCREASE								15.0%	4.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL REVENUES	750,134	967,548	1,301,129	860,689	899,023	988,043	1,003,650	1,098,011	1,146,524	1,197,224	1,250,209	1,256,461	1,262,743	1,269,057	1,275,402	1,281,779	1,288,188
EXPENDITURES:																	
SEWER DEPARTMENT:																	
SALARIES AND BENEFITS	123,853	103,373	2,043				66,700	68,368	70,077	71,829	73,624	75,465	77,352	79,285	81,267	83,299	85,382
UNIFORMS	225						450	461	473	485	497	509	522	535	548	562	576
PROFESSIONAL SERVICES	6,805	7,827	6,405	7,210	6,438	12,638	0	0	0	0	0	0	0	0	0	0	0
UTILITIES	58,128	57,565	56,806	52,886	73,203	76,220	40,000	40,800	41,616	42,448	43,297	44,163	45,046	45,947	46,866	47,804	48,760
MAINTENANCE & REPAIRS	21,268	62,126	23,509	5,912	15,745	16,162	25,500	26,010	26,530	27,061	27,602	28,154	28,717	29,291	29,877	30,475	31,084
CHEMICALS	6,514	6,726	4,793	6,002	5,898	5,562	8,800	8,976	9,156	9,339	9,525	9,716	9,910	10,108	10,311	10,517	10,727
SUPPLIES	7,890	12,307	2,912	2,111	4,693	2,359	1,000	1,020	1,040	1,061	1,082	1,104	1,126	1,149	1,172	1,195	1,219
CONTRACTED SERVICES	53,876	61,287	85,752	83,345	92,314	97,965	5,570	5,709	5,852	5,998	6,148	6,302	6,459	6,621	6,787	6,956	7,130
INSURANCE AND BONDS	6,638	6,633	4,600	5,000	2,810	2,800	5,790	5,906	6,024	6,144	6,267	6,393	6,520	6,651	6,784	6,920	7,058
MISCELLANEOUS	6,990	9,728	6,220	33,511	4,551	1,036	11,720	11,954	12,193	12,437	12,686	12,940	13,199	13,463	13,732	14,006	14,287
WATER ADMINISTRATION:																	
SALARIES AND BENEFITS	208,507	187,629	63,056	66,130	73,707	90,516	92,760	96,470	100,329	104,342	108,516	112,857	117,371	122,066	126,948	132,026	137,307
UNIFORMS	594	761															
PROFESSIONAL SERVICES	4,676	6,056	11,920	16,301	28,069	33,282	28,740	29,459	30,195	30,950	31,724	32,517	33,330	34,163	35,017	35,892	36,790
UTILITIES	40,307	46,356	909	1,035	1,072	876	990	990	990	990	990	990	990	990	990	990	990
MAINTENANCE & REPAIRS	27,403	30,220															
CHEMICALS	12,216	17,855															
SUPPLIES	14,706	14,090	1,025	3,040	2,219	3,036	910	928	947	966	985	1,005	1,025	1,045	1,066	1,088	1,109
CONTRACTED SERVICES	382	32,995															
INSURANCE AND BONDS	6,638	6,633	4,600	7,710	1,942	3,024	4,340	4,427	4,515	4,606	4,698	4,792	4,888	4,985	5,085	5,187	5,290
MISCELLANEOUS	3,191	9,514	6,030	16,014	6,582	8,070	7,050	7,191	7,335	7,482	7,631	7,784	7,939	8,098	8,260	8,425	8,594
SEWER TREATMENT:																	
SALARIES AND BENEFITS			108,797	124,228	107,028	98,497											
PROFESSIONAL SERVICES			9,503	7,718	4,872	6,681											
UTILITIES			45,083	44,344	40,466	43,687	72,000	73,440	74,909	76,407	77,935	79,494	81,084	82,705	84,359	86,047	87,768
MAINTENANCE & REPAIRS			10,571	10,158	1,197	7,081	23,500	23,970	24,449	24,938	25,437	25,946	26,465	26,994	27,534	28,085	28,646
CHEMICALS			16,509	15,667	16,219	17,525	5,800	5,916	6,034	6,155	6,278	6,404	6,532	6,662	6,796	6,932	7,070
SUPPLIES			3,879	1,510	1,402	1,989	1,200	1,224	1,248	1,273	1,299	1,325	1,351	1,378	1,406	1,434	1,463
CONTRACTED SERVICES			4,618	4,160	4,933	25,283	128,690	131,907	135,205	138,585	142,050	145,601	149,241	152,972	156,796	160,716	164,734
INSURANCE AND BONDS			4,600	3,290	5,011	5,190	3,340	3,407	3,475	3,544	3,615	3,688	3,761	3,837	3,913	3,992	4,071
MISCELLANEOUS			6,919	6,319	3,262	3,516	20,260	20,665	21,079	21,500	21,930	22,369	22,816	23,272	23,738	24,213	24,697
LINE MAINTENANCE:																	

TABLE 3-C
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
FINANCIAL ANALYSIS WITH MINIMAL CAPITAL

LINE ITEM	AUDIT 2015	AUDIT 2016	AUDIT 2017	AUDIT 2018	AUDIT 2019	AUDIT 2020	ESTIMATE 2021	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031
SALARIES AND BENEFITS			83,563	89,342	77,801	55,217	70,350	73,164	76,091	79,134	82,300	85,592	89,015	92,576	96,279	100,130	104,135
PROFESSIONAL SERVICES			2,769	1,800	450	14	0	0	0	0	0	0	0	0	0	0	0
UTILITIES			1,280	924	1,301	1,658	660	686	714	742	772	803	835	869	903	939	977
MAINTENANCE & REPAIRS			31,086	23,728	12,908	38,904	39,500	40,290	41,096	41,918	42,756	43,611	44,483	45,373	46,281	47,206	48,150
SUPPLIES			8,176	16,198	10,434	10,703	10,000	10,200	10,404	10,612	10,824	11,041	11,262	11,487	11,717	11,951	12,190
CONTRACTED SERVICES			20,900	5,111	3,806	6,823	37,500	38,438	39,398	40,383	41,393	42,428	43,489	44,576	45,690	46,832	48,003
INSURANCE AND BONDS			4,600	2,545	6,833	4,806	5,140	5,243	5,348	5,455	5,564	5,675	5,788	5,904	6,022	6,143	6,266
MISCELLANEOUS			9,745	10,584	75,507	58,622	61,210	62,434	63,683	64,957	66,256	67,581	68,932	70,311	71,717	73,152	74,615
TOTAL OPERATING EXPENDITURES	610,807	679,681	653,178	673,833	692,673	739,742	779,470	799,653	820,405	841,742	863,682	886,245	909,449	933,315	957,862	983,113	1,009,088
CAPITAL OUTLAY *	31,198	110,748	72,501	63,856	40,997	6,623	10,800	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
TRANSFER TO CAPITAL RESERVE FUND							54,990	55,265	55,541	55,819	56,098	56,379	56,660	56,944	57,228	57,515	57,802
DEBT:																	
EXISTING DEBT SERVICE	116,322	113,951	129,253	138,187	131,679	132,187	130,607	166,818	221,821	220,240	128,795	128,095	127,395	112,695	112,695	112,695	112,695
NEW DEBT SERVICE								0	0	0	0	0	0	0	0	0	0
TRANSFERS (OUT)		41,341		91,421	34,164												
TOTAL EXPENDITURES	758,327	945,721	854,932	967,297	899,513	878,552	975,867	1,071,737	1,147,767	1,167,800	1,098,576	1,120,719	1,143,505	1,152,954	1,177,786	1,203,323	1,229,586
REVENUES OVER EXPENDITURES	-8,193	21,827	446,197	-106,608	-490	109,491	27,783	26,275	-1,243	29,423	151,634	135,742	119,238	116,103	97,616	78,456	58,602
ACCRUAL ADJUSTMENTS	-139,884	6,252	-507,373	-11,578	-58,516	378,277											
NET INCOME	-148,077	28,079	-61,176	-118,186	-59,006	487,768	27,783	26,275	-1,243	29,423	151,634	135,742	119,238	116,103	97,616	78,456	58,602
UNRESTRICTED NET ASSETS	-9,995	160,684	273,963	213,650	-166,047	62,611	90,394	116,669	115,426	144,849	296,483	432,225	551,462	667,565	765,181	843,637	902,238
UNRESTRICTED NET ASSETS / TOTAL EXPEND	-1.32%	16.99%	32.05%	22.09%	-18.46%	7.13%	9.26%	10.89%	10.06%	12.40%	26.99%	38.57%	48.23%	57.90%	64.97%	70.11%	73.38%
CAPITAL PROJECTS AND RESERVE FUNDS						80,000	134,990	190,255	245,796	301,615	357,713	414,092	470,752	527,696	584,925	642,439	700,241

PILOT MOUNTAIN WATER AND WASTEWATER ASSET MANAGEMENT PLAN

February 2020

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LIST OF ABBREVIATIONS

ACP	-	Asbestos Concrete Pipe
ADD	-	Average Daily Demand
AMI	-	Advanced Metering Infrastructure
AMP	-	Asset Management Plan
CDBG	-	Community Development Block Grant
CIP	-	Capital Improvement Plan

CI	-	Cast Iron
CoF	-	Consequence of Failure
DMA	-	District Metered Area
DIP	-	Ductile Iron Pipe
EPA	-	Environmental Protection Agency
EPS	-	Extended Period Simulation
EST	-	Elevated Storage Tank
FAM	-	Funding and Asset Management
FY	-	Fiscal Year
GIS	-	Geographic Information System
GPM	-	Gallons per Minute
KPI	-	Key Performance Indicators
HGL	-	Hydraulic Grade Line
HPR	-	Hydrant Pressure Recorder
ISO	-	Insurance Services Office
LF	-	Linear Feet
LIFO	-	Last In, First Out
LoF	-	Likelihood of Failure
MDD	-	Maximum Daily Demand
MG	-	Million Gallon
MH	-	Manhole
MGD	-	Million Gallons per Day
NCAC	-	North Carolina Administrative Code
NCDEQ	-	North Carolina Department of Environmental Quality
NCGS	-	North Carolina Geodetic Survey
NFF	-	Needed Fire Flow
NRW	-	Non-Revenue Water
O&M	-	Operation and Maintenance
PHD	-	Peak Hour Demand
PRV	-	Pressure Reducing Valve
PVC	-	Polyvinyl Chloride
PHD	-	Peak Hour Demand
RoF	-	Risk of Failure

SCADA - Supervisory Control and Data Acquisition
SSO - Sanitary Sewer Overflow
SS - Steady-State
TDH - Total Design Head
VCP - Vitrified Clay Pipe
WTP - Water Treatment Plant
WWTP - Wastewater Treatment Plant

1 Executive Summary

The Town of Pilot Mountain, henceforth referred to as the Town, has a population of 1,504 (SPE, 2019) and is located about twenty (20) miles northwest of Winston-Salem, North Carolina. Pilot Mountain is in Surry County and has a diverse commercial base consisting of local and national companies. The Town is a full-service municipality and currently operates and maintains nineteen (19) miles of streets, twenty-six (26) miles of water distribution system, nineteen (19) miles of sewer collection system, a 1.5 MGD Wastewater Treatment Plant (WWTP), and a 1.6 MGD Water Treatment Plant (WTP). The water and sewer repairs/rehabilitation Capital Improvement Plan (CIP) results in the total CIP budget for projects for the next 50 years, as seen below.

Table 1. Capital improvement plan prices

Project Name	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2070	2070+
Sewer Collection							
Extreme Risk Gravity Main Rehabilitation	$681,379						
High Risk Gravity Main Rehabilitation		$2,632,636					
Significant Risk Gravity Main Rehabilitation			$1,659,068	$1,659,068	$1,659,068		
Medium Risk Gravity Main Rehabilitation						$4,445,655	
Low Risk Gravity Main Rehabilitation							$4,103,664
Lift Station							
Offsite Pump Station (No. 18) and Aerial Crossing	$552,000						
Heatherly Creek Outfall and Pump Station					$2,970,000		
Upgrade Lola Lane Pump Station			$880,000				
TOTAL	**$1,233,379**	**$2,632,636**	**$2,539,068**	**$1,659,068**	**$4,629,068**	**$4,445,655**	**$4,103,664**

Project Name	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2070	2070+
Hydrants and Valves							
Install Additional Water Main Valves	$100,000						
Replace Hydrant Assembly	$142,960	$142,960					
Water Storage Tanks							
Install Altitude Valve on Pilot Center Tank	$58,000						
stall Tank Mixing Equipment for Golf Course Rd Tar	$34,000						
Water Distribution							
Extreme Risk Water Main Rehabilitation	$28,030						
High Risk Water Main Rehabilitation		$922,457					
Significant Risk Main Rehabilitation			$1,305,920	$1,305,920	$1,305,920		
Medium Risk Water Main Rehabilitation						$8,188,895	
Low Risk Water Main Rehabilitation							$16,595,273
Install Additional Water Mains	$583,932						
TOTAL	**$946,922**	**$1,065,417**	**$1,305,920**	**$1,305,920**	**$1,305,920**	**$8,188,895**	**$16,595,273**

As seen in Table 1, the initial years of the CIP focus on essential projects that provide immediate impact in areas where sewer has aged beyond its useful life and are rated as an Extreme or High Risk of Failure or in areas where staff have identified important shortcomings of the system as noted in the map below.

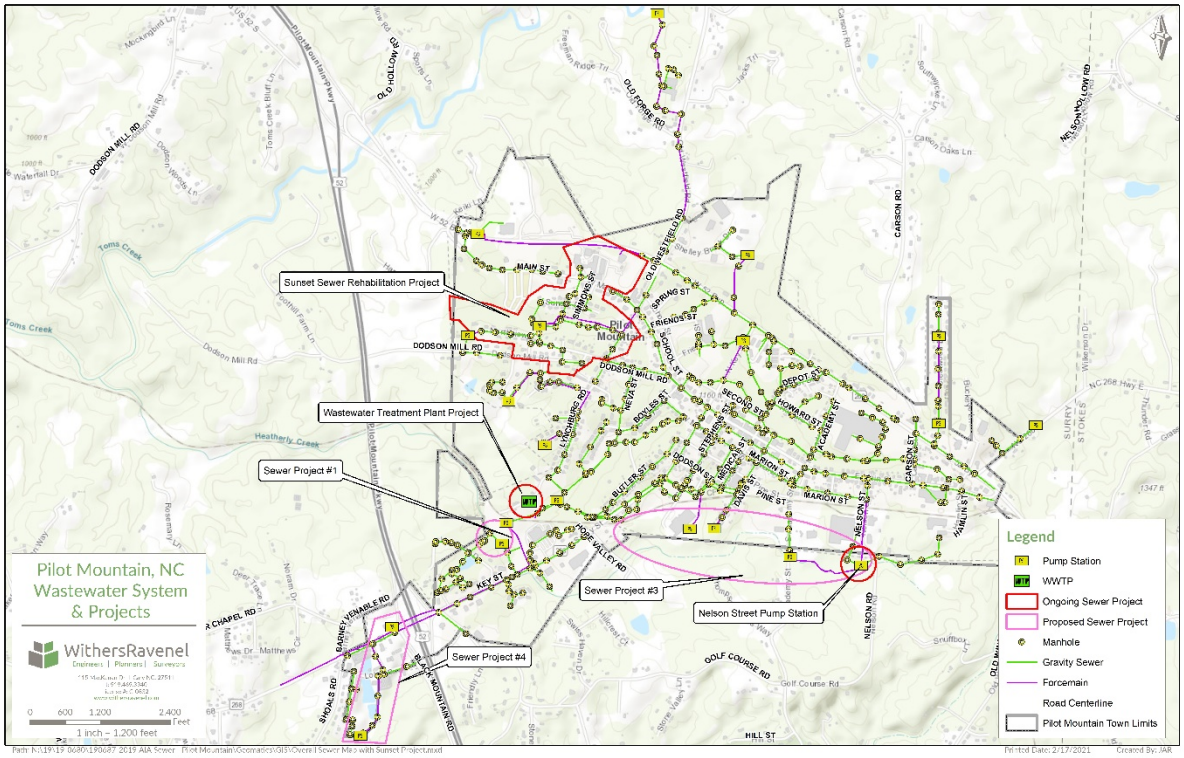

Figure 1. Wastewater system project summary map

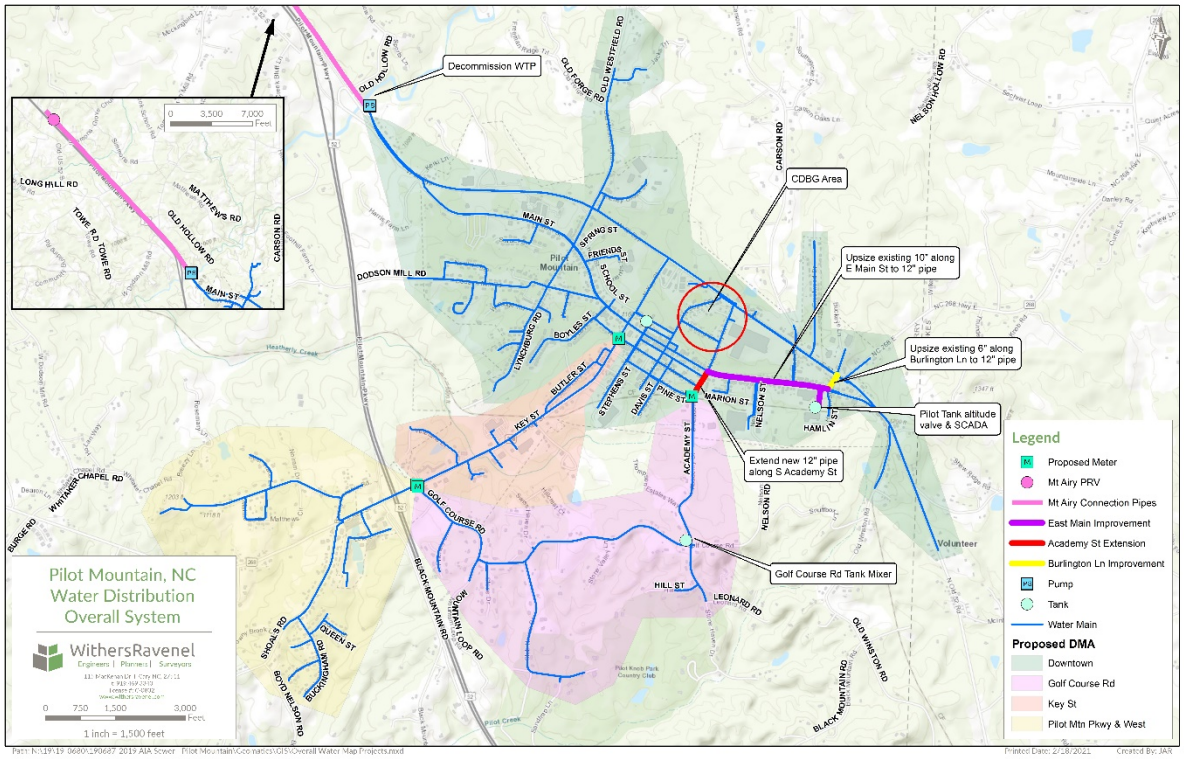

Figure 2. Water system project summary map

2 Introduction and Background

Pilot Mountain is a town located in northeast North Carolina in Surry County, approximately twenty (20) miles northeast of the City of Winston-Salem. The population of the Town is 1,504 (SPE, 2019) while the population of Surry County is 73,489 (SPE, 2019). The Town owns and maintains a wastewater collection system, including a treatment plant and a water distribution system, including a treatment plant.

This Asset Management Plan (AMP) has been created to document, map, and assess the current condition of the various assets in the wastewater system that serve the people of the Town, as well as prioritize the potential future improvements. The goals of the AMP are to:

- Document the wastewater collection and the water distribution infrastructure.
- Perform a non-intrusive condition assessment of the wastewater and water system assets.
- Apply cost estimates to identified capital improvement needs.
- Create a prioritized Capital Improvement Plan (CIP)
- Document Operation and Maintenance (O&M) Plans for the wastewater and water systems

This Asset Management Plan (AMP) inventories and assesses the wastewater collection and water distribution systems within the Town. Assets within the wastewater collection system including gravity sewers, force mains, and manholes were inventoried in a Geographic Information System (GIS) database to be maintained by the Town. Assets within the water distribution system including water mains, water storage tanks, water valves, and fire hydrants were inventoried in a GIS database to be maintained by the Town.

The sewer database contains Key Performance Indicators (KPIs) such as age, material, diameters, manhole condition, smoke testing results, and pump station tributaries, and the water database contains KPIs such as age, material, C Factor, and pressure. The KPIs were used to determine the Likelihood of Failure (LoF) and Consequence of Failure (CoF) for the wastewater and water system assets, respectively. The resulting LoF and CoF scores are on a 1 to 10 scale, with a score of 10 corresponding to the most likely to fail or having the most severe consequence(s) of failure. Once these scores were determined, each asset's Risk of Failure (RoF) was established within a 10 x 10 risk matrix with LoF and CoF on opposing axes. An asset's risk is determined by multiplying the LoF and CoF together. Scores can theoretically range from 1 to 100, with 100 having the highest RoF.

The KPIs for both LoF and CoF were determined by WithersRavenel's team in conjunction with the Town's staff. These KPIs were based on their knowledge of the causes and impacts of previous system failures. The RoF scores are utilized to prioritize projects and place them within a funding timeframe.

This AMP serves as a guide to the inventory of wastewater and water system assets in the Town, condition assessment of the assets, CIP with cost estimates, and O&M plans for the sewer and water systems. Approximate costs to replace wastewater system assets, including gravity sewer lines, force mains, and manholes and water system assets, including water mains, water storage

tanks, water valves, and fire hydrants were determined for 5-year to 50-year planning periods from 2021 to 2071. Costs shown are present worth. This document also evaluates the condition of the pump stations that serve the Town.

This document is intended to be a living document and will be combined with the previously adopted water system AMP which will then be reviewed and updated on a regular basis. It is recommended that the data stored within the GIS is continually captured and validated to ensure that the most relevant and accurate representations of the current systems are captured.

3 Sewer System Overview

Pilot Mountain Wastewater Treatment Plant provides day-to-day operations and twenty-four-hour response to collection system emergencies for Pilot Mountain, NC. The wastewater collection system totals nineteen (19) miles of gravity sewer lines ranging in diameter from 4 inches to 18 inches and 4.5 miles of force main ranging in diameter from 1.5 inches to 8 inches and in age from new to over 50 years old. The system also includes twenty (20) sewer lift stations and 424 manholes that transport wastewater to the Town-owned and operated WWTP.

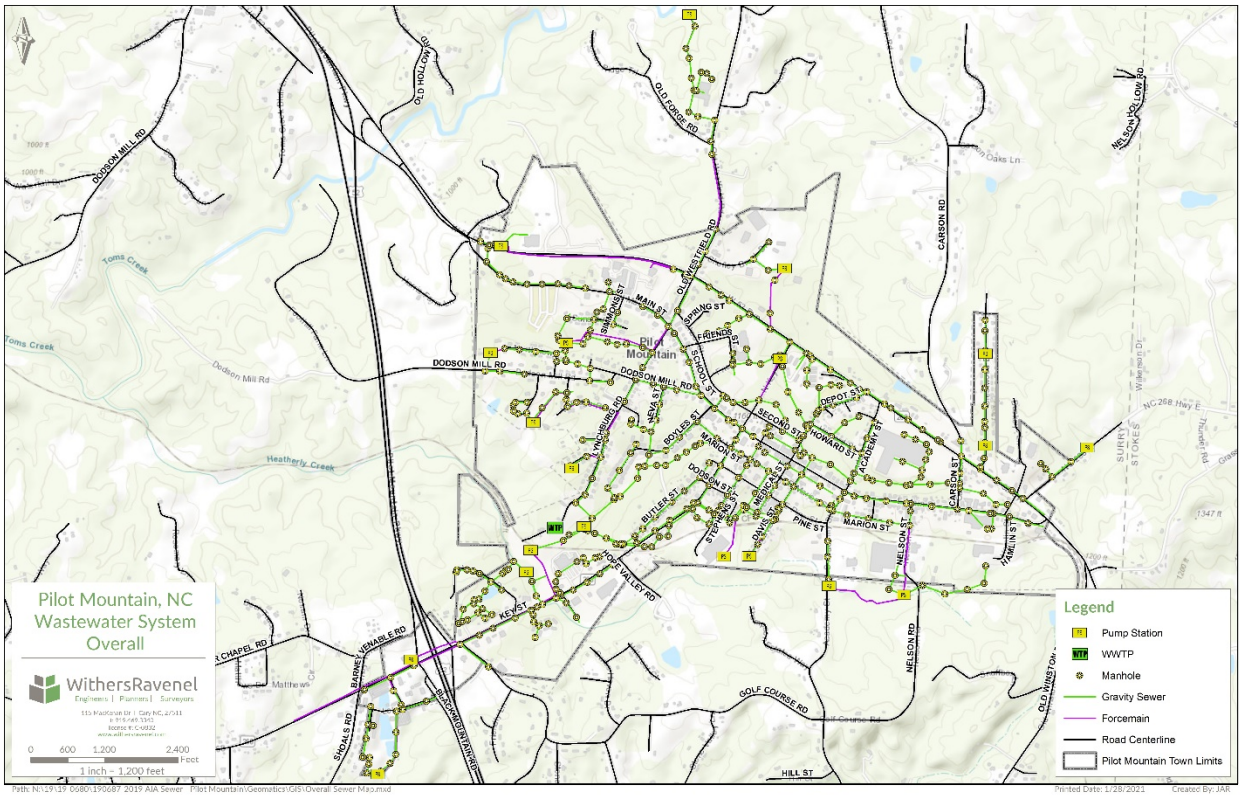

Figure 3. Wastewater system overall map

19 Miles of 4”-18” Sanitary Sewer

4.5 Miles of 1.5”-8” Force Mains

20 Sanitary Sewer Lift Stations (including WWTP influent and effluent stations)

424 Sanitary Sewer Manholes

4 Critical Sewer Assets

4.1 Wastewater Treatment Plant

The Town sends its wastewater to the WWTP, owned, and maintained by the Town. The WWTP operates under NPDES Permit No. NC0026646 and has a design capacity of 1.5 million gallons per day (MPD) and a permitted capacity of 0.7 MGD. The plant is currently treating an average daily flow of 0.17 MGD, operating at about 24% of the permit limit. The Town is currently working on a project to provide like-for-like replacements to the WWTP, including influent pump station improvements, adding a standby generator for the influent pump station, replacing the failed clarifier mechanism and related valves and appurtenances at the WWTP. This AMP will not incorporate the improvements to plant at this time as those were out of the scope for this project, but they will be included in future versions.

4.2 Lift Stations

The wastewater collection system contains twenty (20) lift stations, shown in Figure 4. These lift stations are an integral part of the sewer collection infrastructure for the city. Pump Station capacities range from 10 gpm to 700 gpm. Table 2 gives a summary of information collected during the lift station assessment and drawdown testing for the twenty (20) lift stations for the Town. The lift station assessment and drawdown testing omitted Stations 1 and 19 because they are part of the wastewater treatment plant and Station 5 because it is being replaced as part of the Sunset Sewer Subbasin Rehabilitation Project. There are ten (10) lift stations that lack redundancy. The drawdown flow and total design head (TDH) show the performance of the pump based on where the pump is located on the design curve. Head conditions on the influent and effluent sides of the pump can drive the drawdown flow and TDH values higher or lower than the design flow and TDH.

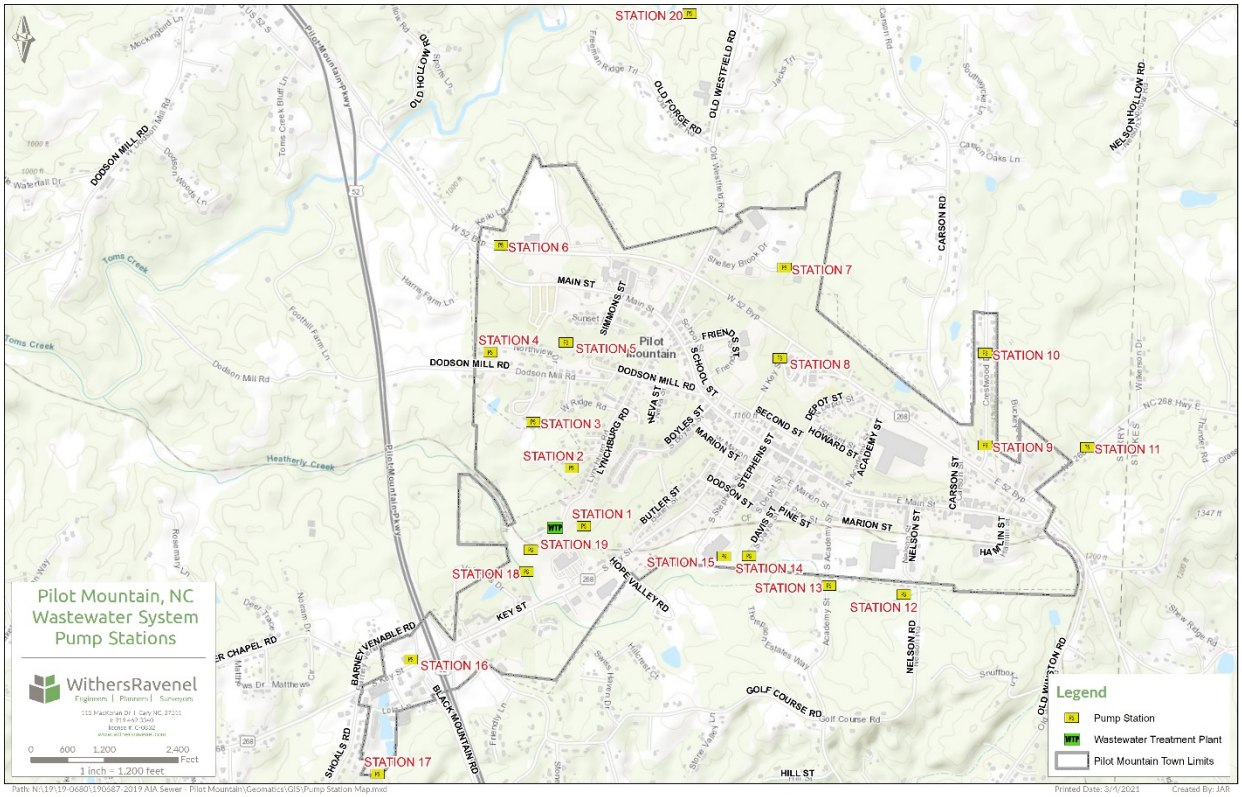

Figure 4. Lift station map

Table 2. Summary of information for the collection system lift stations

Station Number	Station Name	Pump Number	Manufacturer	Operation Status	Design TDH (ft)	Design Flow (gpm)	Drawdown TDH (ft)	Drawdown Flow (gpm)
1	Influent	1	Barnes	--	--	700	--	--
		2	Barnes	--	--	700	--	--
2	Old Barn Circle	1	Sulzer	Yes	--	10	88	19
		2	Sulzer	No	--	10	--	--
3	Mt. View	1	--	Yes	--	110	--	99
		2	--	Yes	--	110	--	63
4	Mayor	1	ABS	Yes	--	10	--	24
		2	ABS	No	--	10	--	--
5	Sunset	1	Fairbanks	--	97	100	--	--
		2	Fairbanks	--	97	100	--	--
6	Recreation	1	Tsurumi	Yes	--	90	105	20
		2	Tsurumi	Yes	--	90	105	19
7	Shellybrook	1	Goulds	Yes	--	100	--	53
		2	Goulds	Yes	--	100	--	53
8	Slick Rock	1	--	Yes	--	230	--	157
		2	--	No	--	230	--	--
9	Upper Crestwood	1	ABS	Yes	--	50	85	24
		2	ABS	Yes	--	50	85	25
10	Lower Crestwood	1	Sulzer	Yes	--	30	62	35
		2	Sulzer	No	--	30	--	--
11	Fitall	1	Barnes	Yes	--	40	--	35
		2	Barnes	No	--	40	--	--
12	Nelson Street	1	Smith & Loveless	Yes	90	720	--	595
		2	Smith & Loveless	No	90	720	--	--
13	J.R. Lynch	1	Barnes	Yes	30	200	32	185
		2	Barnes	Yes	30	200	34	166
14	Davis Street	1	Sulzer	Yes	--	11	89	41
		2	Sulzer	No	--	11	--	--
15	Denny Street	1	Barnes	Yes	--	330	--	427
		2	Barnes	Yes	--	330	--	299
16	Neighbor's	1	Tsurumi	Yes	62	400	68	313
		2	Tsurumi	No	62	400	--	--
17	Lola Lane	1	Myers	Yes	--	88	140	61
		2	Myers	No	--	88	--	--
18	Offsite	1	Tsurumi	Yes	--	75	55	77
		2	Tsurumi	No	--	75	--	--
19	Effluent	1	Fairbanks-Morris	--	--	--	--	--
		2	Fairbanks-Morris	--	--	--	--	--
20	Middle School	1	Myers	Yes	215	200	210	211
		2	Myers	Yes	215	200	205	283

4.3 Gravity Sewer, Force Main, and Manholes

4.3.1 Gravity Sewer and Force Main

The collection system in Pilot Mountain consists of approximately nineteen (19) miles of gravity sewer and 4.5 miles of force main to convey wastewater from the collection system to the wastewater treatment plant. The collection system serves 831 sewer customers which includes residential, commercial, industrial, and institutional. The gravity sewer pipe diameters range from 4 to 18 inches and pipe ages range from new to over 50 years. Figure 5, Figure 7 and Figure 9 provide a summary of the sizes, materials, and ages of the gravity sewer pipes contained in the collection system.

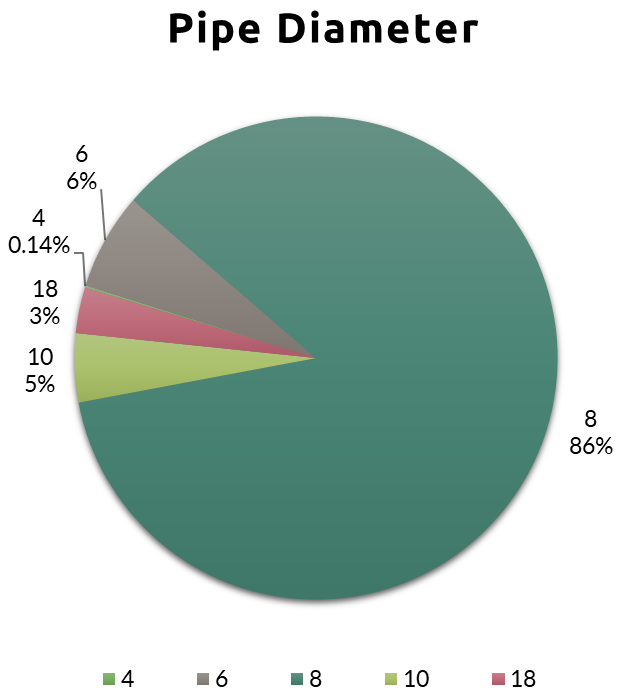

Figure 5. Diameters (inches) of gravity sewers in the collection system

As shown in Figure 5, the majority of the sewer pipelines are 8-inch diameter. This is typical as these sizes are prominent for branch collectors which feed into larger trunk lines, 10 inches and 18 inches, that make up approximately 5% and 3% of the system, respectively. About 6% of the system is comprised of lines smaller than 8-inches, which is no longer allowed in new sewer construction per the Minimum Design Criteria for the Permitting of Gravity Sewers.

For this AMP, it was decided all collection system pipes that are larger than 8" have been considered critical. The label critical is because of the impact that a failure would have on these larger collection lines. They are the central conveyance for the entire system and should be prioritized differently within the collection system. Those lines are shown below:

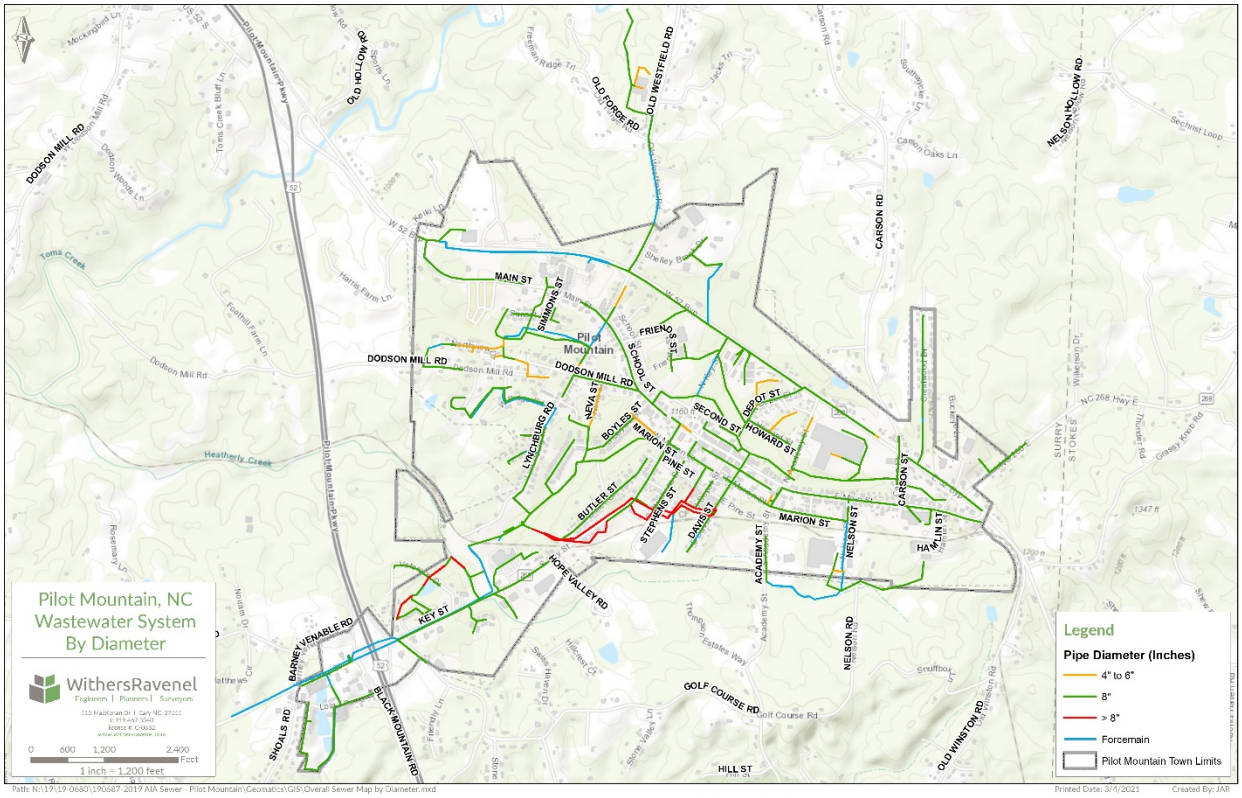

Figure 6. Wastewater system by diameter

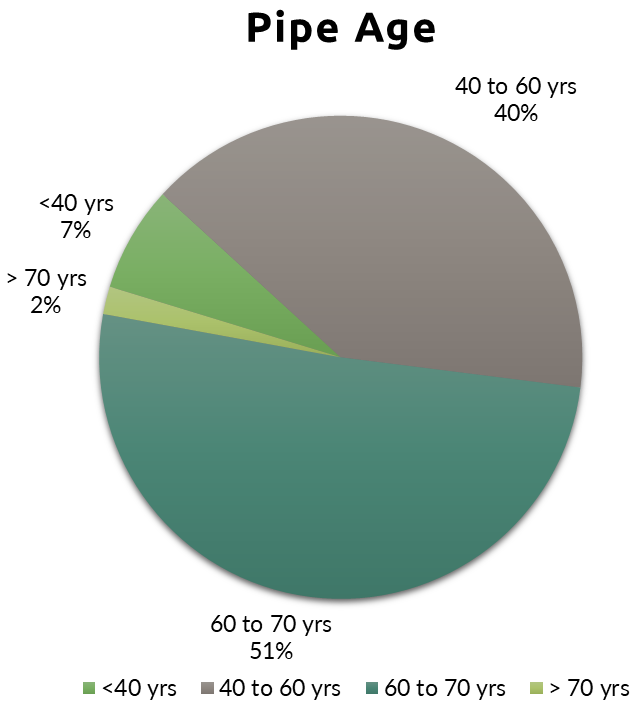

Figure 7. Ages (years) of gravity sewer pipes in the collection system

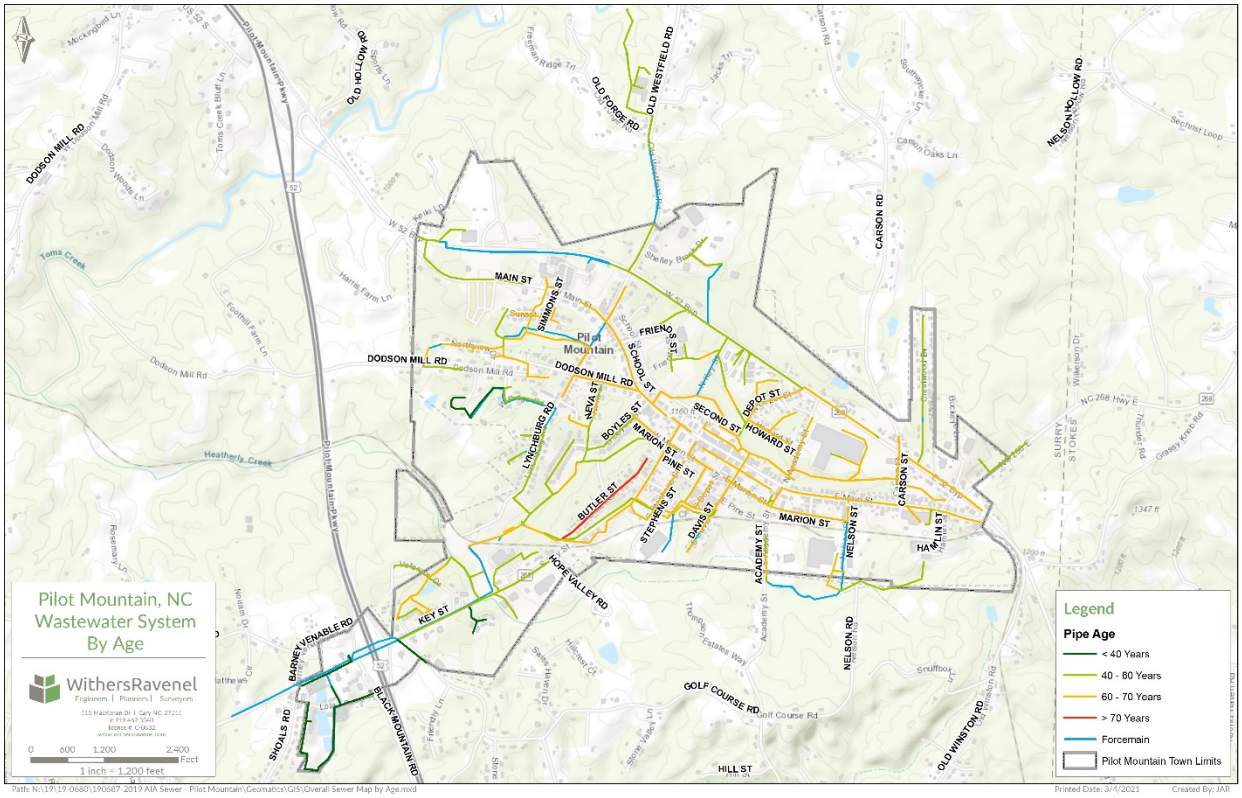

Figure 8. Wastewater system by age

Figure 7 illustrates the general age of the collection system pipes and shows that 2% of the lines have been in place for over 70 years, 51% have been in place for 60 to 70 years, 40% have been in place for 40 to 60 years, and 7% have been in place for less than 40 years.

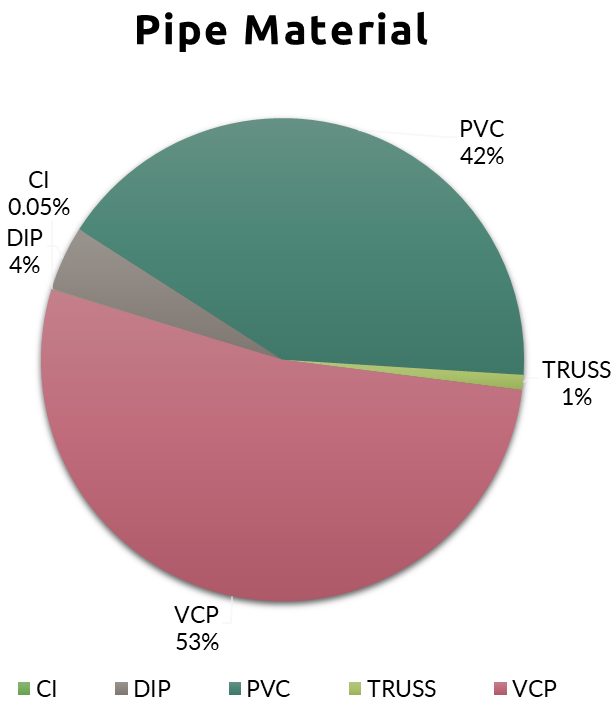

Figure 9. Materials of gravity sewer pipes in the collection system

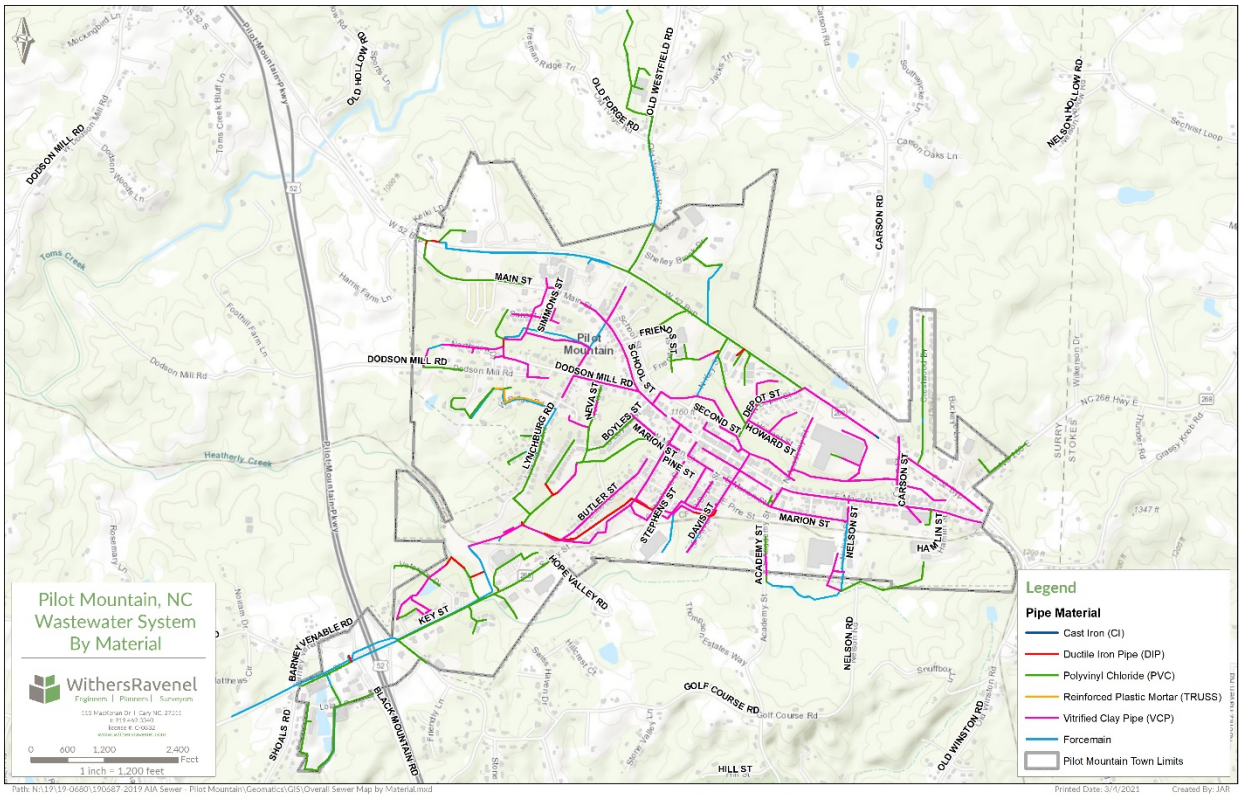

Figure 10. Wastewater system by material

Figure 9 represents the various pipe materials found in the collection system. Ductile Iron Pipe (DIP), Cast Iron Pipe (CI), Polyvinyl Chloride (PVC) represents approximately 46% of the system, and are materials commonly used in new sewer construction projects. Vitrified Clay (VCP) represents 53% of the sewer utility and is typically the oldest and potentially most compromised piping.

4.3.2 Manholes

The sewer collection system consists of 424 manholes. All 424 manholes were mapped as part of this project, see Figure 11 below. In-depth manhole assessments were not performed as a part of this project, but manhole conditions were determined using the sanitary smoke testing analysis. See Appendix III for the detailed manhole defects.

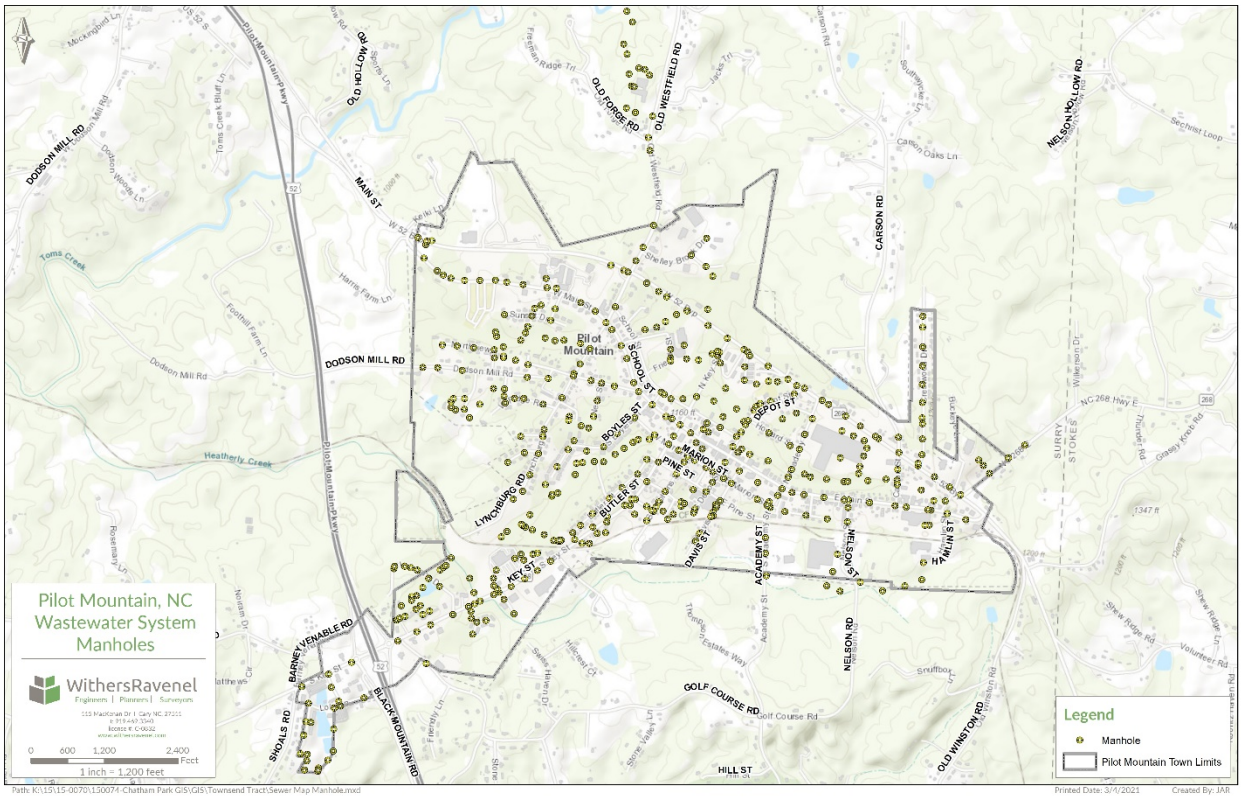

Figure 11. Wastewater system manhole map

Manhole locations are stored in the GIS database along with the other relevant sewer system information. The manhole information stored in the GIS database includes rim elevation, cover size, cover type, cover material, condition (if accessible), wall material (if accessible), depth (if accessible), Currently, the only manhole information stored in the GIS database is the manhole identifier, location, and rim elevation.

As a result, manholes were assigned the LoF and CoF KPIs of the associated sewer pipes. It is recommended that additional data including manhole material, manhole depth and pipe invert elevations be collected and updated into the GIS.

5 Sanitary Sewer Smoke Testing

5.1 Overview

Smoke testing was conducted in the Town from June 15 through July 20, 2020 utilizing a smoke machine supplied by WithersRavenel and a crew of employees from WithersRavenel and the Town. The entire collection system was tested, including nineteen (19) miles of gravity sewer line and 424 manholes. The smoke machine was placed on eighty-five (85) manholes and the crew walked the surrounding area, inspecting for defects. The Sanitary Sewer Smoke Testing Technical Memo, found in Appendix III, contains detailed information on the defects.

5.2 Overall Defect Summary

All visible defects were recorded, and photos were taken to aid in post-field inspection and future relocation of defects. The defects discovered were as follows:

- 107 cleanout defects
- 2 defects in meter boxes
- 9 stormwater cross-connections
- 2 roof drain connections
- 56 manhole defects
- 4 lateral defects
- 26 other unique defects

5.3 Drainage Defect Summary

There were 133 defects in total that were noted as able to drain into the sewer system, and they are categorized as follows:

- 89 defects in cleanouts and meter boxes
- 9 stormwater cross-connections
- 21 manhole defects
- 4 defects over the sewer mains and laterals
- 10 other unique defects

6 Sewer Asset Condition Assessment, Ranking, and Prioritization

Each of the gravity sewer lines and manholes inventoried were prioritized for improvement/ replacement. As discussed in Section 4, the 424 manholes are populated with the same or similar scores as the adjoining sewer and are included as part of the sewer asset for the CIP improvement projects because it is common for sewer rehabilitation projects to include manholes when adjoining sewer lines are repaired.

Based on the asset KPIs stored in GIS, each asset was assigned LoF and CoF scores which were utilized to calculate the Risk Score for each asset. Lower risk scores indicate less risk, while higher scores indicate greater risk. Therefore, the risk score indicates the relative priority for the repair/replacement of the asset. Approximate costs were determined to replace gravity sewer lines and manholes for the next 50 years. The projected costs are not adjusted for future costs and are instead displayed as current dollar amounts for consistency.

6.1 Priority Ranking Methodology

Three KPIs were utilized to determine the LoFs of the gravity sewer lines and manholes in the collection system. These KPIs are weighted based on their impact on LoF as described below and listed in Table 3.

- Age – Age is a typical indicator for LoF, as continued use and degradation over time leads to a higher likelihood of problems in older assets.
- Material – Materials that are known to be more likely to fail, such as vitrified clay pipe which is susceptible to cracking, are given higher scores.
- Critical Diameters – Critical diameters are a diameter of greater than 8 inches. Most of these lines are main trunk outfall lines which carry the wastewater to the treatment plant. These lines are critical in the successful functioning of the wastewater treatment system.

Table 3. Sewer likelihood of failure (LoF) scores

LoF KPI Factors	
Pipe Age (Years)	**LoF Score**
>40	4
Material	**LoF Score**
CI, VCP, TRUSS	3.5
Critical Diameter	**LoF Score**
> 8"	2.5

In addition, the CoF for the gravity sewer lines were calculated from four separate KPIs which are weighted based on the impact of the asset's failure. These KPIs are described below and allocated scores are listed in Table 4.

- Manhole Condition – Smoke testing defects were utilized to determine manhole condition.
- Smoke Testing – Areas that are in proximity to positive smoke testing were given a higher ranking than those that were not in areas that had positive results.
- Pump Station Tributary – Pipes that are tributaries to pump stations were given a medium ranking

Table 4. Sewer consequence of failure (CoF) scores

CoF KPI Factors	
Manhole Condition	**CoF Score**
DOES NOT EXIST	4
POOR, VERY POOR	3
VARIOUS DEFECTS	2
FAIR	1
Smoke Testing	**CoF Score**
Heavy - Moderate	3.5
Low	1
Pump Station Tribuary	**CoF Score**
Yes	2.5

After the LoF and CoF scores were assigned to the gravity sewer lines and manholes, the scores were multiplied together to determine the overall risk score for each asset. The risk scores can range up to 100, with a lower score meaning the asset is a lower risk (and therefore a lower priority for repair/replacement) and a higher score indicating the asset is a higher risk (and therefore a higher priority for repair/replacement). Figure 12 shows how LoF scores and CoF scores determine an asset's overall RoF score, and color codes the RoF scores to show their recommended year of replacement. The following formulas determine an asset's RoF:

$$Total\ LoF\ Score = (LoF\ score, Pipe\ Age) + (LoF\ score, Material) + (LoF\ score, Critical\ Diameter)$$

$$Total\ CoF\ Score = (CoF\ score, Manhole\ Condition) + (CoF\ score, Smoke\ Testing) + (CoF\ score, Pump\ Station\ Tributary)$$

$$RoF\ Score = Total\ LoF\ Score * Total\ CoF\ Score$$

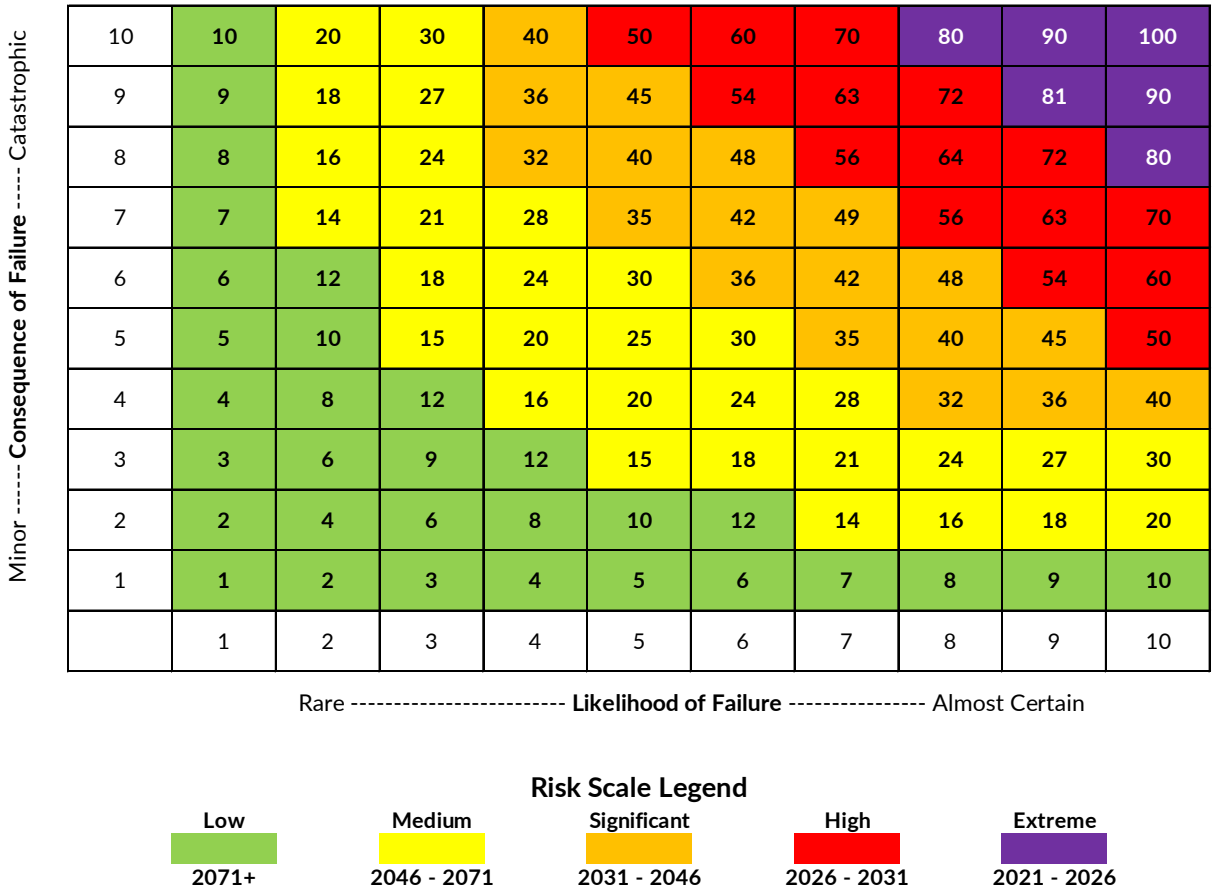

Figure 12. Typical risk matrix scoring codes

Figure 12 shows the typical risk matrix indicating possible risk scores and priority rankings for the sewer assets. Categories from "Low" to "Extreme" are based on an assumed time to failure. For example, the "Extreme" category is defined as anything scoring 80 or above and is assumed to require replacement by Fiscal Year (FY) 2026.

6.2 Asset Prioritization Results

Using the ranking methodology described in Section 6.1, each of the gravity sewer pipes and manholes was assigned a risk score. As seen in Figure 13 below, 4,285 Linear Feet (LF) of gravity sewer were placed in the "Extreme" risk category, 16,558 LF were placed in the "High" risk category and 31,302 LF were placed in the "Significant" risk category. The numbers in the matrix represent linear footage of pipe that received each risk score. The numbers in the legend represent the year range in which repair/replacement should be scheduled.

Minor ----- **Consequence of Failure** ----- Catastrophic

10	-	-	-	2,644	-	-	-	2,640	-	1,376
9	905	-	-	82	-	-	-	1,918	-	-
8	593	-	-	2,543	-	-	-	5,020	-	269
7	285	-	-	2,569	-	-	148	6,724	-	1,002
6	2,034	-	-	9,647	-	-	1,370	11,243	-	1,442
5	1,026	-	-	1,228	-	-	662	3,635	-	452
4	543	-	-	7,062	-	-	374	8,519	-	456
3	1,385	-	-	8,318	-	-	385	5,194	-	186
2	-	-	-	14	-	-	-	1,315	-	-
1	544	-	-	4,777	-	-	-	5,377	-	8
	1	2	3	4	5	6	7	8	9	10

Rare ---------- **Likelihood of Failure** ---------- Almost Certain

Risk Scale Legend

Low	Medium	Significant	High	Extreme
2071+	2046 - 2071	2031 - 2046	2026 - 2031	2021 - 2026

Figure 13. Risk matrix for the gravity sewer pipes by linear foot

As seen in Figure 14 below, 12 manholes were placed in the "Extreme" risk category, 69 were placed in the "High" risk category and 134 were placed in the "Significant" risk category. The numbers in the matrix represent the number of manholes that received each risk score. The numbers in the legend represent the year range in which repair/replacement should be scheduled.

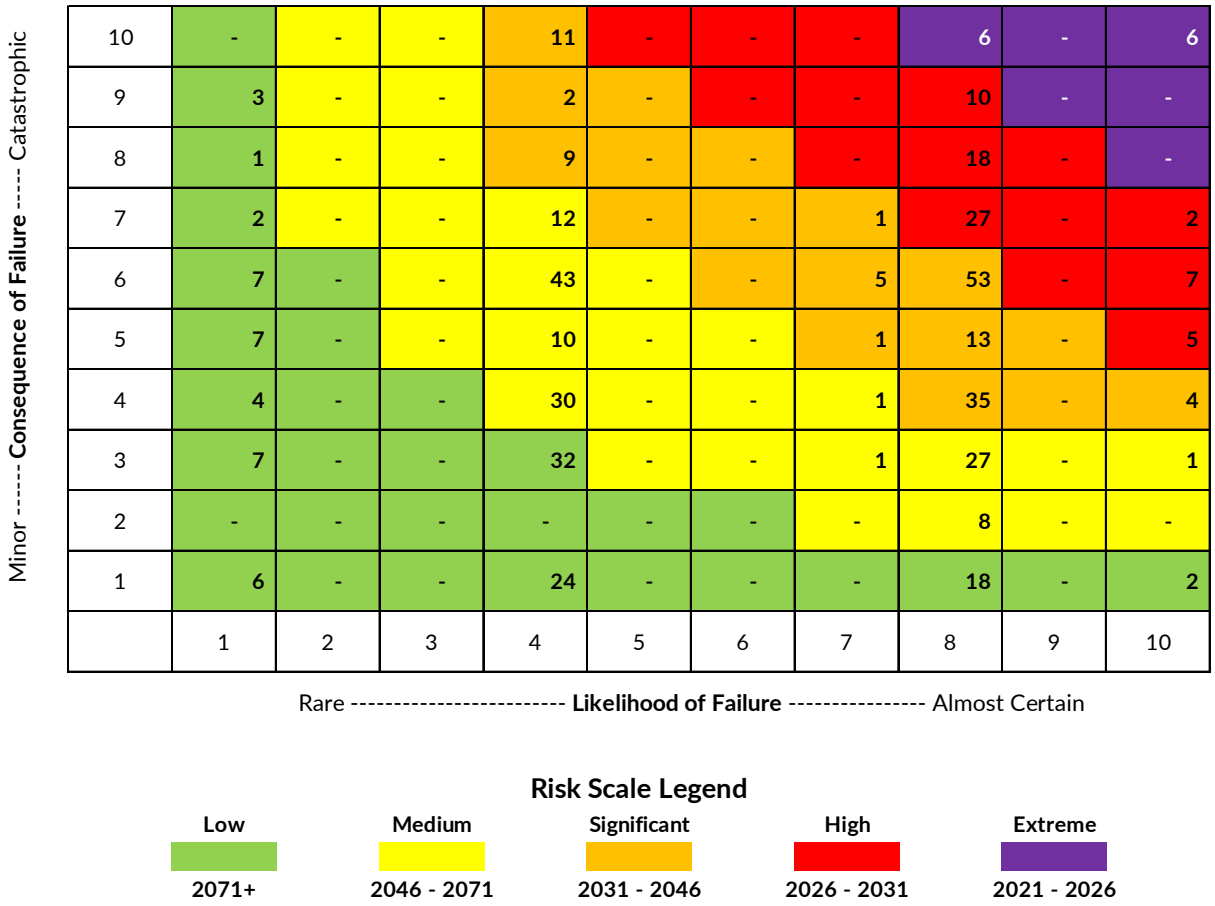

Figure 14. Risk matrix for manholes

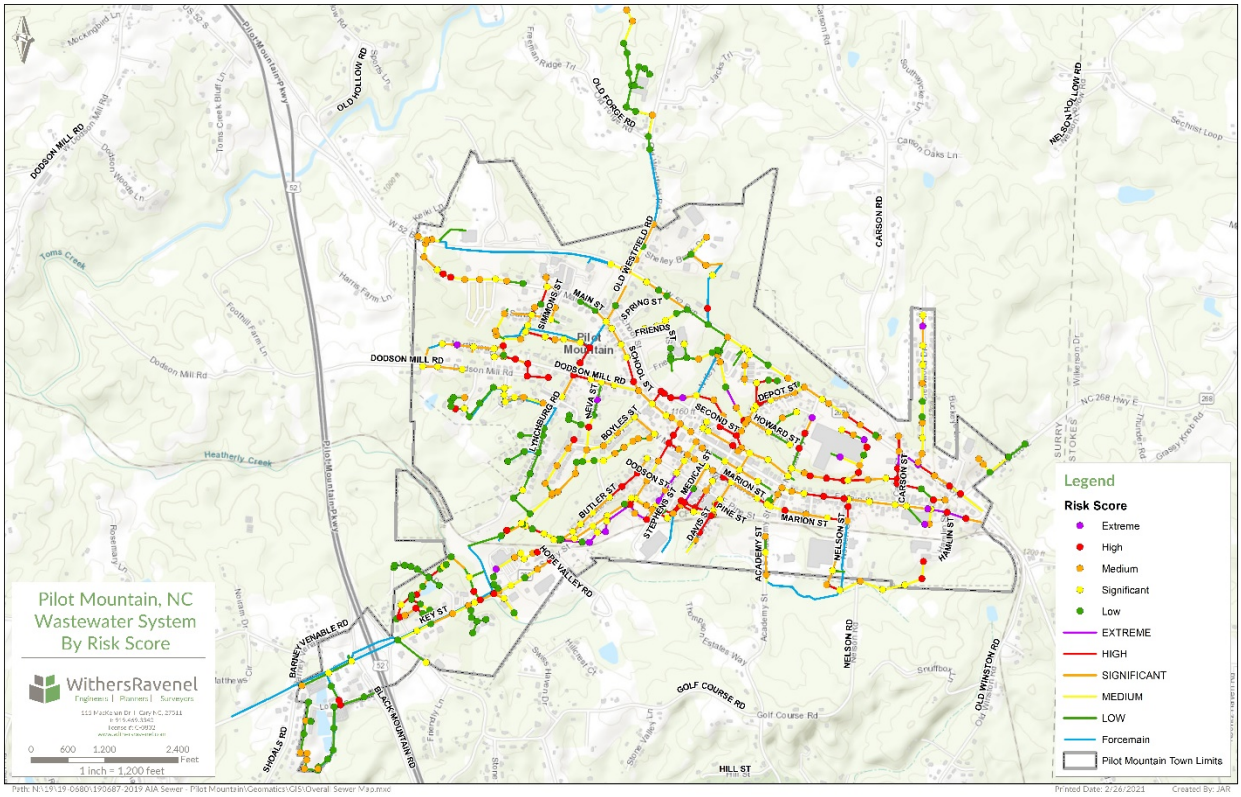

Figure 15. Wastewater system by risk score

7 Sewer System Capital Improvement Plan

7.1 Sewer System Improvements

With adequate data loaded into the GIS along with KPIs and their assigned scores, it is possible to automate a broad, generalized snapshot of prioritized replacement costs based on the results of the risk matrix.

Next, based on an evaluation of many construction bids across North Carolina, the average cost, in respect to pipe diameter, for combined sewer pipe and manhole replacement or trenchless rehabilitation is shown in the table below. These values include soft costs, such as engineering, permitting, and inspection.

Table 5. Gravity sewer replacement and rehabilitation pricing

Diameter (in)	Replacement ($/LF)	Rehabilitation ($/LF)
6	$223	$181
8	$173	$147
10	$184	$155
18	$392	$294
Overall	$184	$155

Using the above values and the percent composition of the gravity sewer pipe diameters, from Figure 5, the overall average cost for combined sewer pipe and manhole replacement is approximately $184/LF and the overall average trenchless rehabilitation cost is approximately $155/LF, including manholes.

Without extensive assessments and evaluation of the sewer, it is not possible to differentiate the assets that are candidates for replacement vs. trenchless rehabilitation. However, it is expected that a high percentage will qualify for less expensive and non-intrusive trenchless rehabilitation. For the purpose of this AMP, it is assumed that 85% of the system will qualify for the less expensive rehabilitation option and 15% of the system will require the more expensive replacement option.

Table 6 below details the total cost of replacement/rehabilitation based on an 85% rehabilitation weighted estimate. Based on the weighted estimates, it would cost approximately $16.8M (today's dollars) to replace/rehabilitate the entire service area.

Table 6. Total gravity sewer replacement or rehabilitation cost by risk category

Risk Score	Percent	Linear Foot	$184/LF	$155/LF	$159 Weighted/LF
LOW	24%	25,809	$4,748,895	$4,000,427	$4,103,664
MEDIUM	26%	27,960	$5,144,657	$4,333,814	$4,445,655
SIGNIFICANT	30%	31,303	$5,759,782	$4,851,991	$4,977,203
HIGH	16%	16,557	$3,046,572	$2,566,406	$2,632,636
EXTREME	4.05%	4,285	$788,514	$664,237	$681,379
TOTAL	**100%**	**105,915**	**$19.49 M**	**$16.42 M**	**$16.84 M**

7.2 Gravity Sewer and Lift Station Improvement Projects

Based on input from the Town staff and the risk matrix scoring, the following projects are recommended for inclusion in the CIP budget for the collection system over the next 20 years. The locations for these projects are shown in Appendix I.

1. Offsite Pump Station (No. 18) and Aerial Crossing - $552,000

The pump station components and nearby aerial stream crossing are aged beyond their useful life and are in need of replacement. Due to the vicinity in relation to the adjacent stream and abandoned wastewater lagoon, complete rehabilitation is recommended for the needed repairs on the pump station. Aerial crossings are considered a high priority asset by the North Carolina Department of Environmental Quality (NCDEQ) due to extremely damaging consequences in the event of a failure. Complete replacement of the aerial sewer crossing is recommended immediately.

2. Replace Aged Gravity Mains - $8,300,000

Strategically replace the sewer mains, including manholes, that are in poor condition, starting with the vitrified clay pipes. Pipes have been prioritized based upon the criteria in Table 3 and Table 4, and the results are shown in Figure 13 and Figure 14 for the gravity sewer pipes and manholes respectively.

3. Heatherly Creek Outfall and Pump Station - $2,970,000

The capital project involves the installation of new gravity sewer along Heatherly Creek from the existing Nelson Street Pump Station (No. 12) downstream. A new pump station would need to be constructed at the downstream location of the new gravity sewer. This capital project would replace four (4) existing pump stations with one (1) new station which eliminates three (3) pump stations from the Town's inventory.

4. Upgrade Lola Lane Pump Station - $880,000

This project involves upgrading the Lola Lane Pump Station and installing gravity sewer from the neighbor's Pump Station (No. 16) west along NC Hwy 268 then connect to the existing sewer on Foot Hill Dr. The new gravity sewer will re-direct wastewater previously sent to Neighbors' Pump Station (No. 16) to the Lola Lane Pump Station (No. 17), eliminating the Neighbors' Pump Station (No. 16) altogether.

8 Collection System Operation and Maintenance (O&M) Plan

Operation and Maintenance for the wastewater collection system focuses on upkeep of the lift stations. Maintenance consists of "Emergency Maintenance," which is corrective action needed quickly to keep the system operational, and "Preventative Maintenance," which is routine, scheduled tasks in order to prevent problems before they arise. The items below represent routine maintenance items performed throughout the collection system.

8.1 Lift Station Maintenance

The routine Pump Station Operation and Maintenance Program will include the following items:

- Inspecting, cleaning and removing debris from the pump station structure, outside perimeter, and wet well.
- Inspecting and exercising all valves.
- Inspecting and lubricating pumps and other mechanical equipment.
- Verifying the proper operation of the alarms, telemetry system, and auxiliary equipment.
- Other testing procedures as recommended by the manufacturer.
- Annual flow meter calibration (at a minimum).
- NOTE: Pump stations not connected to telemetry systems must be inspected at least daily. Pump stations with telemetry must be inspected at least once per week.

In addition, a Pump Station Check List Form should be created and utilized for each inspection. The inspection form should cover the following items:

- Check wet well level periodically, more frequently when high flows are expected or have occurred.
- Record hours of running time from elapsed time meters at least once per week and check for equal running times on each pump.
- Inspect control panel switches for proper positioning.
- Test alarms.
- Check valves for proper positioning (valves functioning, normally open valves are open, normally closed valves are closed).
- Confirm valve lever arms and weights are ok.
- Check for unusual pump noise or vibration.
- Check amp readings. Note discrepancies.
- Confirm pumps appear to be seated properly.
- Confirm that no leakage is observed.
- Confirm guide rails and brackets are aligned and fastened.
- Note any rust or loose parts.
- Confirm that piping and valves are not leaking and that bolts and nuts are tight.
- Confirm that any rusty parts have been replaced, cleaned, or painted.
- Record flow rate observed during site visit.
- Check and record pressure gauge readings during observed flow rate. Note any changes from normal readings.
- At least once per week, manually pump down the wet well to check for and remove debris.
- Inspect floats and transducer and cables and remove all debris to insure proper operation.
- Untangle twisted cables that may affect the automatic cycle operation.
- Check control settings.
- If a pump is removed, place the lead pump selector switch on the number of the pump remaining in operation.
- Inspect the pump hand/off/automatic selector switch. Turn to off. Fill up wet well with water until high water is activated. Turn to auto and check if both pumps operate automatically with slight delay between each. Pump until pump shuts off. Fill water until the lead pump starts.

When the lead pump starts, shut off water. Allow pump to lower the wet well until the pump shuts off.
- Check pumps for blockage and any abnormalities in operation.
- Confirm generator is automatically exercising on schedule at start-up. Periodically manually throw main disconnect to check the Automatic Transfer Switch (ATS) and generator operation.
- Cut grass, pick up trash, remove debris, walk around perimeter, inspect fencing, landscaping, look for vandalism or evidence of trespassing or other security concerns.

8.2 Collection System Maintenance

- Clean and video inspect at least 10% of the collection system each year. At the time of cleaning, record the date, location of cleaning, type of cleaning, and other general observations during cleaning (type of debris, quantities, etc).
- Document all Sanitary Sewer Overflow (SSOs) using the State form or other similar form. All spills, reportable or not, must be documented. Spills that are reported to the State should be on the required form.
- Incorporate information from new construction and rehabilitation projects, including line diameter, material, and scoring for other KPIs, into the collection system GIS within one year of construction completion.
- All high priority lines (including aerials, sub-waterway crossings, lines contacting surface waters, lines positioned parallel to stream banks and subject to eroding in such a manner that may threaten the line, and any other segment of the system that is designated as high priority) must be inspected every six months. A log must document the area inspected, the date, method of inspection, and any corrective actions performed or initiated.

9 Water System Overview

Pilot Mountain Water Treatment Plant (WTP) provides day-to-day operations and twenty-four-hour response to distribution system emergencies for Pilot Mountain, North Carolina. The water distribution system totals approximately twenty-six (26) miles of water mains ranging in diameter from 2 inches to 12 inches and in age from new to over 50 years old. The system also includes two (2) high service pumps, one (1) clear well, two (2) active water storage tanks, 201 fire hydrants and over 380 valves. There are no current wholesale customers/interconnections, but a future interconnection to the Town of Mt. Airy is currently under construction.

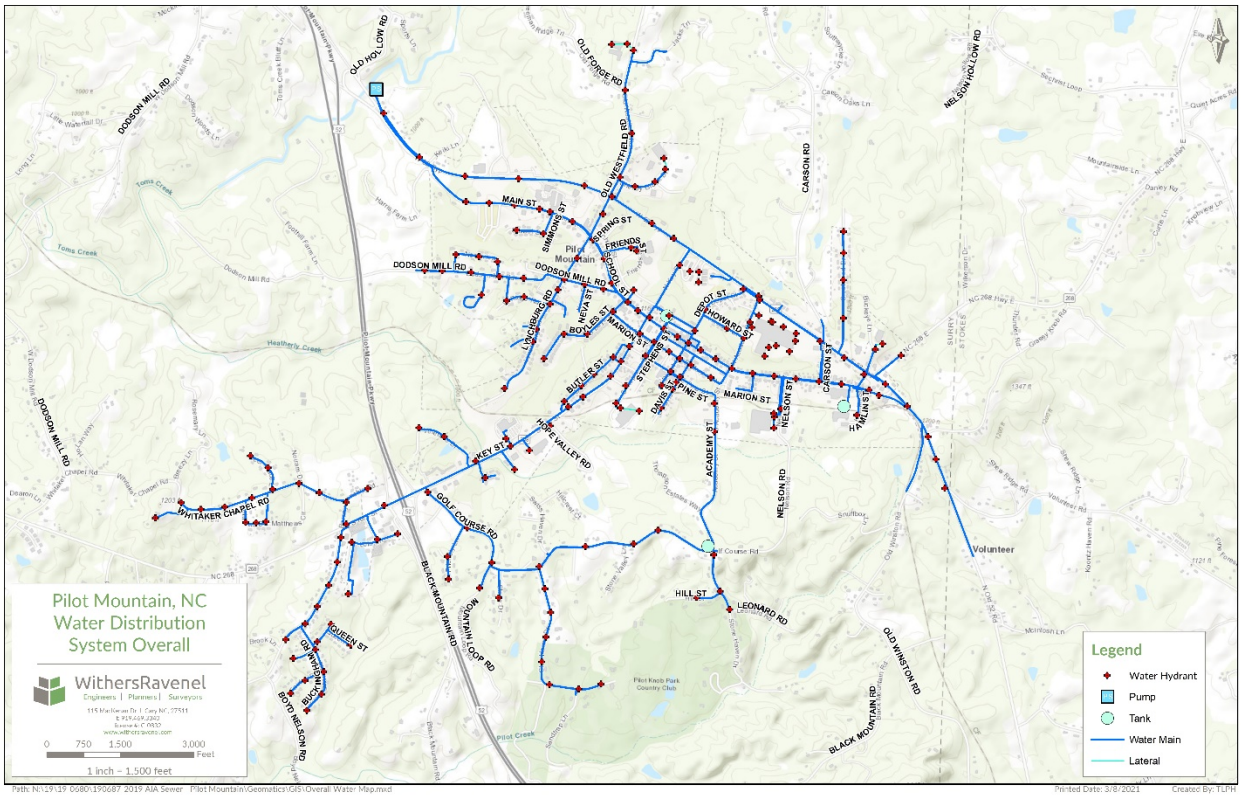

Figure 16. Water system overall map

26 Miles of 2”-12” Water Mains

2 Water Storage Tanks

201 Fire Hydrants

380 Water Valves

9.1 System Evaluation

In the next section, the details of water assets are summarized and evaluated in the context of state and national standards. Table 7 lists the specific North Carolina Administrative Code (NCAC) and Insurance Services Office (ISO) standards against which the Town's system was compared. This is not a comprehensive list of possible evaluation standards, but rather a critical starting list from which the Town can realistically define priorities for their CIP and continuous O&M.

The table also contains the terminology Peak Hour Demand (PHD), Maximum Day Demand (MDD), and Average Day Demand (ADD), which will be discussed in more detail in Section 11.

Table 7. Water system design standards per NCAC and ISO standards

System Parameter	Evaluation Criterion	Value	Design Standard/Guideline
Valves	Number at Crosses	3	NCAC T15A:18C.0907(a)
	Number at Tees	2	
	Number on Hydrant Branch	1	
System Pressure	Minimum, during PHD	30 psi	NCAC T15A:18C.0405(b)
	Minimum, during MDD + Fire Flow	20 psi	
Water Storage	Minimum Combined Elevated and Ground Storage Capacity	1/2 ADD	NCAC T15A:18C.0805
	Fire Flow Volume	Min 75,000 gal	
Minimum Residential Fire Flow, by Distance Between Buildings	> 30 ft	500 gpm	ISO Guide for Needed Fire Flow (2014)
	21 - 30 ft	750 gpm	
	11 - 20 ft	1,000 gpm	
	< 10 ft	1,500 gpm	
Minimum Nominal Diameter	Hydrant Branches	6-inch	NCAC T15A:18C.0901
	Non-Fire Protection Mains[1]	2-inch	

1. Contingent on residence restrictions per NCAC T15A:18C.0002

10 Critical Water Assets

10.1 Water Treatment Plant

The Town receives its water from the WTP, owned and maintained by the Town. The WTP includes a high service pump station which houses 700 GPM and 1,050 GPM high service distribution pumps, and a 5,500 GPM backwash pump, and connects to a 500,000 gallon clearwell. This AMP will not incorporate the improvements required to plant at this time as the Town has plans to decommission this plant.

The Town has a Supervisory Control and Data Acquisition (SCADA) system at the WTP which tracks water level in the clearwell and Golf Course Rd water storage tank as well as other WTP parameters shown in Figure 17.

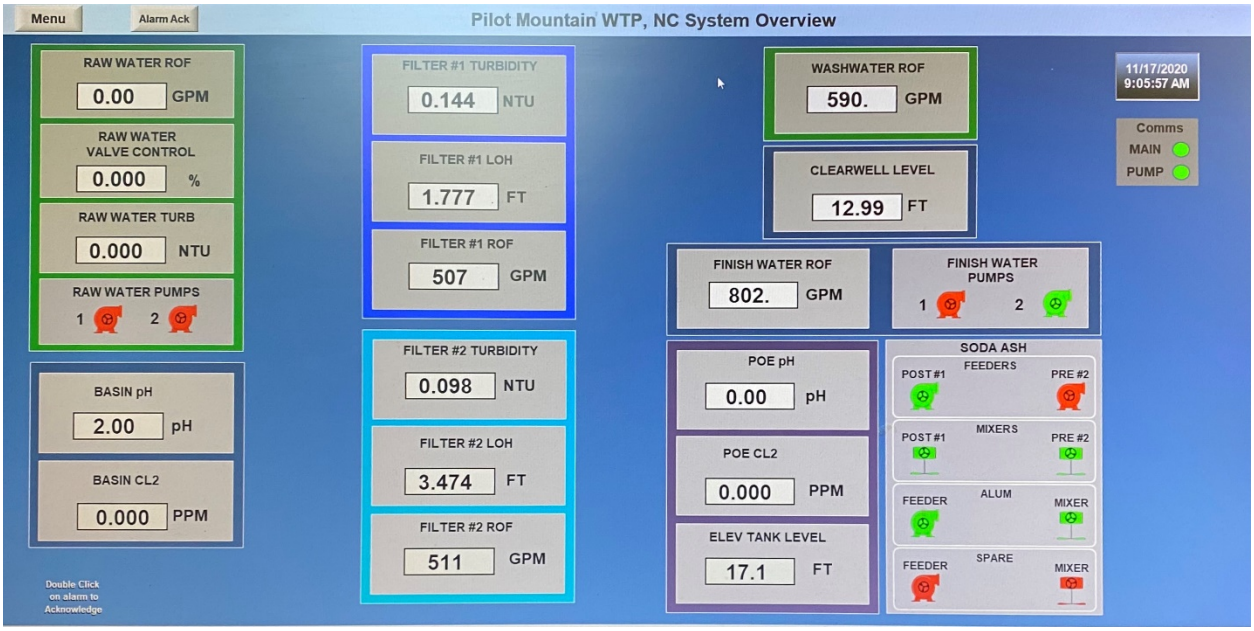

Figure 17. Water treatment plant SCADA screen

10.2 **Distribution Mains**

The Town distribution system consists of approximately twenty-six (26) miles of water mains to convey water from the water treatment plant through the potable water system. Pipe diameters range from 2 to 12 inches and pipe ages range from new to over 50 years. Figure 18, Figure 20, and Figure 22 provide a summary of the sizes, materials, and ages of the water main pipes contained in the distribution system.

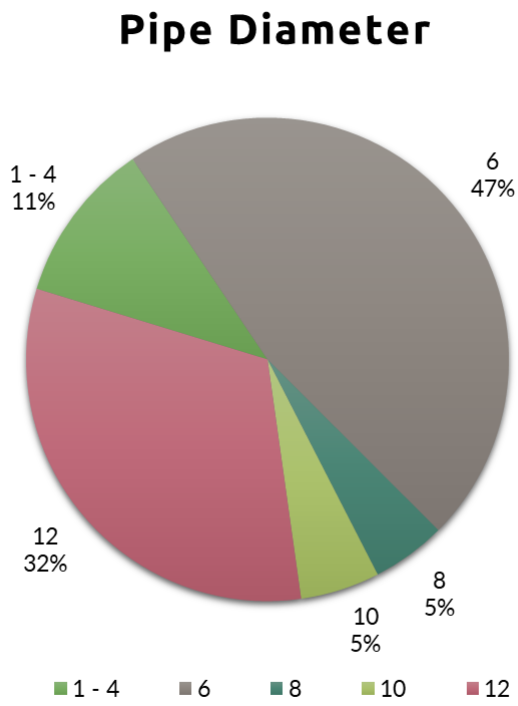

Figure 18. Diameters (in inches) of water mains in the distribution system

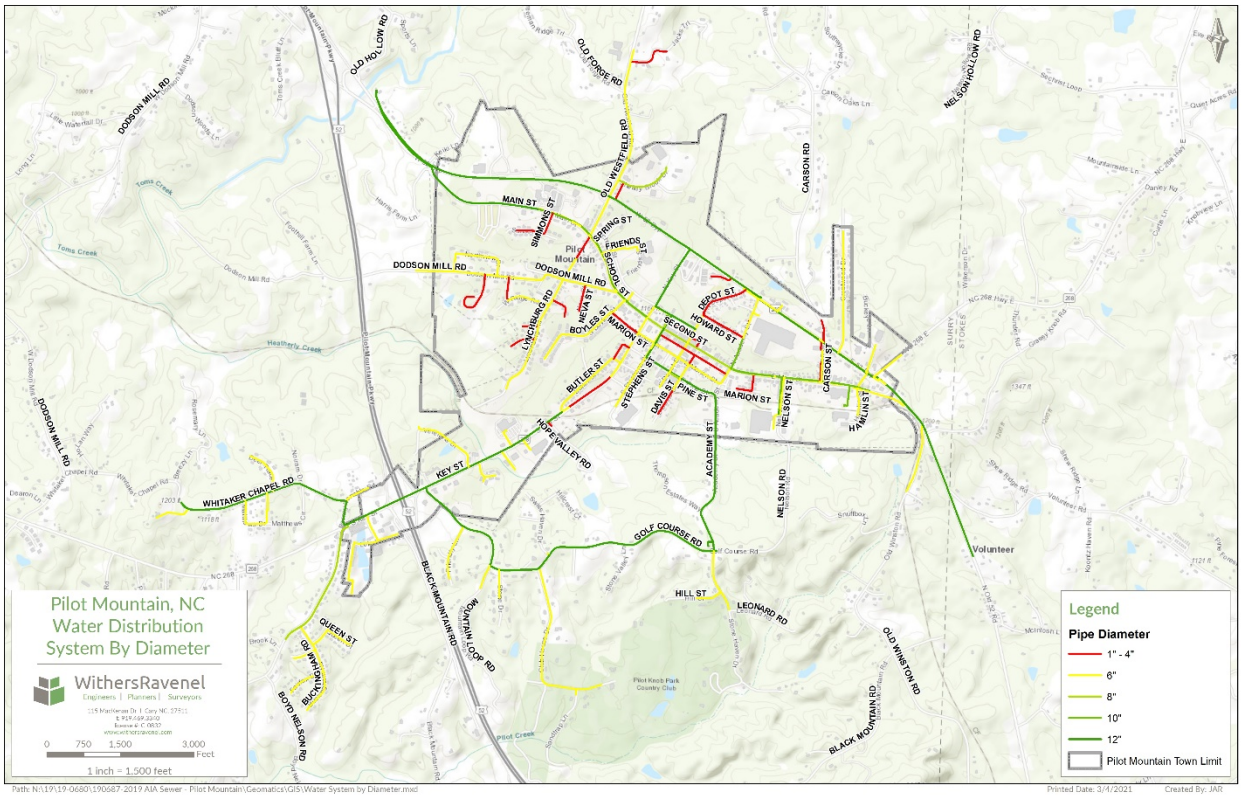

Figure 19. Water system by diameter

As shown in Figure 18 and Figure 19, most of the water pipelines are 6-inch diameter. About 11% of the system is comprised of lines smaller than 6-inches or unknown, which is no longer allowed in new water construction designed to carry fire protection flows (see Table 7). Figure 19 shows the water system map by pipe diameter.

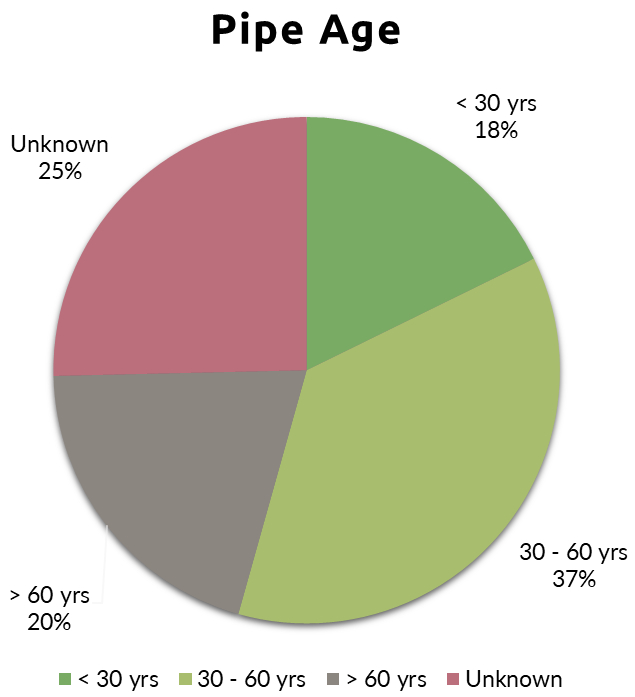

Figure 20. Ages (years) of water main pipes in the distribution system

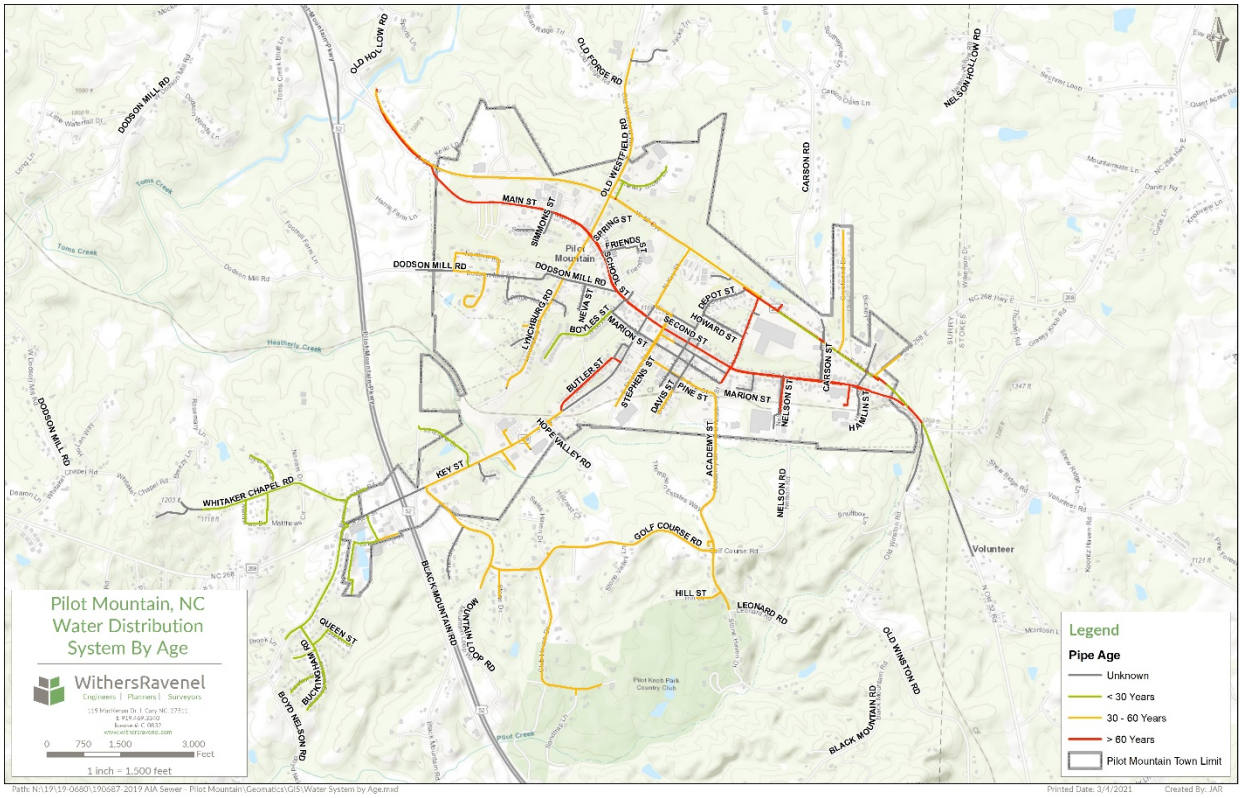

Figure 21. Water system by age

Figure 20 and Figure 21 illustrates the general age of the distribution system pipes and shows that 20% of the lines have been in place for over 60 years, 37% have been in place for 30 to 60 years, and 18% have been in place for less than 30 years. There is an additional 25% of the distribution system pipes for which the general age is unknown and requires future GIS database updates and assessments.

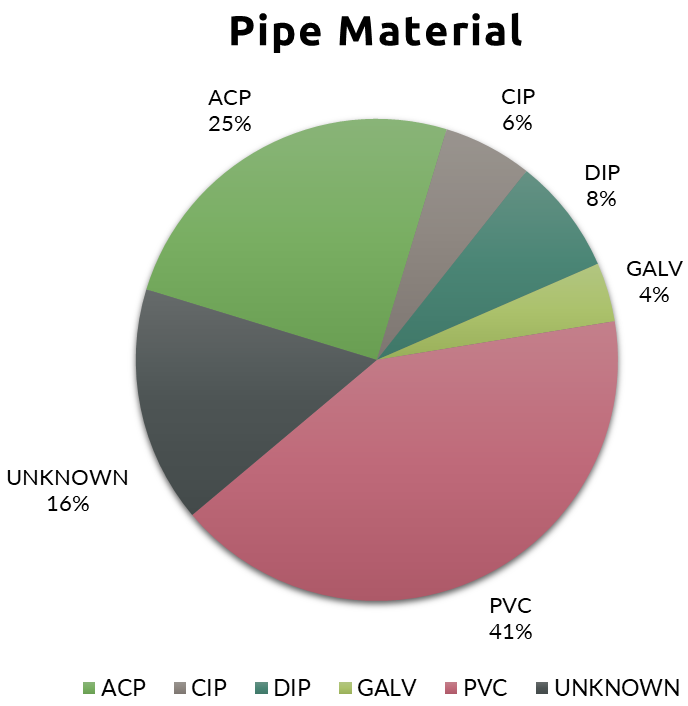

Figure 22. Materials of water main pipes in the distribution system

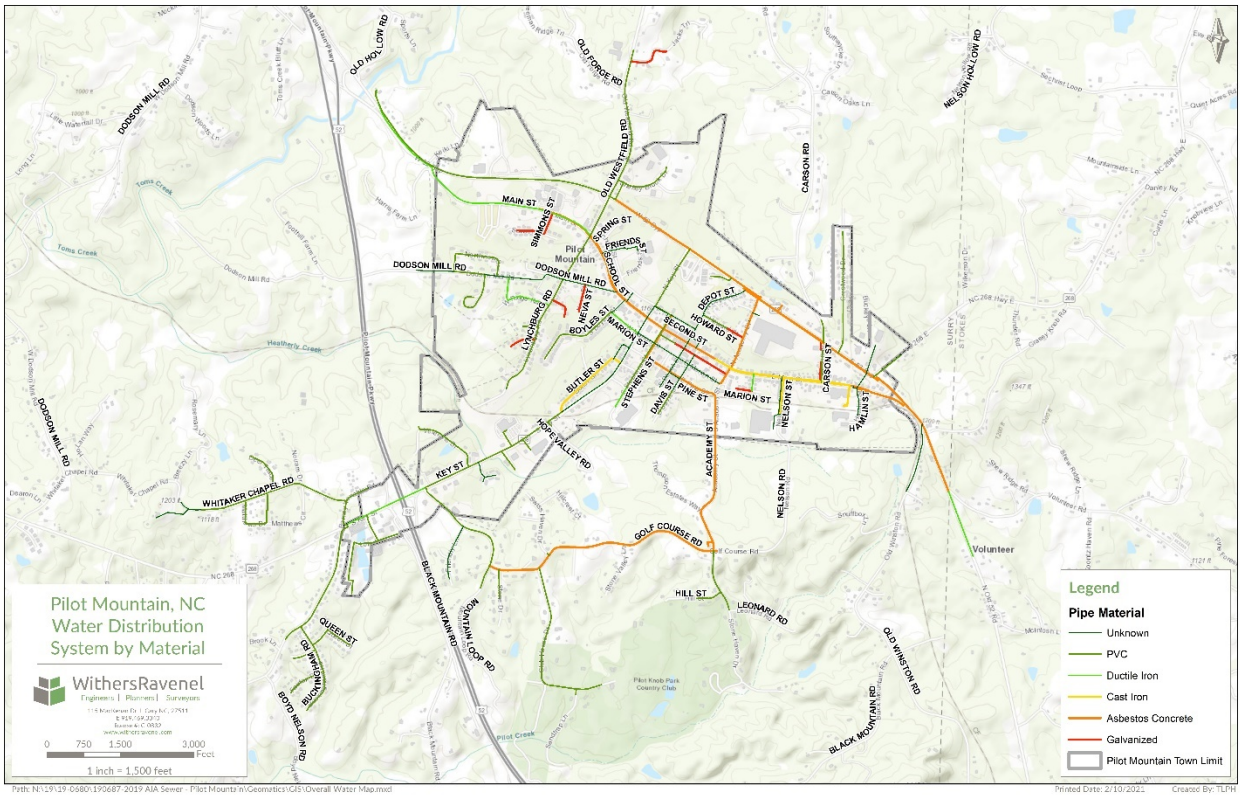

Figure 23. Water system by material

Figure 22 and Figure 23 represents the various pipe materials found in the distribution system. Ductile Iron (DIP) and Polyvinyl Chloride (PVC) represents approximately 49% of the system, and are materials commonly used in new water construction projects. Galvanized iron (GALV), Cast Iron (CI), and Asbestos Concrete (ACP) represents 35% of the water utility and is typically the oldest and potentially most compromised piping. There is an additional 16% of the system is of unknown material and requires future GIS database updates and assessment.

10.3 **Customer Meters**

The Town serves 1,084 water customers, with residential, commercial, industrial, and institutional usage types. In recent years, the Town overhauled their metering system with installation of an Advanced Metering Infrastructure (AMI). This system is accessible via Mueller's Mi.Net Infrastructure Network and all customer water consumption data since mid-2017 is now available in one-hour increments. In addition to the customer meters, this infrastructure contains eleven (11) permanent repeaters and one small District Metered Area (DMA) for a commercial complex, tracked by an input meter.

Table 8 breaks down the respective meter sizes and annual consumption for these customers. Despite the possible impact of a pandemic on customer behavior usage and patterns, overall annual totals between 2019 and 2020 remained relatively similar. Nearly 91% of the total accounts are served by 5/8" meters while accounting for about 46% of the total demands for 2019 and 2020. In general, customers served through 5/8" or ¾" meters will be residential. Though customers served by 2" meters take up less than 2% of total accounts, this category of user consumes the next highest percentage of total water at about 39%. This is due to the single-largest consumer of water being the Town's WWTP's chemical feed, which is tracked via meter but not billed.

After the WWTP, the next largest individual water users are the recreation center, the Econolodge, New River Tire Recycling, schools, and several restaurants.

Table 8. Number of customer accounts and metered consumption by meter size, 2019 and 2020 yearly totals

Meter Size (in)	Number of Accounts	Percent of Total Accounts	2019 Metered Consumption (MG)	2019 Percent of Consumption	2020 Metered Consumption (MG)	2020 Percent of Consumption
5/8	985	90.9%	31.54	46.3%	31.22	45.8%
3/4	8	0.7%	0.16	0.2%	0.16	0.2%
1	51	4.7%	3.57	5.2%	3.69	5.4%
1 1/2	16	1.5%	5.22	7.7%	4.92	7.2%
2	17	1.6%	26.71	39.2%	26.87	39.5%
3	2	0.2%	0.56	0.8%	0.58	0.9%
4	2	0.2%	0.02	0.0%	0.08	0.1%
6	3	0.3%	0.34	0.5%	0.51	0.8%
Total	**1084**	**100%**	**68.14**	**100%**	**68.10**	**100%**

On a monthly or even seasonal scale for 2019, as shown by Figure 24, customer usage does not have significant variation. Though in late summer/early fall, East Surry High School field irrigation becomes the single-largest water user. This figure additionally shows the monthly WTP production for the year, and the resulting calculated Non-Revenue Water (NRW). On average, 2019 had about 30% NRW, likely lost through a combination of hydrant flushing, transmission leaks, tank overflows, service connection leakage, and non-authorized usage.

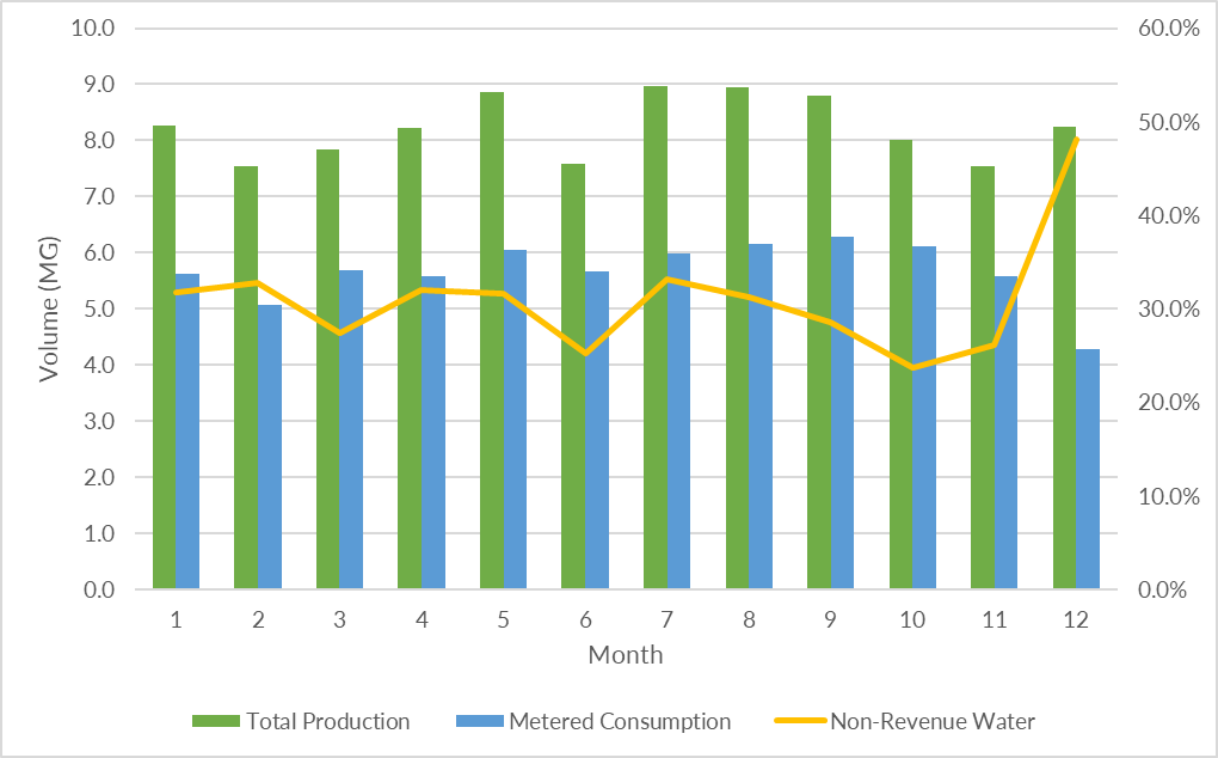

Figure 24. Monthly production, metered consumption, and resulting non-revenue water for 2019

As an additional note, the Mi.Net downloads of monthly or yearly totals is not a strictly accurate representation of aggregate customer consumption. Investigation of the hourly increments of consumption revealed negative values reported at some time steps. These negatives in turn decrease the cumulative consumption registered for the customer. It is not clear if the Town distinguishes between *billed* consumption and *registered* consumption and it is possible the Town is losing revenue when this occurs. Correspondence with Mueller has confirmed these are not meter errors and most likely is backwards flow through the customer meter. The leading suspected cause is low pressures in the system near these customers.

10.4 **Water Storage Tanks**

Finished water storage in the Town consists of two (2) active and one (1) off-line Elevated Storage Tanks (ESTs), in addition to the 0.5 MG clear well at the WTP.

All three (3) ESTs were surveyed by WithersRavenel field crew as a part of this project, to confirm the information collected from previous reports and plans provided by the Town. Information collected during the field survey includes rated capacity, headwater pressure (psi), top of tower

tank elevation, bottom of tower tank elevation, foundation elevation, pressure gauge location and elevation, and calculated water elevation.

10.4.1 Field Survey Methods

The field data collection utilized multiple technologies; North Carolina Geodetic Survey (NCGS) Virtual Reference Station, GPS to calculate real time, North Carolina Grid Coordinate Values and Elevations. To increase accuracy and precision, coordinate, foundation and headwater pressure gauge elevations were determined by using conventional survey instruments to observe common "control points" in a minimum series of 3's and averaging the numbers for a mean value. This method was coupled with "reflectorless" technologies to measure the elevation of the water towers from the ground. The "reflectorless" measurements create a "point" at the top of tower tank and bottom of tower tank to determine the elevations. Once the real coordinate values were applied to the headwater pressure gauge, formulas were used to calculate the water elevation within the tanks.

10.4.2 Field Survey Observations

It was observed that the Second St EST pressure gauge showed a headwater pressure that indicated water stored in the tank. The water elevation calculations showed the water level was in the riser but not in the tank. Upon consultation with the Town and chlorine analysis, it was determined that the tank was not connected to the system and the water housed in the riser was old water that was never completely drained out. The most likely reason for the undrained water may be the manhole used to empty the tank is too shallow and may cause overflows into the apartments nearby.

Table 9. Nominal, measured, and calculated tank geometries

Label	Elevation (Base) (ft)	Elevation (Minimum) (ft)	Elevation (Overflow) (ft)	Elevation (Top of Tower) (ft)	Volume (MG)	Calculated Diameter (ft)
Pilot Center	1,206.10	1,265.98	1,295.10	1,300.10	0.2	34.2
Second St	1,154.89	1,276.63	1,295.11	1,300.11	0.125	33.9
Golf Course Rd	1,196.50	1,257.86	1,297.76	1,302.58	0.5	46.2

Table 9 contains the information gathered from the field survey. The Pilot Center and Second St Tank overflow elevations were assumed as 5ft below top elevation, and the Golf Course Rd overflow elevation was assumed from plans. The Golf Course Rd bowl elevation could not be confirmed from survey due to shape of its riser and therefore was assumed from operational knowledge. The respective elevation of the SCADA level sensor has also not been confirmed.

The Town additionally has observed that filling the Golf Course Rd tank can cause overflows at the Pilot Center Tank, which does not have an altitude valve. The exact conditions and respective HGL at which this occurs remains unknown.

10.5 Water Valves

The distribution system in Pilot Mountain consists of nearly 380 water valves to control the conveyance of water throughout the Town. Valve assessments were not performed as a part of

this project, therefore existing water valve condition is not formally qualified. Figure 25 shows the location of the water valves. There are twenty-six (26) pipe crosses in the system, and Figure 26 shows the number of valves at each pipe cross. Similarly, there are 279 pipe tees in the system, and Figure 27 shows the number of valves that are found at each pipe tee.

As listed in Table 7, pipe crosses require at least three (3) valves and tees at least two (2) valves at intersections. At least 40% of crosses and 48% of tees are deficient in total number of required valves. The summary of valves at tees also includes hydrant laterals, and laterals not containing hydrant valves is discussed in the next subsection.

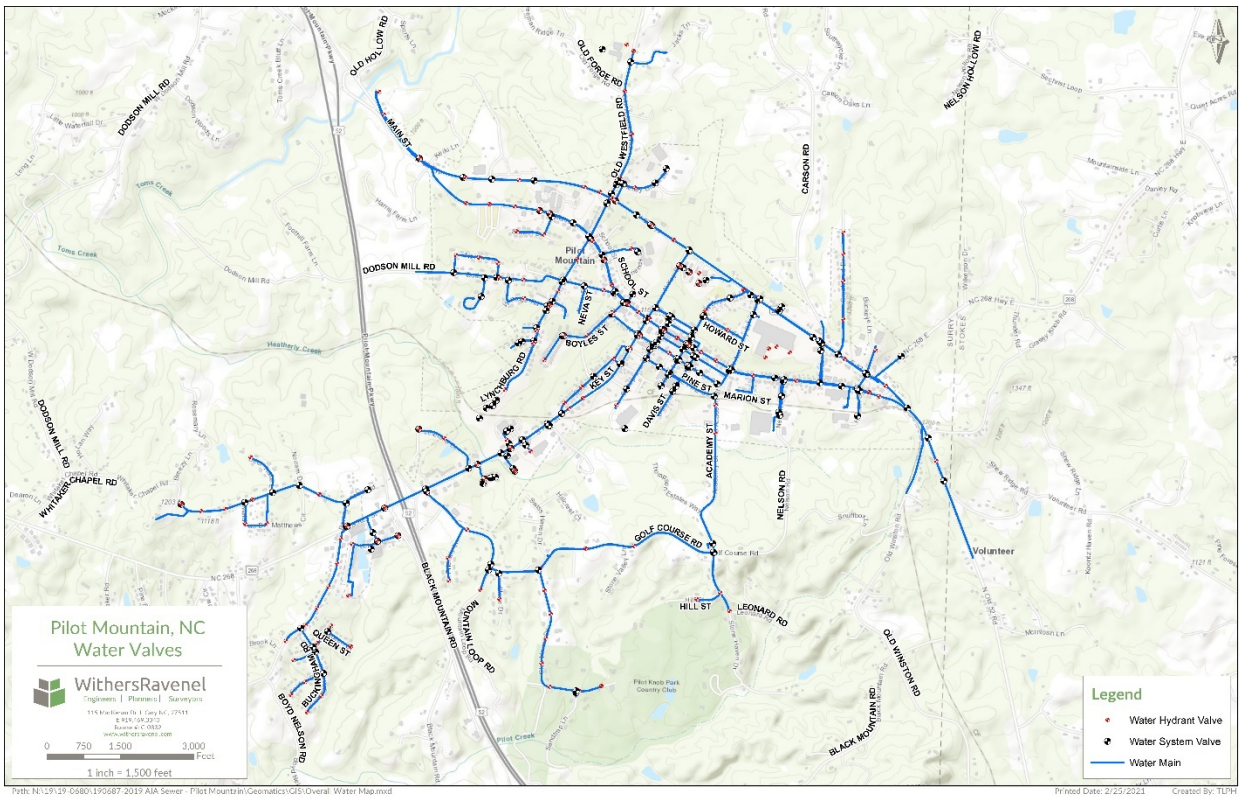

Figure 25. Water valve map

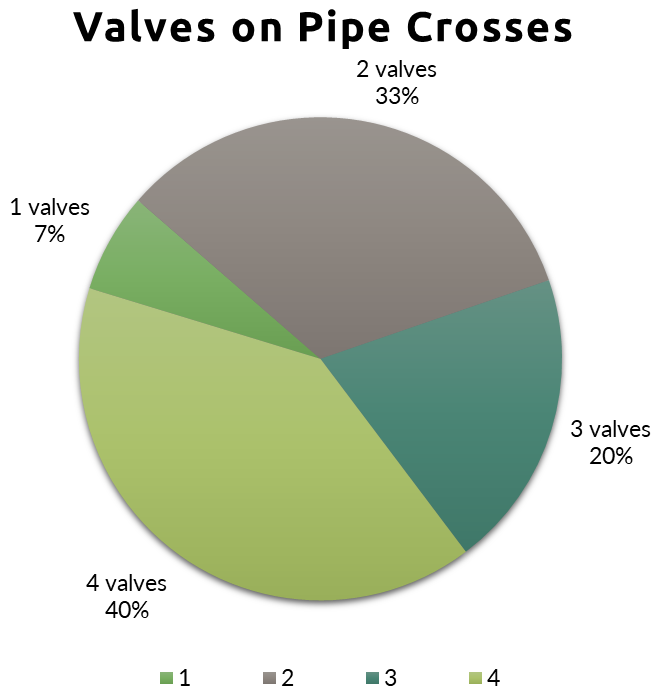

Figure 26. Number of valves on pipe crosses

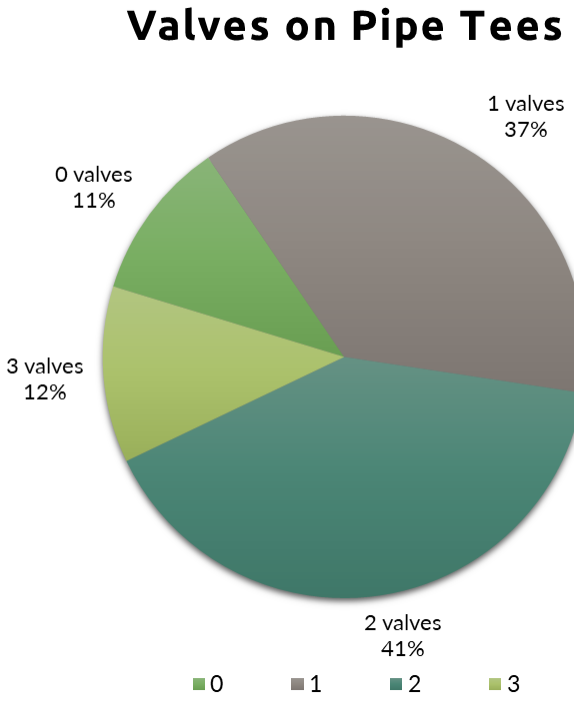

Figure 27. Valves on pipe tees

10.6 Fire Hydrants and Laterals

The distribution system in Pilot Mountain consists of 201 fire hydrants to provide fire flow throughout the Town. Verified hydrant brands include American Darling, M&H, and Mueller, with about 30 classified as "Other" or "Unknown". Hydrant conditions were field-assessed, and the results are shown in Figure 28 and Figure 29.

Per NCAC standards (Table 7), hydrant laterals should be a minimum of 6 inches in diameter. Figure 30 displays the locations of laterals in the system which do not meet this design criteria.

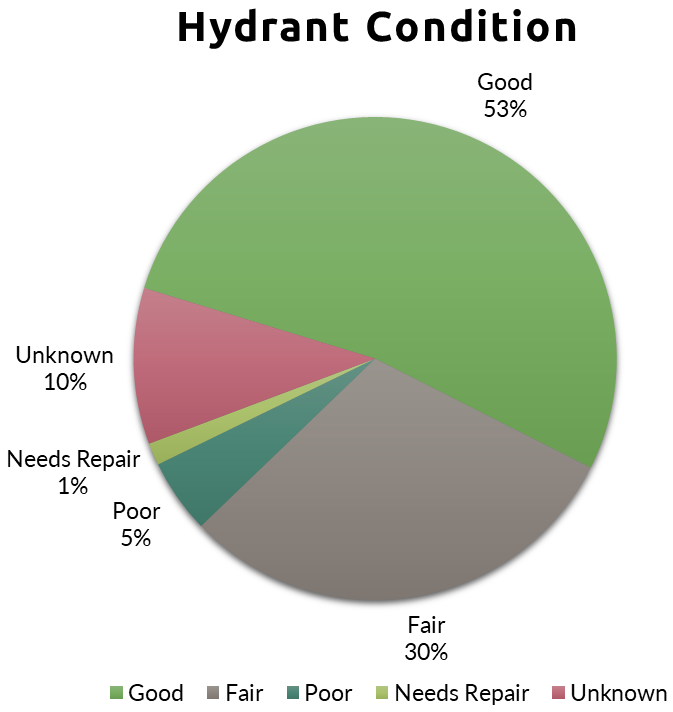

Figure 28. Summary of field-assessed hydrant condition

Figure 28 represents the condition of the fire hydrants in the distribution system and shows 53% of hydrants are in the "Good" category, 30% of hydrants are in the "Fair" category, 5% of hydrants are in the "Poor" category, 1% of hydrants are in the "Need Repair" category, and 10% of hydrants are in the "Unknown" category and require future GIS database updates and assessments.

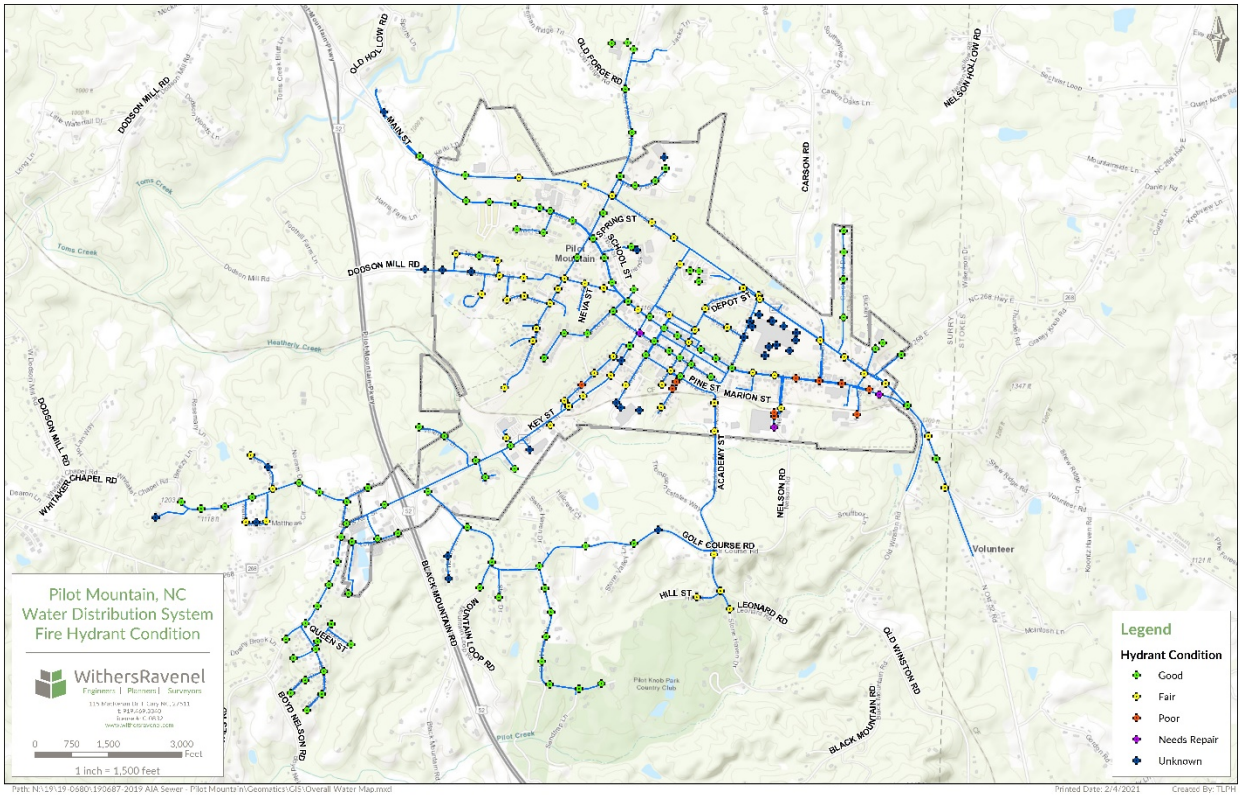

Figure 29. Hydrant condition map

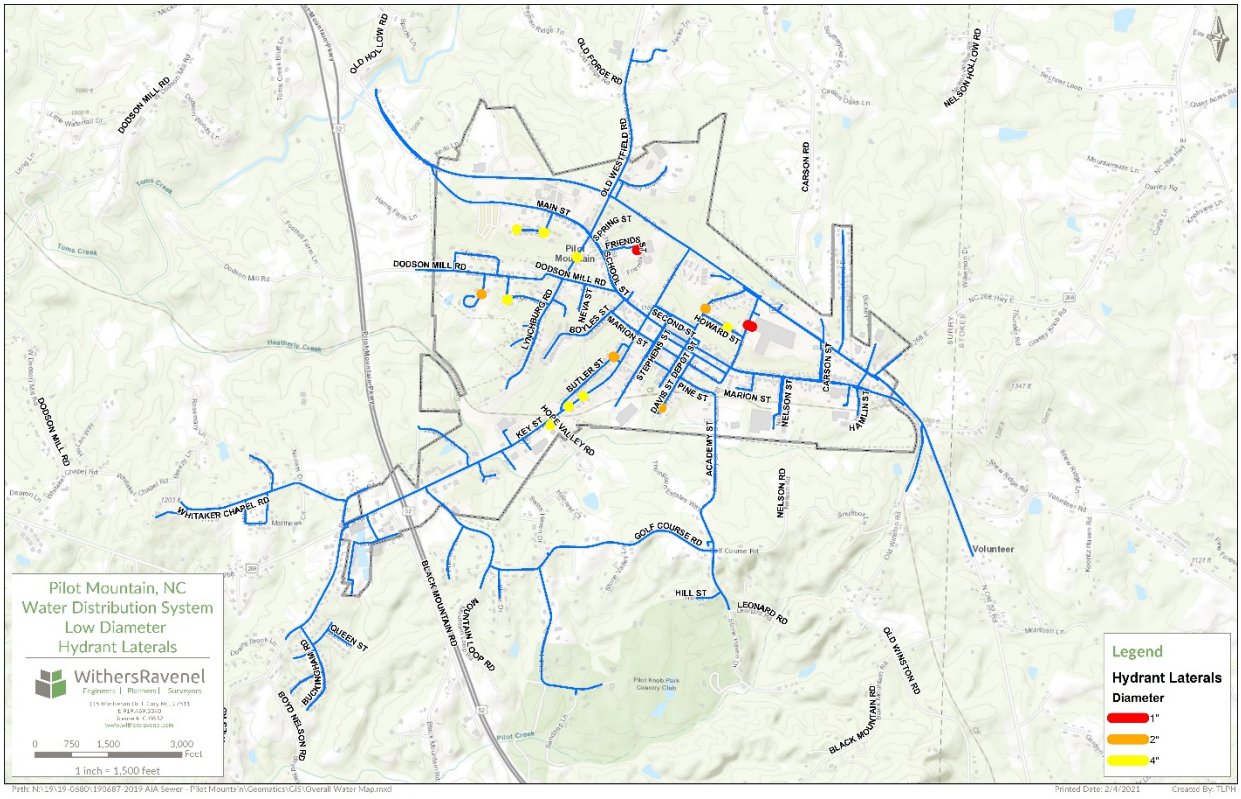

Figure 30. Hydrant laterals less than 6-inches in diameter

11 Hydraulic Water Model

A well-developed and calibrated hydraulic model provides valuable understanding to water utilities. With a model, utilities can understand behavior of their system and its components, and can provide predictive insight into operational changes, impact of improvements, or assess relative efficacy of different operational/design scenarios.

11.1 Model Development

Section 10 detailed a summary of existing infrastructure, system components, and relevant information from which a hydraulic model was built. The first GIS collection effort identified locations and physical characteristics of mains, laterals, hydrants, and valves. Filling in specifics for the high service pumps, WTP pipework, and EST geometries required more Town as-builts, pump manufacturer information, and additional survey for the tanks (see Section 10.4). Mueller provided coordinates for the customer meters.

The physical characteristics of the system loaded into the model are as follows:

- Mains and laterals: diameter, length, connectivity, and age and material when available
    - Age and material guide initial estimates of Hazen-Williams C-factor, a representation of pipe condition.

- WTP: internal piping from clear well to distribution system, pump and clear well locations and elevation, and pump manufacturer curves
- Hydrants: elevation and connectivity
- Valves and fittings: type, elevation, and connectivity
- Tanks: geometries summarized in Table 9
- Customer meters: elevation, assumed connectivity, and user demands (to be explained below)

Bentley's WaterGEMS was selected as the modeling software and system GIS was directly imported to form the hydraulic model. Each system component has a unique Facility ID and therefore the model has 1:1 connectivity with the GIS database. This also enables streamlined future updates to the model as infrastructure is repaired, replaced, constructed, or abandoned. The only difference between the model and the GIS database is the model does not include a small number of private-owned assets that field crews collected information on.

11.1.1 Data Collection

After the physical characteristics of the system have been built in the model, the next phase entails collecting the data which drives the model. Water enters the model via a reservoir (here the clear well), the rate and volume at which it enters determined by pump operations, and system volumetric turnover formed by customer usage and NRW demands. The system pressure/HGL is therefore predicted from how tanks respond to operations and demands, as well as the pipe network connectivity, capacity, condition, and respective elevations.

11.1.1.1 System Operations

Meetings with the Town's staff provided a general guideline to their system's operations. Of the two WTP pumps, the 1050 gpm pump is typically run most of the time and the 700 gpm pump run only for maintenance purposes. The pump is typically run Mondays, Tuesdays, Thursdays, and Fridays, and is off completely Wednesdays and the weekend. Their SCADA monitors the clear well and Golf Course Rd tank elevations relative to the sensors. As discussed in Section 10.4, the exact operating HGL of both the Golf Course Rd and Pilot Center tanks has not been confirmed.

Additionally, staff performs hydrant flushing on a continuous basis.

11.1.1.2 System Pressures

Anecdotal information from the Town indicated generally low pressures in the system unless the pumps were running. Ends of the system have had observed low pressures, especially during hydrant flushing.

Hydrant pressure recorders (HPRs) can be attached to hydrants and collect pressure data on a minute-by-minute time stamp for as long as they are installed. Three HPRs were originally installed throughout the Town, with one at the high school, one on North View Dr, and one at the conference center. However, the conference center HPR was turned off shortly after

installation and therefore was unable to collect any data. Figure 31 shows the locations of the remaining two HPRs.

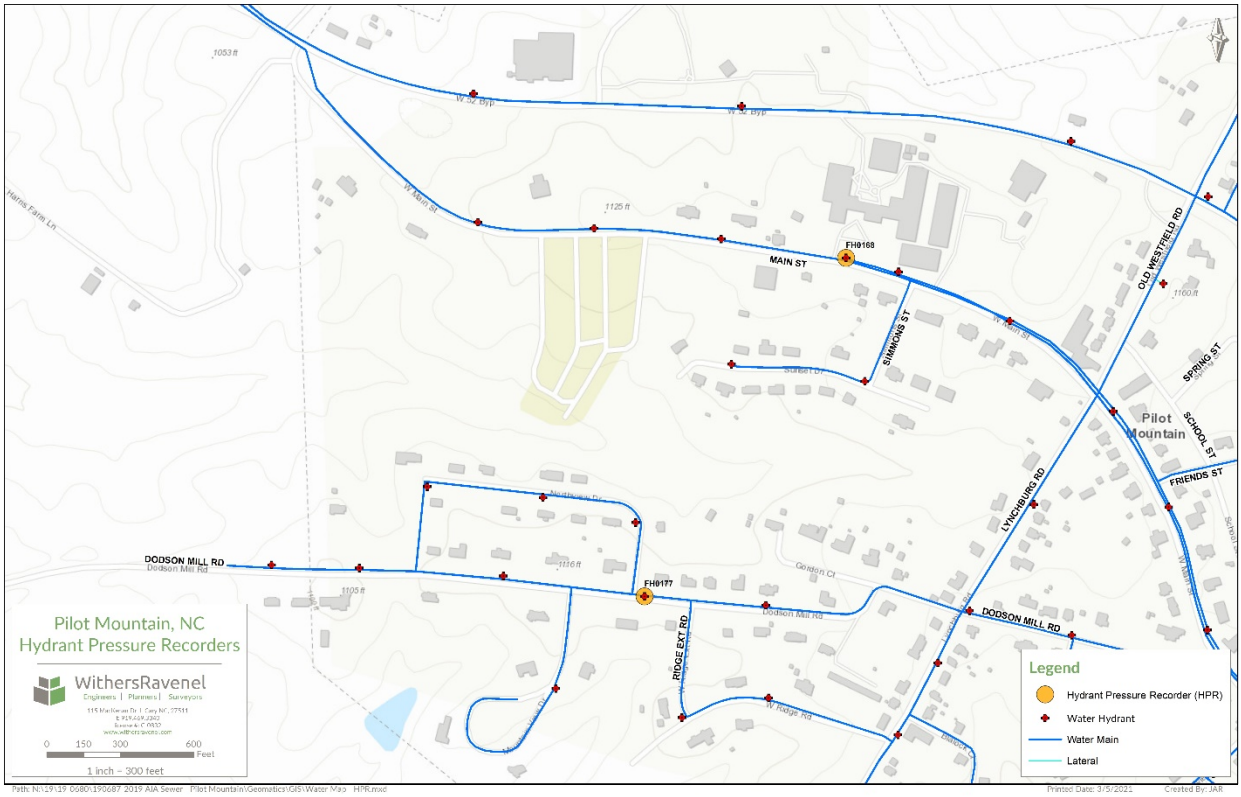

Figure 31. HPR installation locations

The HPRs were set out to collect data from October 7th to 20th in 2020, as shown by Figure 32. These two timeseries roughly follow the same pattern as each other, where pressures increase when the pump is running, and slowly decrease when the pumps are off and the tanks control the HGL. There are several brief, but recognizable drops in pressure. The high school HPR, which is on a direct distribution main, shows the transient impacts of the pump turning on and off. The North View Dr HPR has pressure impacts from pump transition status, and also has some pressure drops when the system is draining slowly. These could possibly be from localized impacts of hydrant flushing, customer usage, or even leaks.

This pressure data also indicated pump activity over the weekend when the pump is typically not run. Correspondence with the Town confirmed the change in typical operational patterns.

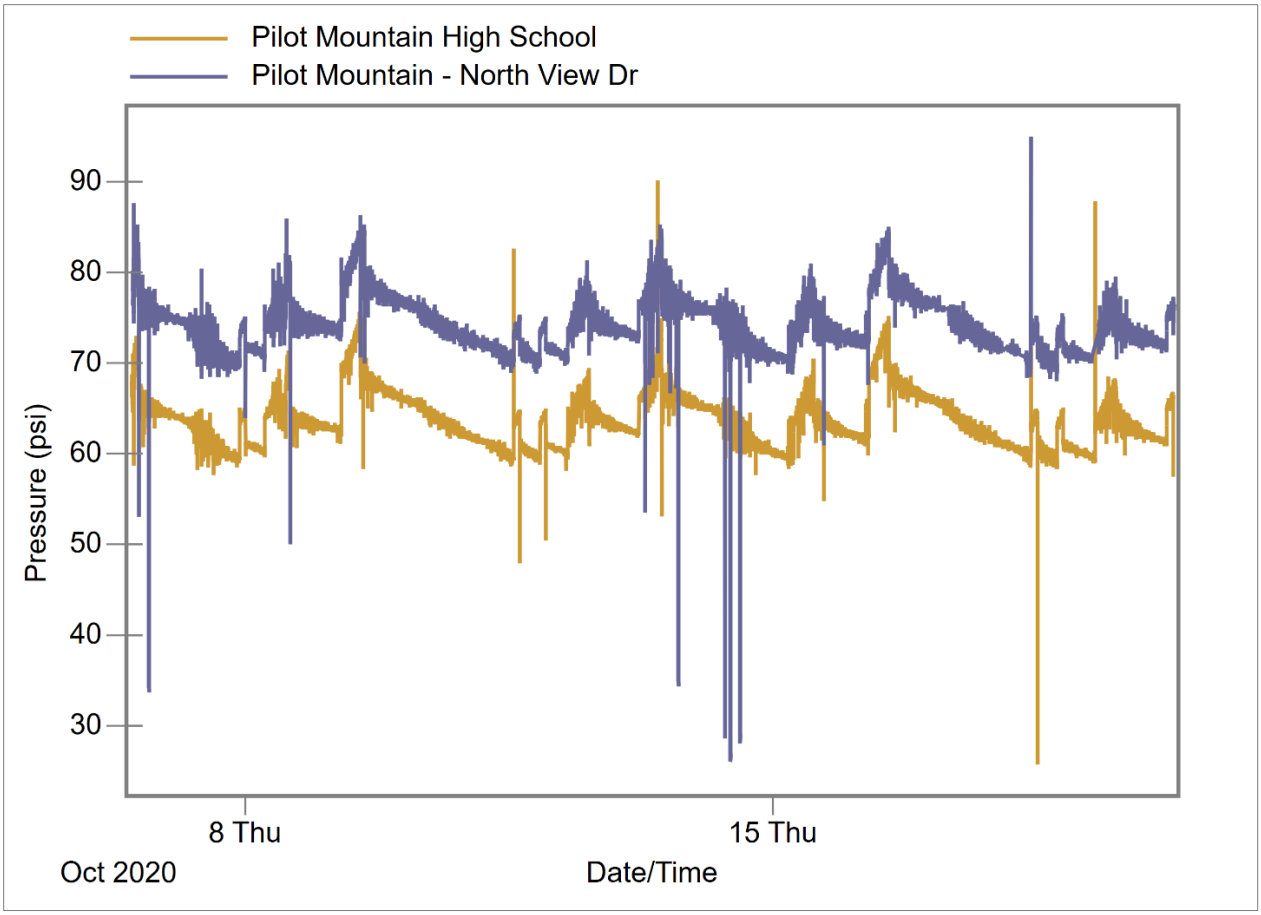

Figure 32. HPR data collected from Oct 7th to 20th.

11.1.1.3 System Water Demands

Section 10.3 outlined customer meter information and monthly/annual consumption totals. For model development and calibration, customer information should be obtained to correspond with the same period of collected field data (in this case HPR data). Through the Mi.Net interface, hourly consumption for all 1084 accounts was downloaded and imported into the model. User demands in the model have two setting options: 1) a "fixed" demand that withdraws water at a consistent rate, or 2) a pattern with multipliers to represent historic usage. Figure 33 shows an example of a residential customer's usage pattern over the model simulation period, which has clear diurnal patterns of higher water usage in mornings and evenings. Each customer's historic usage and pattern for the HPR collection period was assigned to each meter within the model.

Figure 34 shows how the WWTP's water usage appears in the model during this collection period. Typically, the WWTP is operated continuously, but after seeing the gap in flows, the Town confirmed the WWTP was off-line one day for water line work.

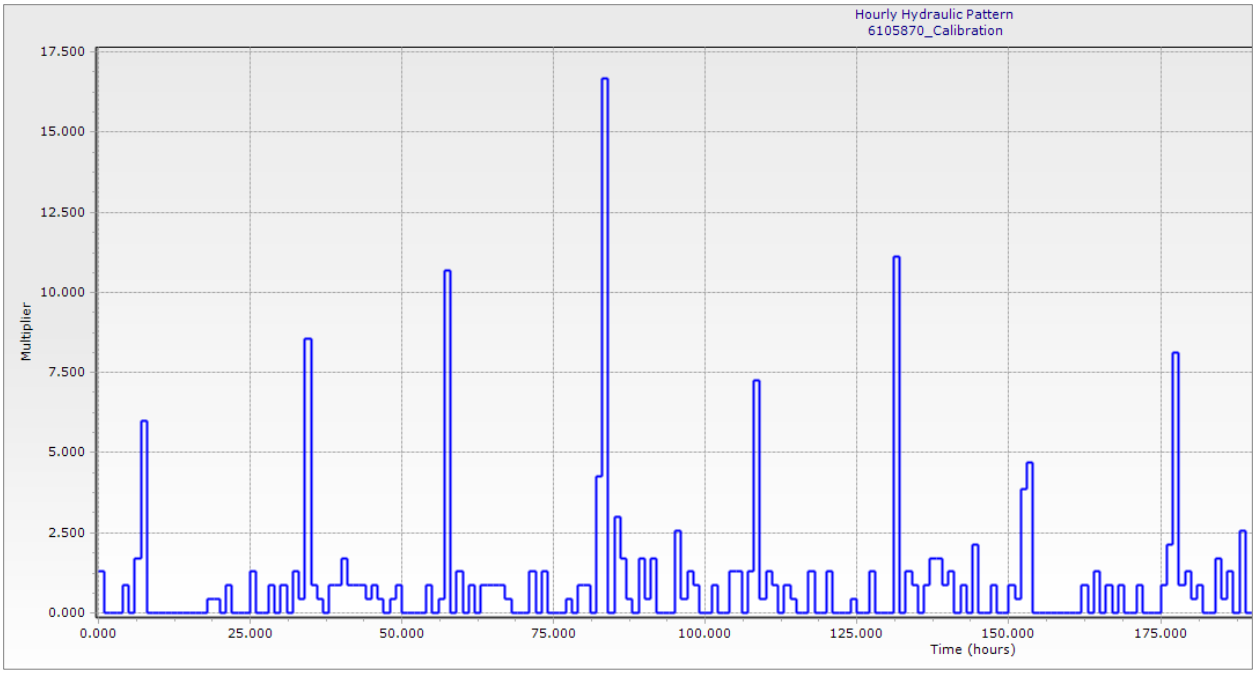

Figure 33. Example residential customer demand multiplier

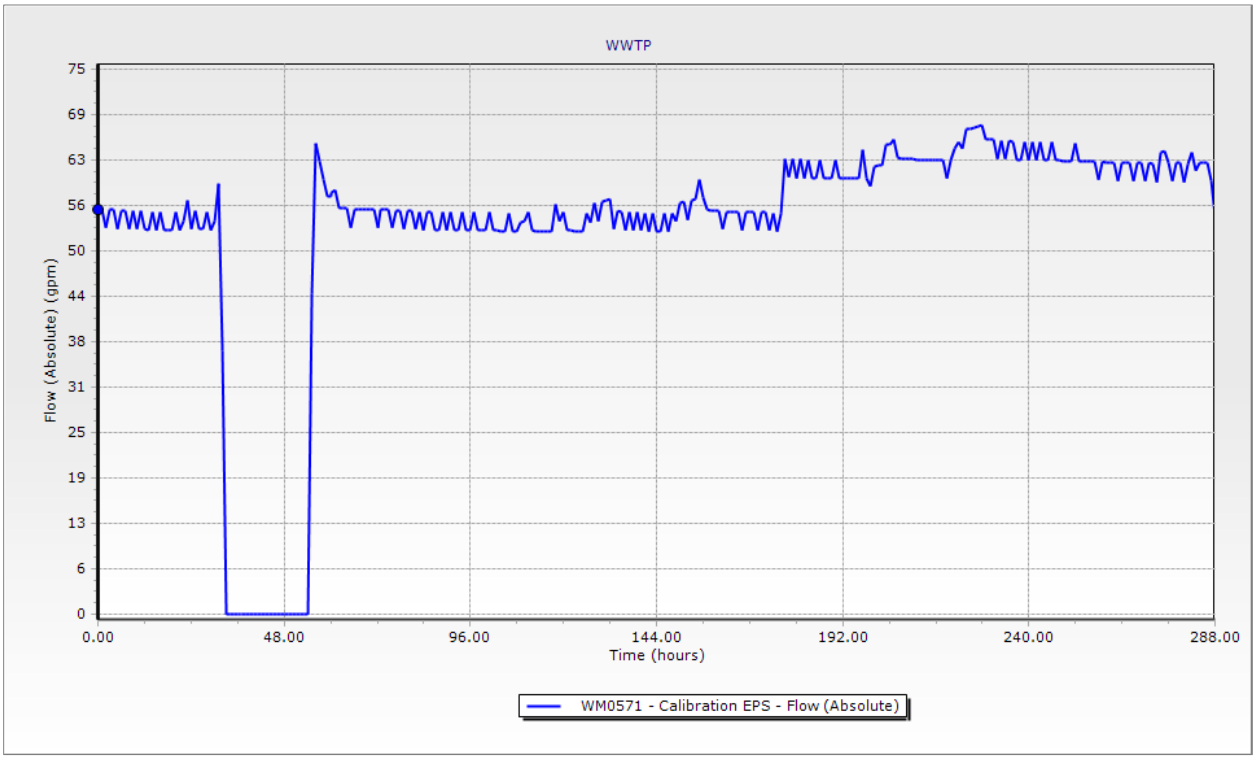

Figure 34. Modeled water usage for the Town WWTP

After customer data is accounted for in the model, remaining system demands consist of NRW as the Town does not have wholesale water customers. The Town provided daily water

production values measured at the WTP meter for this period and when compared to metered consumption, NRW is approximately 58%. This is considerably higher than annual NRW calculated in Section 10.3 and is discussed further in the next section.

11.2 Model Calibration

Model calibration is an iterative process where model inputs and parameters are adjusted to find agreement with field measurements. With a reasonably-calibrated hydraulic model, pressures, flows, and tank levels can be predicted for a range of scenarios. The simplest calibration is a steady-state (SS) calibration, which is a simulation for a given moment in time. SS models rely on specific demand definitions such as Average Day Demand (ADD), Maximum Day Demand (MDD), or Peak Hour (PH). The NCAC defines MDD as average of the two highest days of record, but both ADD and MDD values vary depending on availability of historic data. Extended Period Simulation (EPS) is a series of SS simulations connected to estimate system behavior over time, which requires defining rules for pump operations and tank response. With a model simulation over a sufficient period, an EPS model also contains multiple demand conditions.

A model calibration is subject to inherent uncertainties of a distribution system. Without extensive and complete field testing of all system components, such as hydrant flow tests at all hydrants or comprehensive valve tests, condition and/or performance of all components may not be completely accurate on a localized scale. However, with both AMI and HPR data, the sources of uncertainty for model parameters are significantly reduced. Parameters that were adjusted were pipe roughness (C-factor), pipe open/close status (to represent closed valves), and NRW.

Though NRW was calculated from production data, the accuracy of the WTP meter is suspect. Adding NRW as a demand through the system at the full 58% caused the two tanks to drain within days and caused system pressures to plummet to unrealistic values. However, adjusting the NRW to too low of a percent causes the tanks to not drain enough to match the observed decline in HGL monitored by the HPRs. One possible explanation is a broken check valve at the pump station, and flow re-entering the clear well interfering with SCADA readings and causing drops in HGL. Additionally, the NRW was distributed evenly throughout the system assuming leakage through customer connections. If instead NRW was due to significant hydrant flushing during this period in October, detailed logs of flushing volume, duration, and location would have been needed for the calibration period. Lastly, there could exist several key locations of long-term leaks, which to model accurately would require calibrating emitter coefficients and pressure-dependent demands.

Ultimately, a balance of pressure dependent NRW distributed through the system resulted in a final calibration which drops the predicted HGL low enough compared to observed HGL without completely draining the two tanks. These results are shown in Figure 35 and Figure 36.

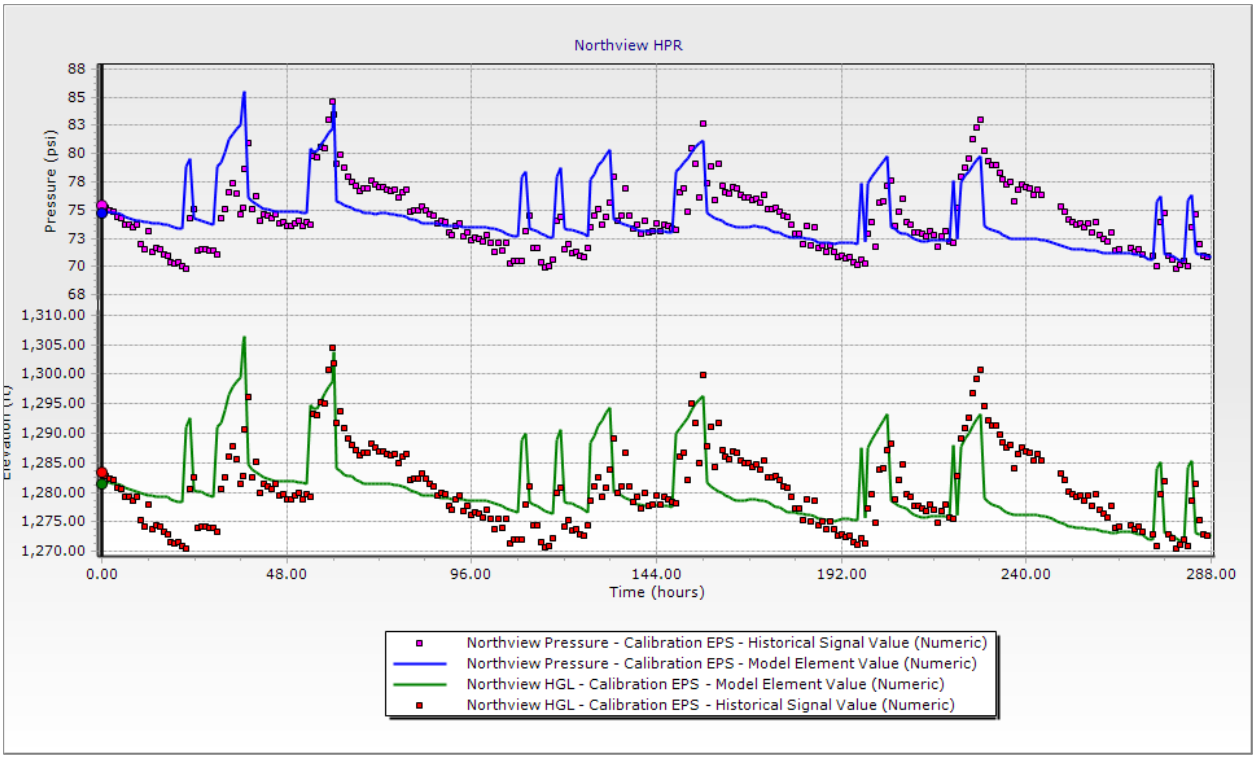

Figure 35. Model-predicted versus observed pressure and HGL at the Northview Dr HPR

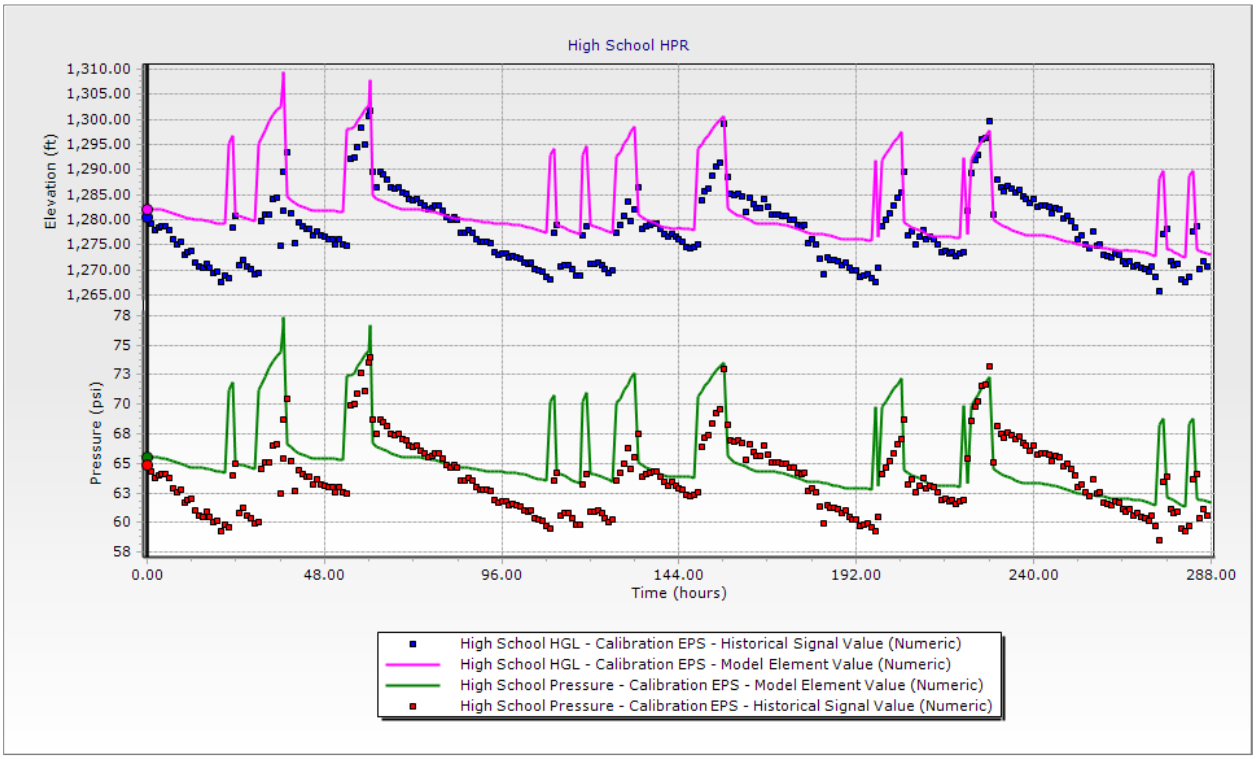

Figure 36. Model-predicted versus observed pressure and HGL at the High School HPR

11.3 Model-Predicted System Performance

System performance was compared against the standards listed in Table 7. Though tank storage is listed as a criterion, it is presented for discussion purposes only as the Town has ample storage (Table 9) in comparison to customer demands (Table 8).

11.3.1 System Minimum Pressure

In an EPS simulation, the model calculates pressure at every junction (valve, fitting, hydrant) for every time step of the simulation. Minimum pressures are a result of conditions leading to low system HGL, which will involve a combination of peak demands, pump settings, and tank levels. For this system, minimum system pressures occur when the pump has been off for some time and the tanks are at their lowest levels.

Figure 37 shows the model-predicted pressures at the minimum HGL. As storage tanks are typically built at the higher elevations of the system, it is not unusual to see lower pressures for these two parts of the system. Conversely, lower parts of the system will have higher predicted pressures unless model settings have been otherwise adjusted based on field data. As seen in Figure 35 and Figure 36, the model does not have the exact conditions of NRW defined such that the model can predict pressures low as observed by the HPRs. Figure 37 can offer insight into possible leak locations where pressures are 100+ psi. The low point along Key St specifically is an area worth further investigation. AMI data showed customer meters with reverse flow in this area, and the Town already has one DMA set up for a commercial complex here with known issues.

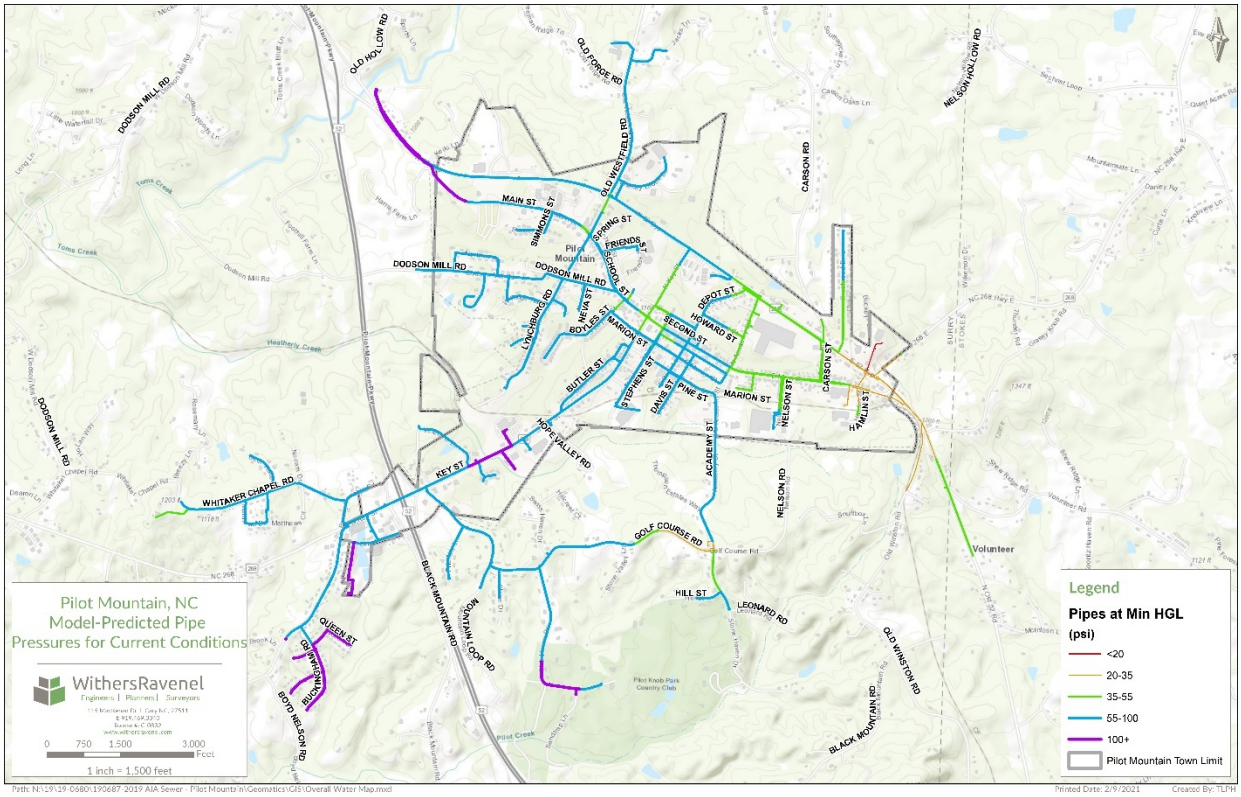

Figure 37. Model-predicted pipe pressures for current system conditions

11.3.2 Fire Flow Analysis

WaterGEMs contains a fire flow analysis tool which predicts available fire flow per hydrant subject to a specified minimum residual system pressure (20 psi per NCAC). The model will iteratively test a required fire flow demand on each individual hydrant and calculate system pressure response until an upper limit is reached or pressure drops below the defined minimum. Required fire flow demand per ISO standards will vary depending on customer type, building characteristics, and on-site fire protection. As most Town customers are residential, Table 7 and the model fire scenario focused on examining theoretically available residential fire flows.

Figure 38 displays the model-predicted available fire flows for the system and Figure 39 breaks down the percentage of hydrants in each flow category. Over half of the system hydrants are predicted as not able to meet at least 1,000 gpm of fire flow. These values are more than a function of available tank storage (which is not restrictive for this system), but also sensitive to transmission pipe diameter, pipe condition, and possible routes of flow. Though the model predicts generally high pressure for many parts of this system, residual pressures quickly plummet once a fire flow demand (>500 gpm) is tested. The south and west part of the system is particularly sensitive as Key St does not have a large diameter connection to downtown (Figure 18) and many parts of the system do not have looping for redundancy.

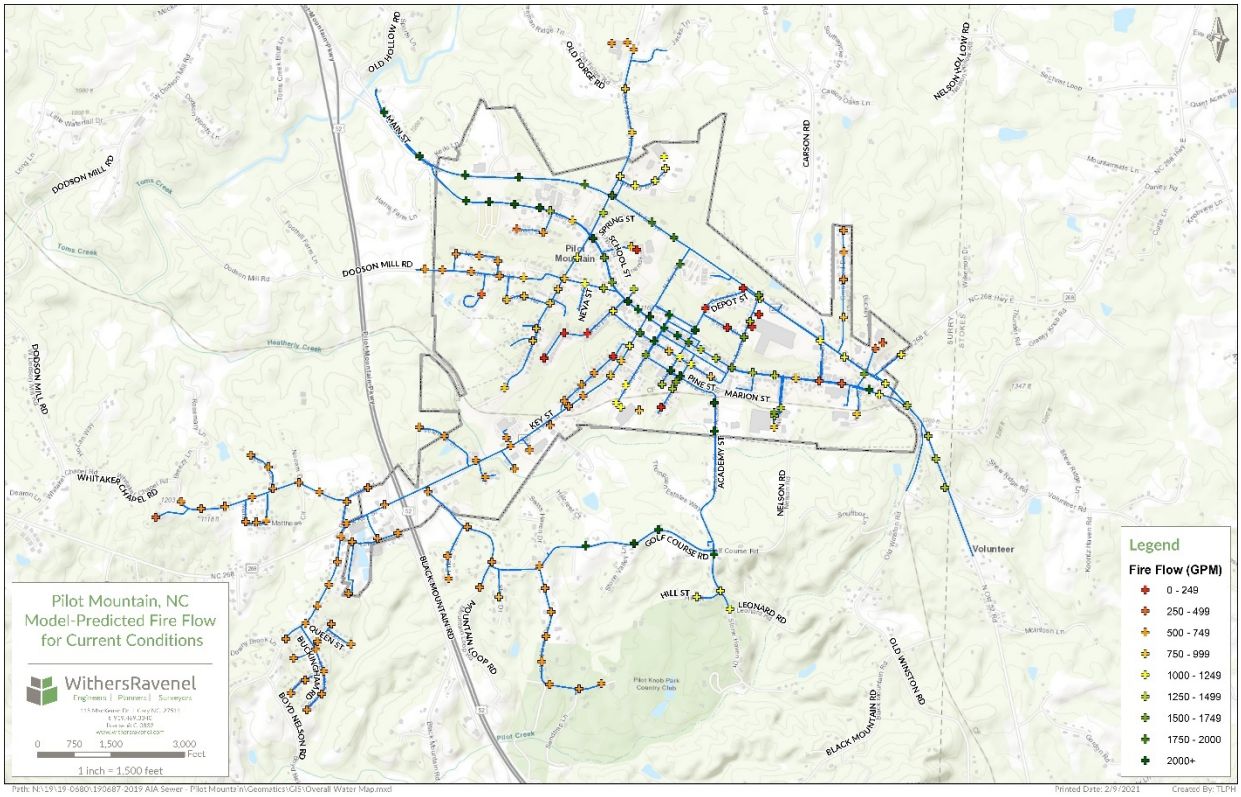

Figure 38. Model-predicted fire flow availability for current system conditions

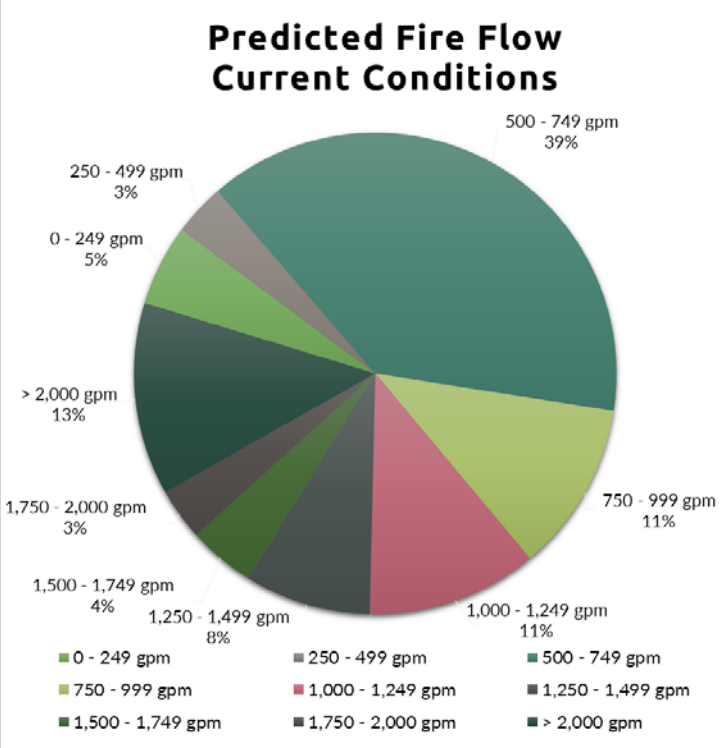

Figure 39. Distribution by category and percent of hydrants for predicted fire flow for current conditions

11.4 Model-Predicted Performance for Future Conditions

As stated in Section 10.1, the WTP will be decommissioned and the Town will be connected to the City of Mount Airy distribution system via PRV and about 3.5 miles of new 12-inch transmission main. This planned design is shown in Figure 40 and the calibrated hydraulic model was adapted to model this future scenario.

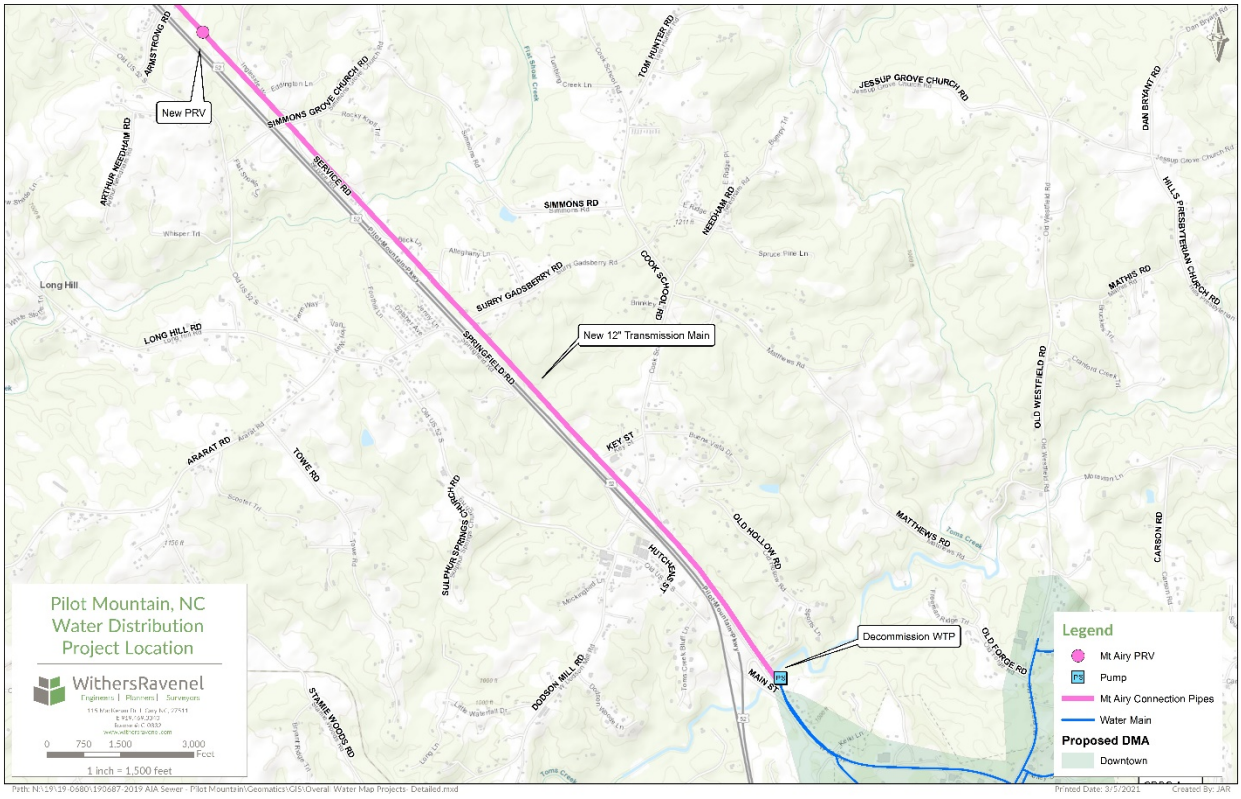

Figure 40. Planned design for new connection to City of Mt. Airy

11.4.1 Proposed Improvements

11.4.1.1 Tank Improvements

The pressure setting for the future PRV will depend on the state of the Pilot Center tank. Currently the tank does not have an altitude valve to control rate of inflow and historically will overflow. It is recommended to have an altitude valve installed to not only prevent wasting purchased water via overflows, but also to allow more flexible and efficient usage of the PRV.

It is also recommended to recalibrate the SCADA and level sensor for the Golf Course Rd tank. It will be important to set the PRV to open or close based on tank levels to enable cycling for water quality purposes. Additionally, the Golf Course Rd tank as-builts were not detailed enough to confirm characteristics of drain and fill lines, but it is assumed water is Last In, First Out (LIFO). Therefore, it is recommended to install a tank mixer to reduce water stratification and improve water quality.

11.4.1.2 Pipe Improvements

The future conditions model also incorporated pipe improvements, which included:

- All hydrant laterals improved to at least 6-inch diameter.
- System mains have been repaired, cleaned, or replaced to C-factor of 120.
- Strategic upsizing of existing mains

- One section of pipe extension

Figure 41 displays recommended main upsizing and extension projects around the Pilot Center Tank. As what will be discussed in Section 12.2, this area has model-predicted low pressures and old cast iron pipe, which leads to a higher priority for replacement. Considering conclusions from fire flow results about looping and transmission main sizing, this offers an opportunity to connect the two tanks directly with a 12-inch main (currently flow between two tanks must travel through 8-inch or smaller at some point). Then with upsizing an existing 6-inch on Burlington Lane, another major transmission loop will be improved with the connection to the existing 12-inch on East 52 Bypass. With improved looping and distribution pathways, the purchased water through the PRV will be used more efficiently in the system.

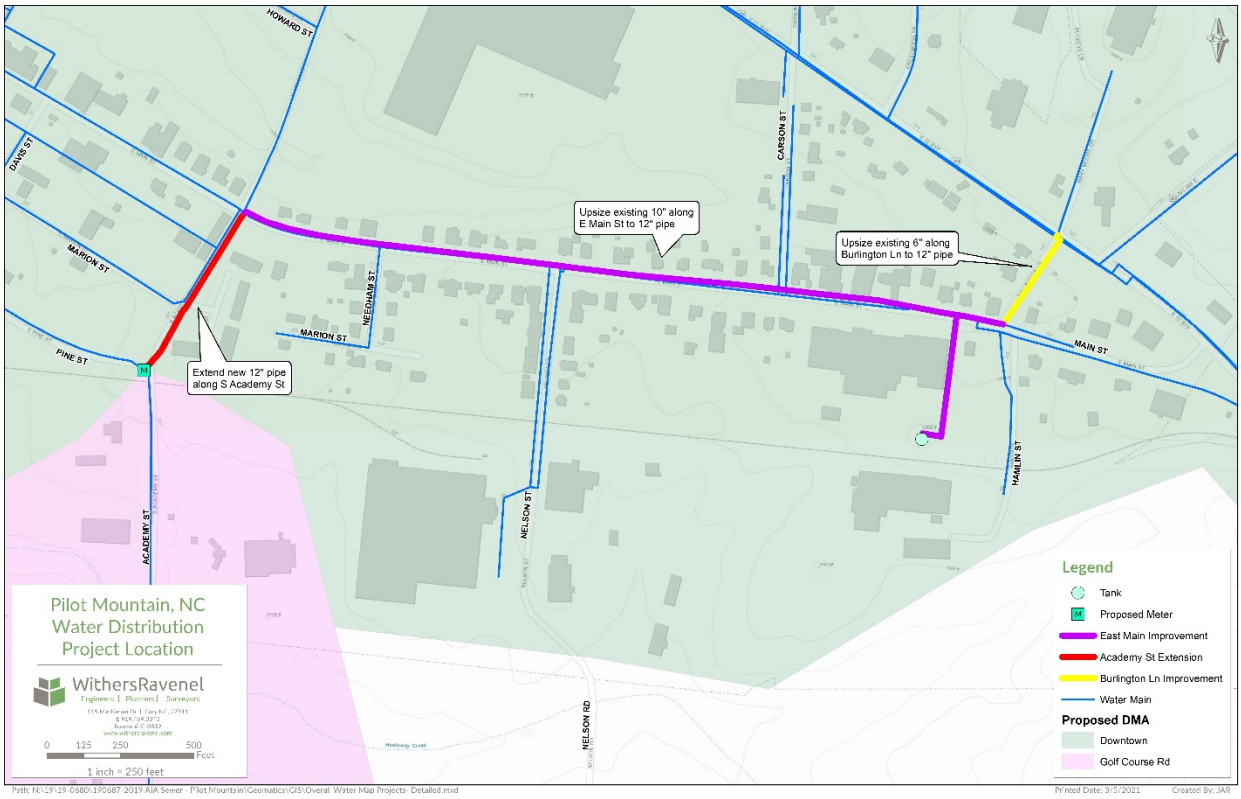

Figure 41. Proposed pipe improvement projects near Pilot Center tank

11.4.1.3 PRV Operational Settings

The exact HGL at which the Pilot Center tank will overflow is not known but is assumed as 1295 ft based on other field-verified elevations (Table 9). Therefore, there are two possibilities for PRV settings:

1) No altitude valve for Pilot Center tank: PRV setting << Tank HGL
2) Install altitude valve: PRV setting >> Tank HGL

Correspondence with the City of Mount Airy established a predicted available pressure of 150 psi at the proposed connection point, therefore with a new altitude valve, there is flexibility for potential PRV settings.

Figure 42 shows an example of flow through the PRV and respective tank levels. This is for a hypothetical PRV setting of 1350 ft HGL (or 93 psi) and the PRV closing shortly after the Pilot Center tank fills completely. This mimics current WTP operations where pump status follows tank levels.

This is a generalized representative setting; real-world operations should enable full tank turnover every 3-7 days per Environmental Protection Agency (EPA) recommendations (EPA, 2002).

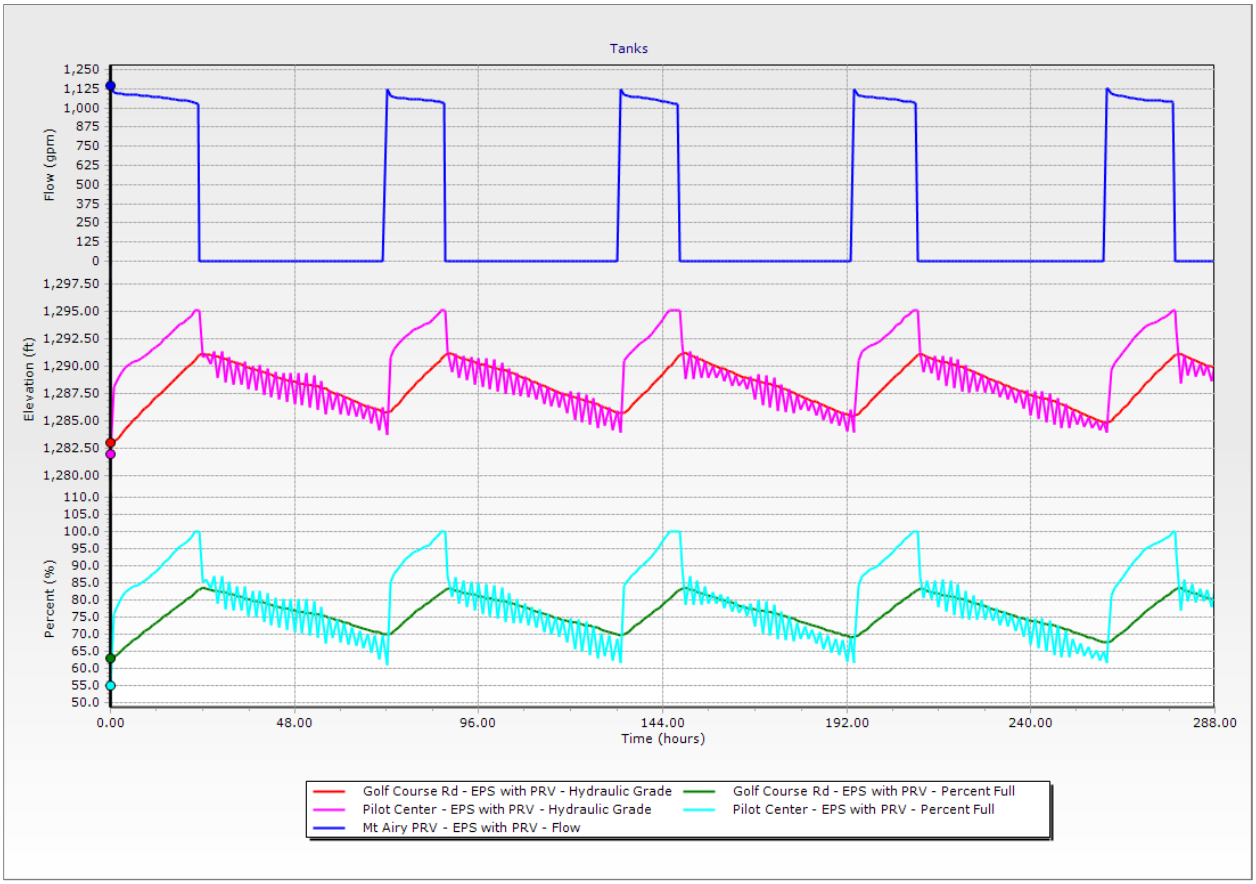

Figure 42. Predicted flow through PRV and tank levels for future system conditions

11.4.2 Future System Minimum Pressure

Figure 43 shows an updated version of Figure 37 with the recommended improvements and future conditions described in the previous subsection. Overall, more sections of the system have either higher or completely optimal (55+ psi) pressures. When a more formal investigation into NRW has been completed, the model can be further refined to predict system behavior more accurately in the low elevation areas.

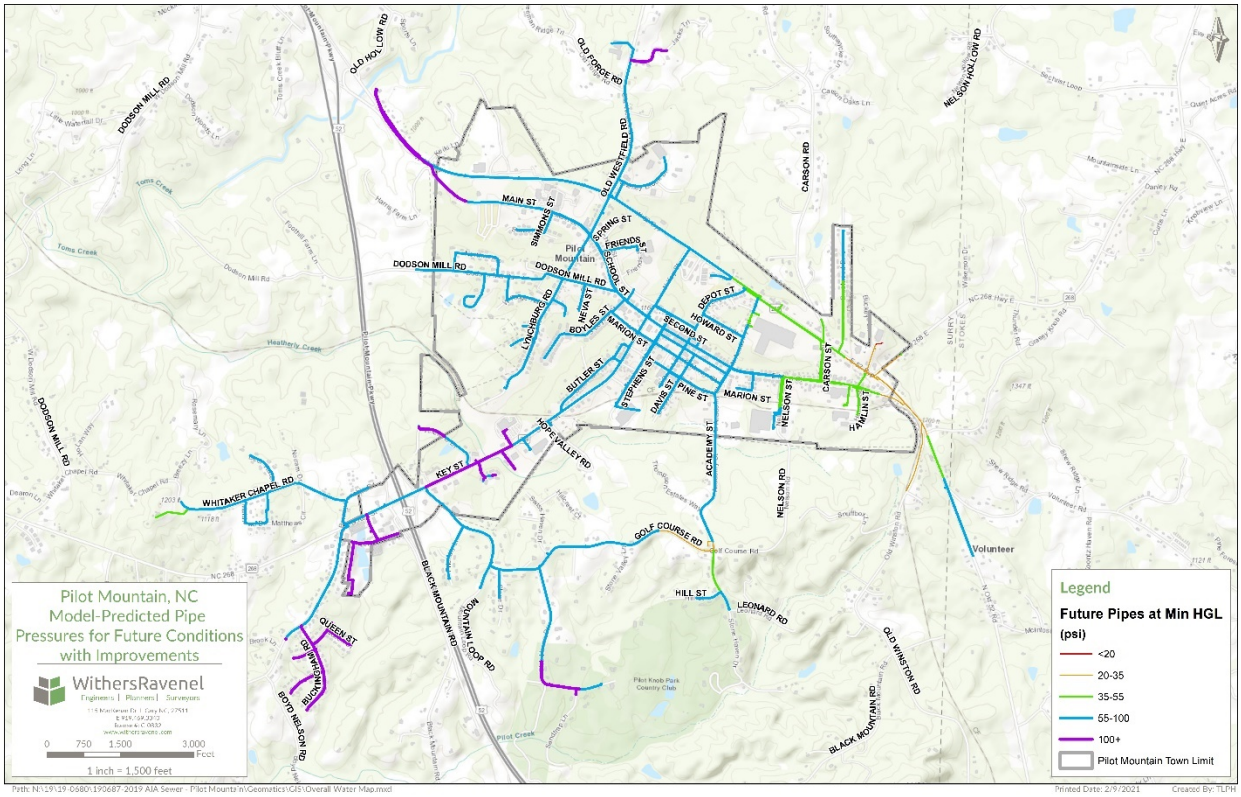

Figure 43. Model-predicted pipe pressures for future system conditions with improvements

11.4.3 Future System Fire Flow

Figure 44 and Figure 45 likewise show updated versions of Figure 38 and Figure 39. The increased transmission main capacity and looping dramatically improves predicted flow availability, especially in the south and western part of the system. Percent of hydrants unable to meet at least 1,000 gpm of fire flow decreases from over 50% to less than 10%.

One small section of note is Howard St near Depot St. It is difficult to tell in the figures, but this small main is not looped and is two dead ends (4-inch on one side, 2-inch the other), hence difficulty with providing and improving fire flow. These streets are potentially Community Development Block Grant (CDBG) eligible, but requires checking with grant requirements to see if pipe alignment or diameter can change with replacement.

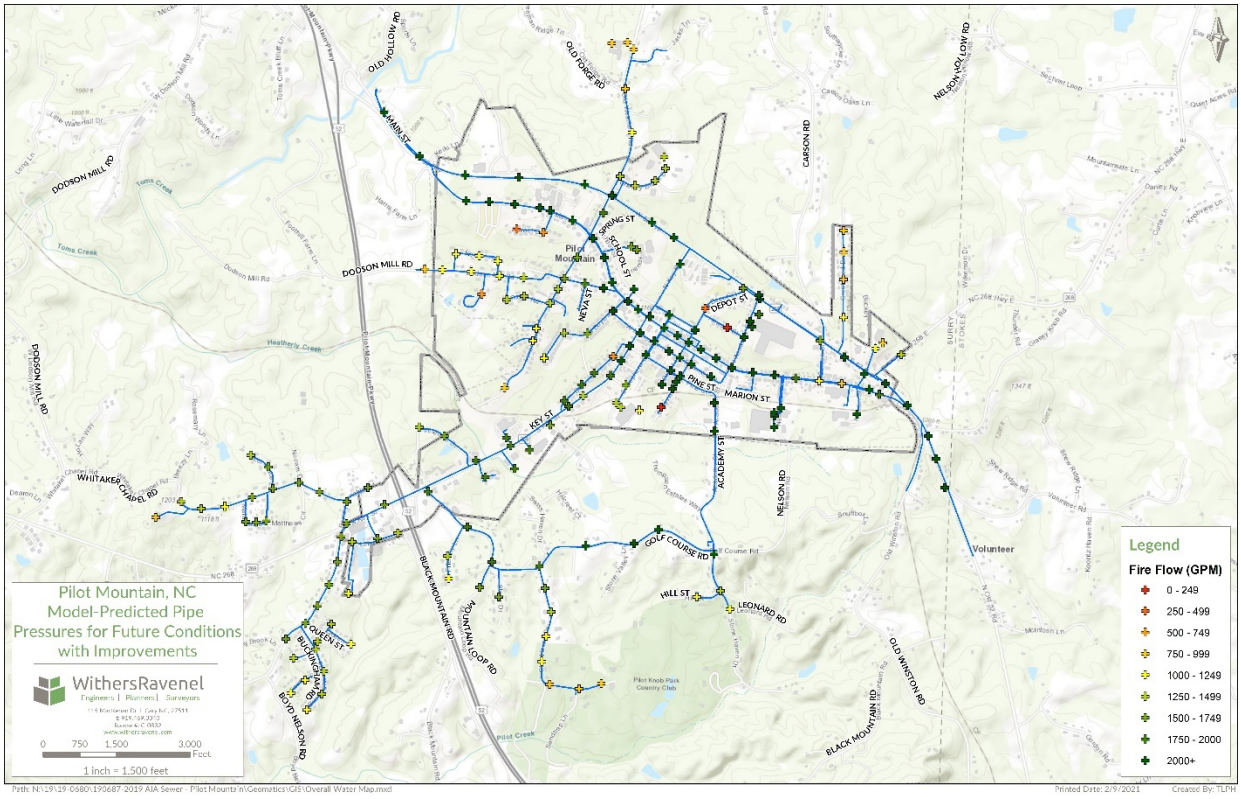

Figure 44. Model-predicted fire flow availability for future system conditions with improvements

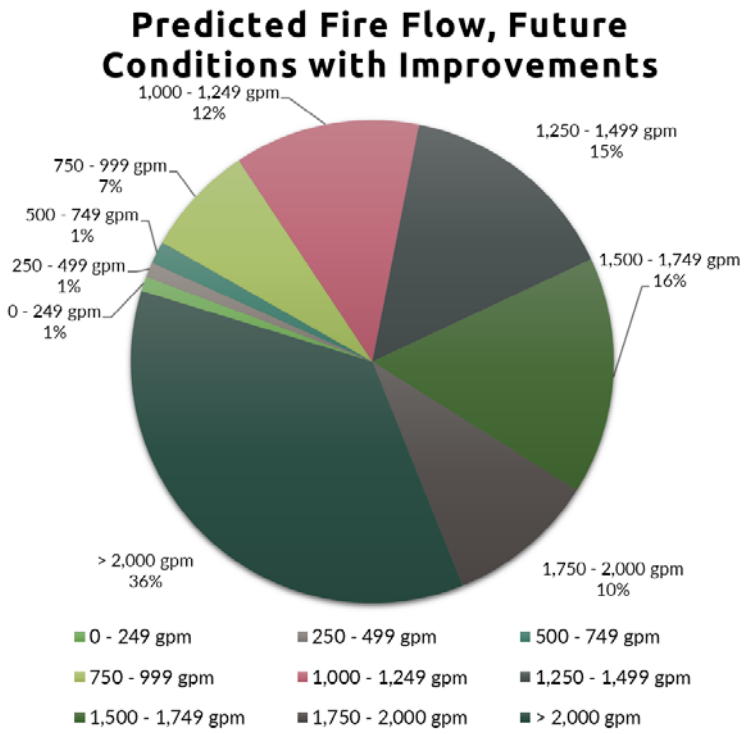

Figure 45. Distribution by category and percent of hydrants for predicted fire flow for future conditions

12 Water Asset Condition Assessment, Ranking, and Prioritization

Each of the water main lines, fire hydrants, and water valves inventoried were prioritized for improvement/ replacement. Based on the asset KPIs stored in GIS, each asset was assigned LoF and CoF scores which were utilized to calculate the Risk Score for each asset. Lower risk scores indicate less risk, while higher scores indicate greater risk. Therefore, the risk score indicates the relative priority for the repair/replacement of the asset. Approximate costs were determined to replace water mains, for the next 50 years. The projected costs are not adjusted for future costs and are instead displayed as current dollar amounts for consistency.

12.1 Priority Ranking Methodology

Two KPIs were utilized to determine the LoFs of the water main pipes in the distribution system. These KPIs are weighted based on their impact on LoF as described below and listed in Table 10.

- Age – Age is a typical indicator for LoF, as continued use and degradation over time leads to a higher likelihood of problems in older assets.
- Material – Materials that are known to be more likely to fail, such as vitrified clay pipe which is susceptible to cracking, are given higher scores.

Table 10. Water likelihood of failure (LoF) scores

LoF KPI Factors	
Pipe Age (Years)	**LoF Score**
> 60	5
30 - 60	3.5
Unknown	2.5
Material	**LoF Score**
CIP	5
ACP	3
GALV	2.5
Unknown	2.5

In addition, the CoF for the water main lines were calculated from three separate KPIs which are weighted based on the impact of the asset's failure. These KPIs are described below and allocated scores are listed in Table 11.

- Fire Flow Availability – Model-predicted available fire flow
- C-Factor – Generalized pipe condition based on hydraulic model calibration
- Pipe Pressure – Model-predicted pipe pressures during lower HGL conditions (pumps off, tanks near operational low)

Table 11. Water consequence of failure (CoF) scores

CoF KPI Factors	
Fire Flow Availability (gpm)	**CoF Score**
0 - 250	4
250 - 500	3
500 - 750	2
750 - 1000	1
C-Factor	**CoF Score**
< 80	2
80 - 120	1.5
Pressure (psi)	**CoF Score**
< 20	4
20 - 35	3
35 - 55	2

After the LoF and CoF scores were assigned to the water main pipes, the scores were multiplied together to determine the overall risk score for each asset. The risk scores can range up to 100, with a lower score meaning the asset is a lower risk (and therefore a lower priority for repair/replacement) and a higher score indicating the asset is a higher risk (and therefore a higher priority for repair/replacement). Figure 46 shows how LoF scores and CoF scores determine an asset's overall RoF score, and color codes the RoF scores to show their recommended year of replacement. The following formulas determine an asset's RoF:

$$Total\ LoF\ Score = (LoF\ Score, Pipe\ Age) + (LoF\ Score, Material)$$

$$\begin{aligned} &Total\ CoF\ Score \\ &\quad = (CoF\ score, Fire\ Flow\ Availability) + (CoF\ score, C\ Factor) \\ &\quad + (CoF\ score, Pressure) \end{aligned}$$

$$RoF\ Score = Total\ LoF\ Score * Total\ CoF\ Score$$

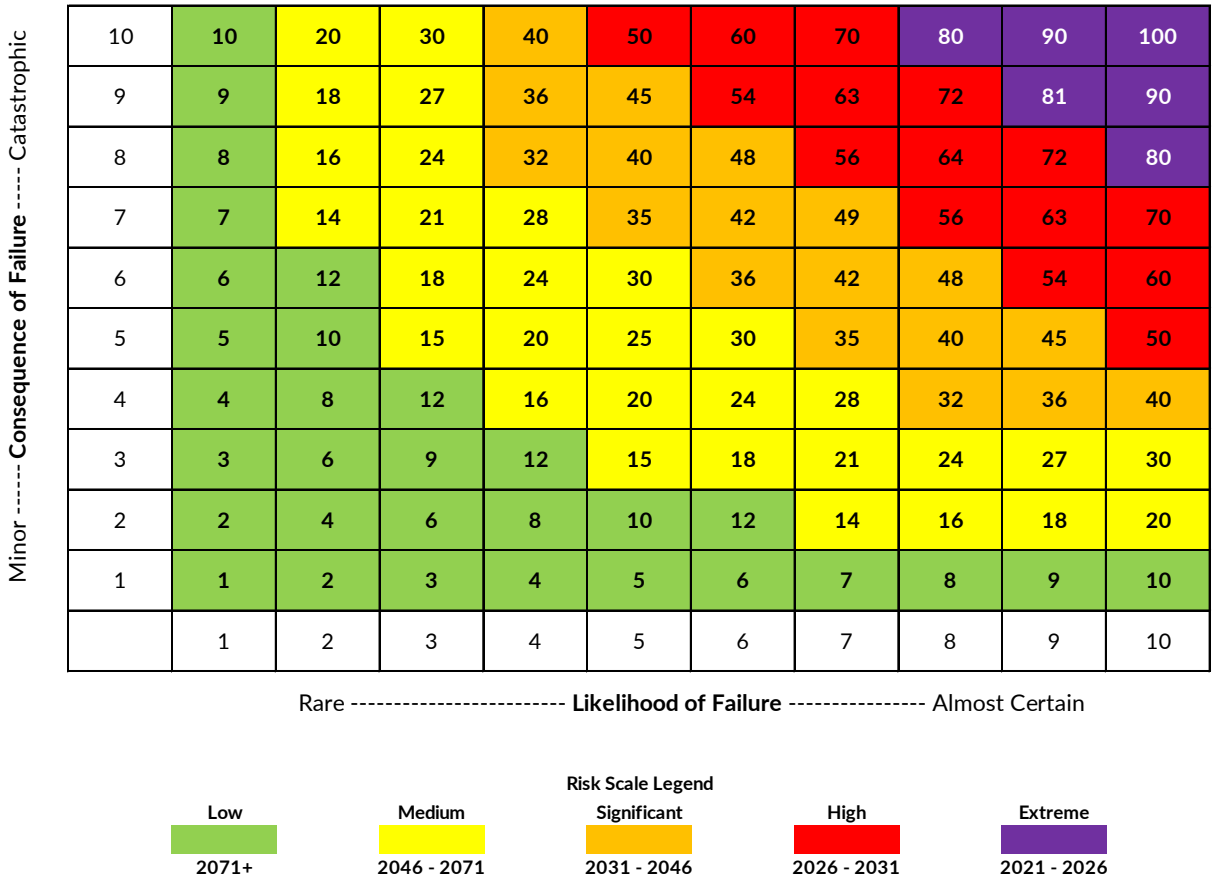

Figure 46. Typical risk matrix scoring codes

Figure 46 shows the typical risk matrix indicating possible risk scores and priority rankings for the water assets. Categories from "Low" to "Extreme" are based on an assumed time to failure. For example, the "Extreme" category is defined as anything scoring 80 or above and is assumed to require replacement by FY 2026.

12.2 Asset Prioritization Results

Using the ranking methodology described in Section 12.1, each of the water main pipes was assigned a risk score. As seen in Figure 47 below, 501 LF of water main were placed in the "Extreme" category, 5,742 LF were placed in the "High Risk" category, and 19,939 LF were placed in the "Significant Risk" category. The numbers in the matrix represent linear footage of pipe that received each risk score. The numbers in the legend represent the year range in which repair/replacement should be scheduled.

Minor ----- **Consequence of Failure** ----- Catastrophic

10	-	-	-	450	-	-	-	-	-	-
9	-	-	-	645	586	-	-	404	-	-
8	-	-	-	-	859	-	-	1,311	-	501
7	-	-	-	-	736	-	-	493	-	2,478
6	-	-	-	1,877	3,579	-	-	910	-	64
5	3,121	-	1,118	2	523	-	1,677	3,075	-	991
4	2,514	-	1,628	1,352	6,455	-	2,376	5,770	-	5,230
3	-	-	-	2,812	4,119	-	-	720	-	172
2	17,633	-	-	20,851	7,397	-	11,980	6,307	-	778
1	1,591	-	-	19,231	5,232	-	-	1,803	-	-
	1	2	3	4	5	6	7	8	9	10

Rare ---------- **Likelihood of Failure** ---------- Almost Certain

Risk Scale Legend

Low	Medium	Significant	High	Extreme
2070+	2046 - 2070	2031 - 2046	2026 - 2031	2021 - 2026

Figure 47. Risk matrix for the water main pipes by linear foot

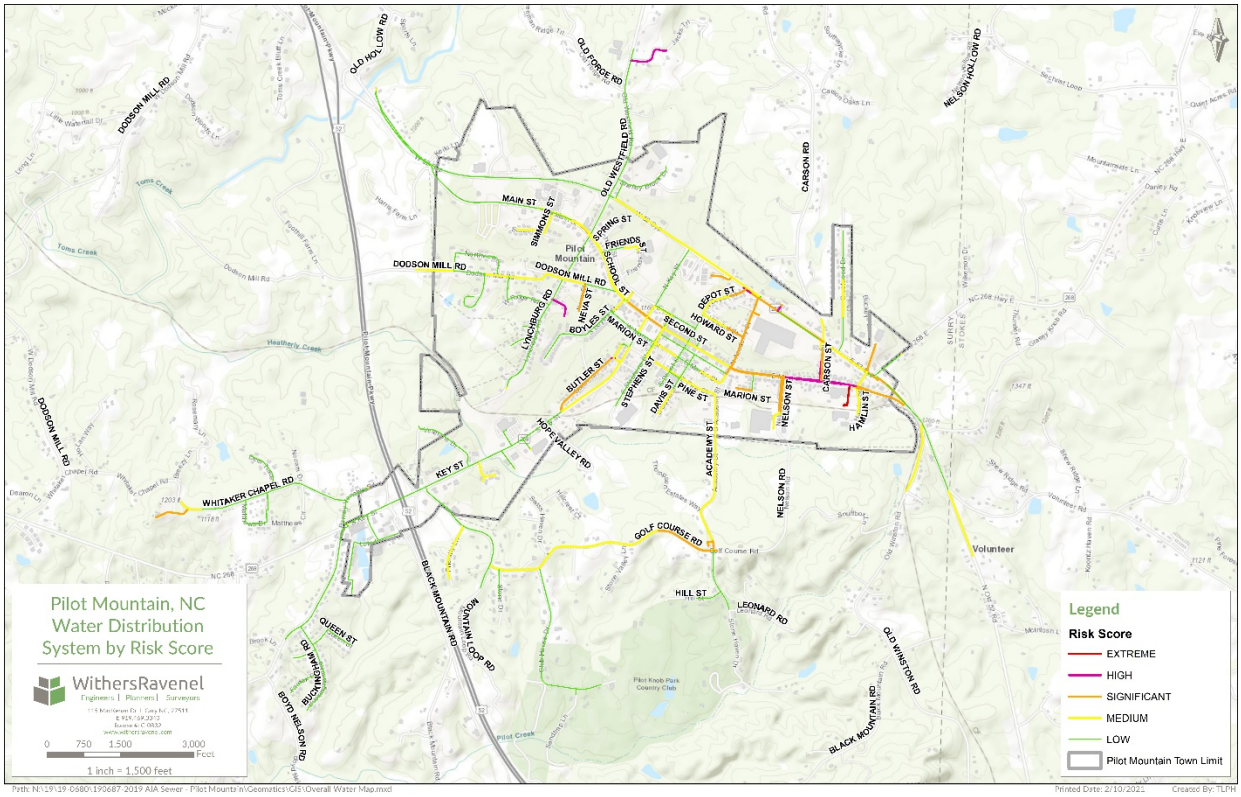

Figure 48. Water system by risk score

13 Water System Capital Improvement Plan

13.1 Water System Improvements

With adequate data loaded into the GIS along with KPIs and their assigned scores, it is possible to automate a broad, generalized snapshot of prioritized replacement costs based on the results of the risk matrix.

Next, based on an evaluation of many construction bids across North Carolina, the average cost, for combined water main, valve, and hydrant replacement or rehabilitation is calculated. These values include soft costs, such as engineering, permitting, and inspection.

The overall average cost for combined water main, valve, and hydrant replacement is $253/LF and the overall average water rehabilitation cost is approximately $142/LF.

Without extensive assessments and evaluation of the water system, it is not possible to differentiate the assets that are candidates for replacement vs. trenchless rehabilitation. However, it is expected that a high percentage will qualify for less expensive and non-intrusive trenchless rehabilitation. For the purpose of this AMP, it is assumed that 85% of the system will qualify for the less expensive rehabilitation option and 15% of the system will require the more expensive replacement option.

Table 6 below details the total cost of replacement/rehabilitation based on an 85% rehabilitation weighted estimate. Based on the weighted estimates, it would cost about $24M (today's dollars) to replace/rehabilitate the entire service area.

Table 12. Total water main replacement or rehabilitation cost by risk category

Risk Score	Percent	Linear Foot	$253/LF	$142/LF	$198 Weighted/LF
LOW	55%	83,815	$21,205,070	$11,901,660	$16,595,273
MEDIUM	27%	41,358	$10,463,588	$5,872,844	$8,188,895
SIGNIFICANT	13%	19,939	$5,044,645	$2,831,382	$3,947,983
HIGH	4%	5,742	$1,452,672	$815,334	$1,136,874
EXTREME	0.33%	501	$126,632	$71,074	$99,104
TOTAL	**100%**	**151,354**	**$38.29 M**	**$21.49 M**	**$29.97 M**

13.2 Water System Improvement Projects

Based on input from the Town of Pilot Mountain Staff, and the Risk Matrix scoring, the following projects are recommended for inclusion in the CIP budget for the collection system over the next 5 years. The locations for these projects are shown in **Appendix I**.

1. **Install Additional Water Main Valves - $100,000**

   Add water valves throughout the system so that more sections can be shut off more easily.

2. **Replace Hydrant Assembly - $286,000**

   Strategically replace or repair the hydrants that are in poor condition and in need of replacement, add valves to all hydrant laterals that do not currently have a valve, and upgrade all hydrant laterals that are smaller than 6-inch diameter to comply with state standard.

3. **Install Altitude Valve on Pilot Center Tank - $58,000**

   Install an altitude valve and connect Pilot Center Water Storage Tank to SCADA so that water elevation can be monitored.

4. **Install Tank Mixing Equipment - $34,000**

   Install tank mixing equipment in the Golf Course Rd and Pilot Center Water Storage Tanks to decrease water age in the tanks.

5. **Risk Water Main Rehabilitation - $13,420,000**

   Strategically replace the water mains, upsizing when necessary to ensure all lines are at least 6-inch diameter, starting with galvanized iron, asbestos concrete, and cast iron pipes. Pipes have been prioritized based upon the criteria above and being replaced based upon the criticality score.

6. **Install Additional Water Mains – $584,000**

   Install additional water mains to simplify the path connecting the two elevated water storage tanks.

14 Distribution System Operation and Maintenance (O&M) Plan

Operation and Maintenance for the water distribution system focuses on upkeep of the water main pipes, valves, meters, and fire hydrants. Maintenance consists of "Emergency Maintenance," which is corrective action needed quickly to keep the system operational, and "Preventative Maintenance," which is routine, scheduled tasks to prevent problems before they arise. The items below represent routine maintenance items performed throughout the collection system.

14.1 Distribution System Maintenance

- Water meters
    - Conduct meter accuracy testing and flow meter maintenance.
        - Check for appropriate meter sizing and meter type for customer usage, along with checking installation, to reduce reporting errors.
    - Track Mi.Net notifications of errors, warnings, and negative flows. Note time and location of occurrences and compare to SCADA readings.
- Tanks
    - Recalibrate the Golf Course Rd tank level sensor such that the tank elevation, and therefore system HGL, can be determined.
    - Test conditions to determine at what system HGL the Pilot Center tank will overflow.
    - Fully drain and valve off the Second St tank.
    - Upgrade SCADA to allow for data storage of operational conditions.
    - Perform ongoing inspections to check and repair:
        - Pipes, jointing, fittings, and appurtenances.
        - Internal and external corrosion
        - Seasonally induced stress
- Hydrants
    - Track frequency, volume, and timing of flushing with portable meters and activity logging.
- Distribution mains
    - Incorporate information from new construction and rehabilitation projects, including line diameter, material, and scoring for other KPIs, into the collection system GIS within one year of construction completion.
    - All high priority lines (including aerials, sub-waterway crossings, lines contacting surface waters, lines positioned parallel to stream banks and subject to eroding in such a manner that may threaten the line, and any other segment of the system that is designated as high priority) must be inspected every six months. A log must document the area inspected, the date, method of inspection, and any corrective actions performed or initiated.

14.2 **Water Audit**

In preparation for the Mount Airy Interconnection, a water audit of the water distribution system will identify sources of water loss. The results in the above sections show the condition and performance of the system. These results are a good starting point to continue and perform a more in-depth water audit.

15 Total CIP Estimates

Table 13. List of proposed projects for the next 50 years

Project Name	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2070	2070+
Sewer Collection							
Extreme Risk Gravity Main Rehabilitation	$681,379						
High Risk Gravity Main Rehabilitation		$2,632,636					
Significant Risk Gravity Main Rehabilitation			$1,659,068	$1,659,068	$1,659,068		
Medium Risk Gravity Main Rehabilitation						$4,445,655	
Low Risk Gravity Main Rehabilitation							$4,103,664
Lift Station							
Offsite Pump Station (No. 18) and Aerial Crossing	$552,000						
Heatherly Creek Outfall and Pump Station					$2,970,000		
Upgrade Lola Lane Pump Station			$880,000				
TOTAL	**$1,233,379**	**$2,632,636**	**$2,539,068**	**$1,659,068**	**$4,629,068**	**$4,445,655**	**$4,103,664**

Project Name	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2070	2070+
Hydrants and Valves							
Install Additional Water Main Valves	$100,000						
Replace Hydrant Assembly	$142,960	$142,960					
Water Storage Tanks							
Install Altitude Valve on Pilot Center Tank	$58,000						
nstall Tank Mixing Equipment for Golf Course Rd Tar	$34,000						
Water Distribution							
Extreme Risk Water Main Rehabilitation	$28,030						
High Risk Water Main Rehabilitation		$922,457					
Significant Risk Main Rehabilitation			$1,305,920	$1,305,920	$1,305,920		
Medium Risk Water Main Rehabilitation						$8,188,895	
Low Risk Water Main Rehabilitation							$16,595,273
Install Additional Water Mains	$583,932						
TOTAL	**$946,922**	**$1,065,417**	**$1,305,920**	**$1,305,920**	**$1,305,920**	**$8,188,895**	**$16,595,273**

As seen in Table 13, the initial years of the CIP focus on essential projects that provide immediate impact in areas where water or sewer has aged beyond its useful life and are rated as a High Risk of Failure or in areas where staff have identified important shortcomings of the system.

16 References

Finished Water Storage Facilities. EPA Office of Water, Office of Ground Water and Drinking Water. August 15, 2002.

Insurance Services Office (2014). Guide for Determination of Needed Fire Flow, 6th Edition.

Minimum Design Criteria for the permitting of Gravity Sewers. Division of Water Quality. Updated to 15A NCAC 2T Regulations on March 2008.

Standard Population Estimates. Estimates of the Total Population of North Carolina, North Carolina Counties, and Municipalities within Counties for July 1, 2019. Office of State Budget and Management. https://files.nc.gov/ncosbm/demog/muniestbycounty_2019.html#top

APPENDIX I – GIS MAPS

Pilot Mountain, NC Wastewater System & Projects

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0 600 1,200 2,400 Feet
1 inch = 1,200 feet

Sunset Sewer Rehabilitation Project

Wastewater Treatment Plant Project

Sewer Project #1

Sewer Project #3

Sewer Project #4

Nelson Street Pump Station

Legend

- PS — Pump Station
- WTP — WWTP
- Ongoing Sewer Project
- Proposed Sewer Project
- Manhole
- Gravity Sewer
- Forcemain
- Road Centerline
- Pilot Mountain Town L

Pilot Mountain, NC Water System & Projects

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0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

- East Main Improvement
- Academy St Extension
- Burlington Ln Improvement
- Water Hydrant
- Water System Valve
- Water Hydrant Valve
- Cap
- Cross
- Reducer
- Tee
- Pump
- Tank
- Water Main

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Overall Water Map Projects.mxd
Printed Date: 2/17/2021 Created By: JAR

Pilot Mountain, NC Wastewater System Overall

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0 600 1,200 2,400 Feet

1 inch = 1,200 feet

Legend

- PS — Pump Station
- WTP — WWTP
- Manhole
- Gravity Sewer
- Forcemain
- Road Centerline
- Pilot Mountain Town

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Printed Date: 1/28/2021 Created By: JAR

Pilot Mountain, NC Wastewater System Pump Stations

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0 600 1,200 2,400 Feet
1 inch = 1,200 feet

STATION 20
STATION 6
STATION 7
STATION 4
STATION 5
STATION 8
STATION 10
STATION 3
STATION 2
STATION 9
STATION 11
STATION 1
STATION 19
STATION 18
STATION 15
STATION 14
STATION 13
STATION 12
STATION 16
STATION 17

DODSON MILL RD
OLD HOLLOW RD
OLD FORGE RD
OLD WESTFIELD RD
NELSON HOLLOW RD
CARSON RD
MAIN ST
SIMMONS ST
FRIEND ST
SCHOOL ST
DODSON MILL RD
NEVA ST
LYNCHBURG RD
BOYLES ST
SECOND ST
DEPOT ST
HOWARD ST
ACADEMY ST
MARION ST
STEPHENS ST
DODSON ST
BUTLER ST
DAVIS ST
PINE ST
MARION ST
NELSON ST
HAMLIN ST
CARSON ST
HOPE VALLEY RD
KEY ST
BARNEY VENABLE RD
BLACK MOUNTAIN RD
SHOALS RD
GOLF COURSE RD
HILL ST
OLD WINSTON RD
NELSON RD
ER CHAPEL RD

Pilot Mountain
Pilot Mountain Pkwy
Toms Creek
Heatherly Creek
W 52 Byp
E 52 Byp
E Main St
Dodson Mill Rd
Old Westfield Rd
Carson Rd
Carson Oaks Ln
Shelley Brook Dr
Harris Farm Ln
Foothill Farm Ln
Dodson Woods Ln
Toms Creek Bluff Ln
Freeman Ridge Trl
Jacks Trl
Southwycke Ln
Keiki Ln
Sunset
Northview Dr
W Ridge Rd
Lola Ln
Friendly Ln
Swiss Haven Dr
Hillcrest Ct
Stone Valley Ln
Thompson Estates Way
Golf Course Rd
Snuffbox Ln
Shew Ridge Rd
Rosemary Ln
Deer Trace
Norham Dr
Matthews Dr
Matthews Cir
Waterfall Dr
Mockingbird Ln
Sports Ln
Crestwood Dr
Wilkerson Dr
Thunder Rd
Grassy Creek
1000 ft
1160 ft
1200 ft
1347 ft

Legend

- PS — Pump Station
- WTP — Wastewater Treatment Plant
- Pilot Mountain Town L

97

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Pilot Mountain, NC Wastewater System By Diameter

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0 600 1,200 2,400 Feet

1 inch = 1,200 feet

Legend

Pipe Diameter (Inches)

- 4" to 6"
- 8"
- > 8"
- Forcemain
- Pilot Mountain Town

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Overall Sewer Map by Diameter.mxd
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Pilot Mountain, NC Wastewater System By Age

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0 600 1,200 2,400 Feet

1 inch = 1,200 feet

Legend

Pipe Age

- < 40 Years
- 40 - 60 Years
- 60 - 70 Years
- > 70 Years
- Forcemain
- Pilot Mountain Town

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Pilot Mountain, NC Wastewater System By Material

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0 600 1,200 2,400 Feet

1 inch = 1,200 feet

Legend

Pipe Material

- Cast Iron (CI)
- Ductile Iron Pipe (DIP)
- Polyvinyl Chloride (PVC)
- Reinforced Plastic Mortar (TRUSS)
- Vitrified Clay Pipe (VCP)
- Forcemain
- Pilot Mountain Town Limits

100

Pilot Mountain, NC Wastewater System Manholes

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0 600 1,200 2,400 Feet

1 inch = 1,200 feet

Legend

- Manhole
- Pilot Mountain Town

Path: K:\15\15-0070\150074-Chatham Park GIS\GIS\Townsend Tract\Sewer Map Manhole.mxd
Printed Date: 3/4/2021 Created By: JAR

Pilot Mountain, NC Wastewater System By Risk Score

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www.withersravenel.com

0 600 1,200 2,400 Feet

1 inch = 1,200 feet

Legend

Risk Score

- Extreme
- High
- Medium
- Significant
- Low
- EXTREME
- HIGH
- SIGNIFICANT
- MEDIUM
- LOW
- Forcemain
- Pilot Mountain Town

Pilot Mountain, NC
Water Distribution System Overall

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr | Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

- Water Hydrant
- Pump (PS)
- Tank
- Water Main
- Lateral

103

Pilot Mountain, NC
Water Distribution System Overall
Downtown NW

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr I Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 250 500 1,000 Feet

1 inch = 500 feet

Legend

- Water Hydrant
- Water System Valve
- Water Hydrant Valve
- Cap
- Cross
- Tee
- Pump
- Tank
- Water Main
- Lateral

104

Pilot Mountain, NC
Water Distribution System Overall
Downtown SE

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr I Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 250 500 1,000 Feet

1 inch = 500 feet

Legend

- Water Hydrant
- Water System Valve
- Water Hydrant Valve
- Cap
- Cross
- Reducer
- Tee
- Pump
- Tank
- Water Main
- Lateral

105

Pilot Mountain, NC Water Distribution System Overall Downtown

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr | Cary NC, 27511
t: 919.469.3340
license #: C-0832
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0 250 500 1,000 Feet

1 inch = 500 feet

Legend

- Water Hydrant
- Water System Valve
- Water Hydrant Valve
- Cap
- Cross
- Reducer
- Tee
- Pump
- Tank
- Water Main
- Lateral

Pilot Mountain, NC
Water Distribution System Overall
Golf Course Rd

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr I Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 250 500 1,000 Feet

1 inch = 500 feet

HOPE VALLEY RD
KEY ST
GOLF COURSE RD
ACADEMY ST
MOUNTAIN LOOP RD
BLACK MOUNTAIN RD
FRIENDLY CHAPEL CHURCH RD
HILL ST
LEONARD RD
Golf Course Rd
Heatherly Creek
Pilot Knob Park Country Club

Legend

- Water Hydrant
- Water System Valve
- Water Hydrant Valve
- Cap
- Pump (PS)
- Tank
- Water Main
- Lateral

107

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Overall Water Map.mxd

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Pilot Mountain, NC
Water Distribution System Overall
Pilot Mtn Pkwy and West Key St

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr I Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 250 500 1,000 Feet

1 inch = 500 feet

WHITAKER CHAPEL RD
BARNEY VENABLE RD
KEY ST
GOLF COURSE RD
SHOALS RD
KINGSTON ST
QUEEN ST
BOYD NELSON RD
BUCKINGHAM RD
BLACK MOUNTAIN RD
MOUNTAIN LOOP RD
FRIENDLY CHAPEL CHURCH RD
Matthews Cir
NC 268
US-52 S
Pilot Mountain Pkwy

Legend

- Water Hydrant
- Water System Valve
- Water Hydrant Valve
- Cap
- Reducer
- Tee
- Pump (PS)
- Tank
- Water Main
- Lateral

108

Pilot Mountain, NC
Water Distribution System By Diameter

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr I Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

Pipe Diameter

- 1" - 4"
- 6"
- 8"
- 10"
- 12"
- Pilot Mountain Tow[illegible]t

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Water System by Diameter.mxd
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Pilot Mountain, NC Water Distribution System By Age

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr I Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

Pipe Age

- Unknown
- < 30 Years
- 30 - 60 Years
- > 60 Years
- Pilot Mountain Town Limit

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Water System by Age.mxd

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Pilot Mountain, NC Water Distribution System by Material

WithersRavenel
Engineers | Planners | Surveyors
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t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

Pipe Material

- Unknown
- PVC
- Ductile Iron
- Cast Iron
- Asbestos Concrete
- Galvanized
- Pilot Mountain Town Limit

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Overall Water Map.mxd

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Pilot Mountain, NC
Water Valves

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr I Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

- Water Hydrant Valve
- Water System Valve
- Water Main

112

Pilot Mountain, NC
Water Distribution System
Fire Hydrant Condition

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr | Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

Hydrant Condition

- Good
- Fair
- Poor
- Needs Repair
- Unknown

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Overall Water Map.mxd

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Pilot Mountain, NC
Water Distribution System
Low Diameter
Hydrant Laterals

WithersRavenel
Engineers | Planners | Surveyors
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license #: C-0832
www.withersravenel.com

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

Hydrant Laterals

Diameter

- 1"
- 2"
- 4"

114

Pilot Mountain, NC
Hydrant Pressure Recorders

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr I Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 150 300 600 Feet

1 inch = 300 feet

Legend

- Hydrant Pressure Recorder (HPR)
- Water Hydrant
- Water Main
- Lateral

115

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Water Map - HPR.mxd

Printed Date: 3/5/2021 Created By: JAR

Pilot Mountain, NC
Model-Predicted Pipe Pressures for Current Conditions

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr | Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

Pipes at Min HGL (psi)

- <20
- 20-35
- 35-55
- 55-100
- 100+
- Pilot Mountain Town

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Overall Water Map.mxd

Printed Date: 2/10/2021 Created By: TLPH

Pilot Mountain, NC
Model-Predicted Fire Flow for Current Conditions

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr I Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 750 1,500 3,000 Feet

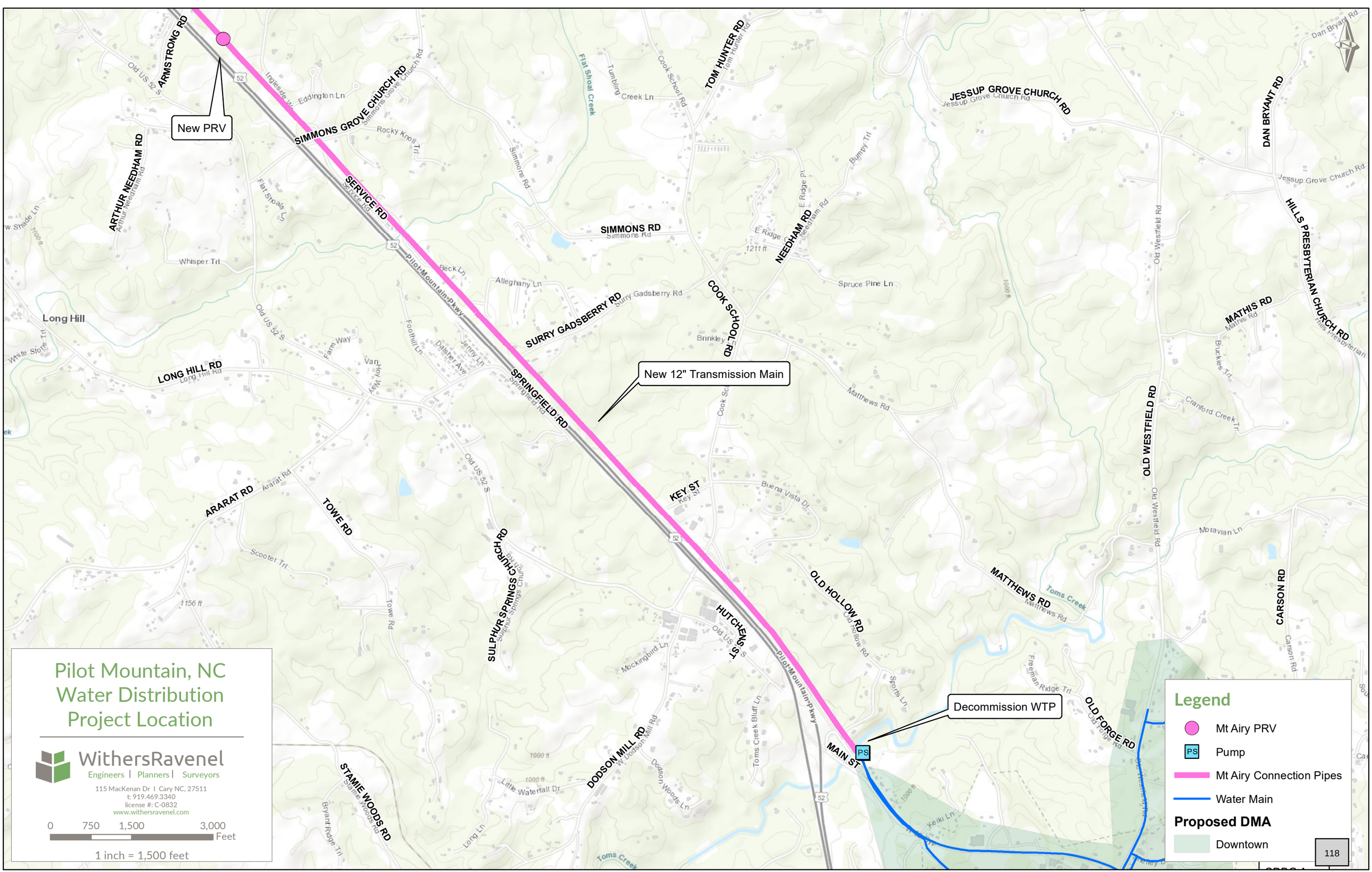
1 inch = 1,500 feet

Legend

Fire Flow (GPM)

- 0 - 249
- 250 - 499
- 500 - 749
- 750 - 999
- 1000 - 1249
- 1250 - 1499
- 1500 - 1749
- 1750 - 2000
- 2000

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Overall Water Map.mxd
Printed Date: 2/9/2021 Created By: TLPH


New PRV
New 12" Transmission Main
Decommission WTP
PS
ARMSTRONG RD
SIMMONS GROVE CHURCH RD
SERVICE RD
ARTHUR NEEDHAM RD
SIMMONS RD
SURRY GADSBERRY RD
COOK SCHOOL RD
TOM HUNTER RD
NEEDHAM RD
JESSUP GROVE CHURCH RD
DAN BRYANT RD
HILLS PRESBYTERIAN CHURCH RD
MATHIS RD
OLD WESTFIELD RD
LONG HILL RD
SPRINGFIELD RD
Pilot Mountain Pkwy
ARARAT RD
TOWE RD
SULPHUR SPRINGS CHURCH RD
KEY ST
HUTCHENS ST
OLD HOLLOW RD
MATTHEWS RD
CARSON RD
OLD FORGE RD
MAIN ST
DODSON MILL RD
STAMIE WOODS RD
Long Hill
Flat Shoal Creek
Toms Creek
Pilot Mountain, NC
Water Distribution
Project Location
WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr I Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com
0 750 1,500 3,000
Feet
1 inch = 1,500 feet
Legend
Mt Airy PRV
Pump
Mt Airy Connection Pipes
Water Main
Proposed DMA
Downtown
118

Pilot Mountain, NC
Model-Predicted Pipe Pressures for Future Conditions with Improvements

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr | Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

Future Pipes at Min HGL (psi)

- <20
- 20-35
- 35-55
- 55-100
- 100+
- Pilot Mountain Town

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Overall Water Map.mxd
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Pilot Mountain, NC
Model-Predicted Pipe Pressures for Future Conditions with Improvements

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license #: C-0832
www.withersravenel.com

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

Fire Flow (GPM)

- 0 - 249
- 250 - 499
- 500 - 749
- 750 - 999
- 1000 - 1249
- 1250 - 1499
- 1500 - 1749
- 1750 - 2000
- 2000

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Overall Water Map.mxd
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Pilot Mountain, NC Water Distribution System by Risk Score

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license #: C-0832
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0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Legend

Risk Score

- EXTREME
- HIGH
- SIGNIFICANT
- MEDIUM
- LOW
- Pilot Mountain Tow[illegible]t

APPENDIX II – CIP LOCATION MAPS

LYNCHBURG RD

CF

1040 ft

STATION 19

PS

080 ft

VETERANS DR

STATION 18

PS

1064 ft

VETERANS DR

S KEY ST

208

1040 ft

Pilot Mountain, NC
Wastewater Project #1

WithersRavenel
Engineers | Planners | Surveyors

115 MacKenan Dr | Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 50 100 200 Feet

1 inch = 100 feet

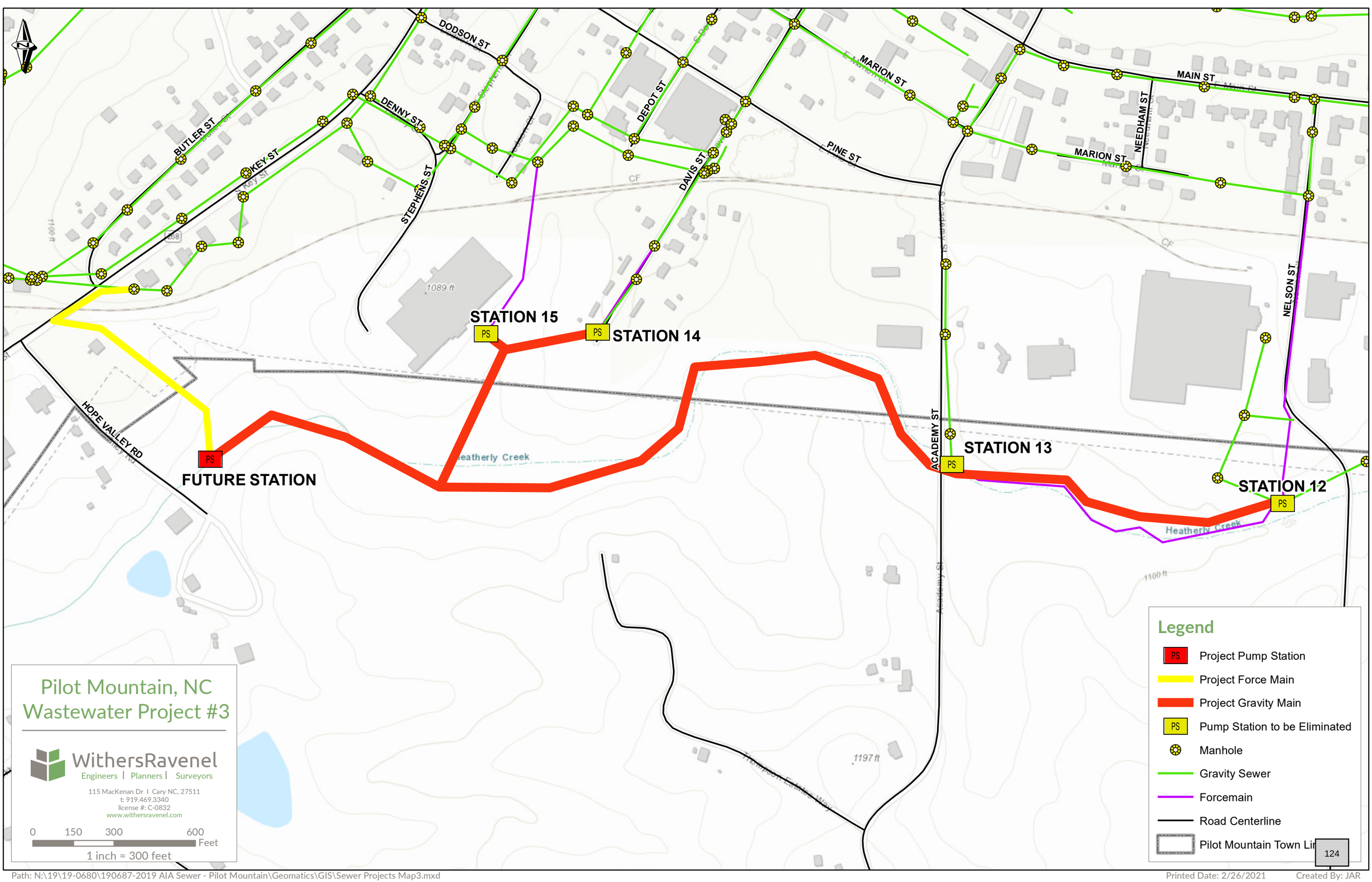
Legend

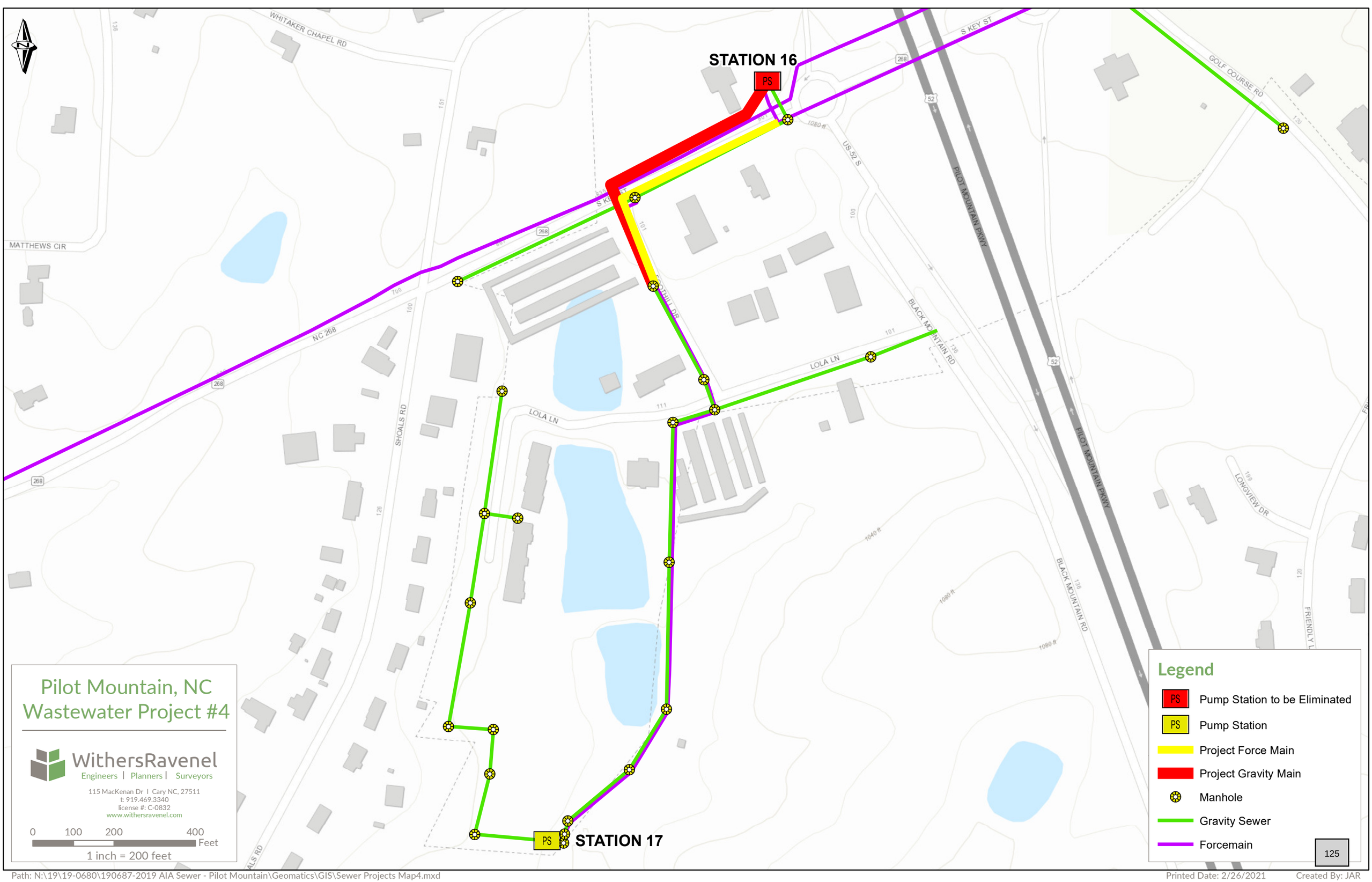
- PS — Project Pump Station
- Project Replacement
- PS — Pump Station
- Manhole
- Gravity Sewer
- Forcemain
- Road Centerline
- Pilot Mountain Town

123

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Sewer Projects Map1.mxd

Printed Date: 2/26/2021 Created By: JAR


DODSON ST
DENNY ST
BUTLER ST
KEY ST
STEPHENS ST
DEPOT ST
DAVIS ST
MARION ST
PINE ST
MAIN ST
NEEDHAM ST
NELSON ST
ACADEMY ST
HOPE VALLEY RD
STATION 15
STATION 14
STATION 13
STATION 12
FUTURE STATION
PS
Heatherly Creek
1089 ft
1100 ft
1197 ft
CF
Pilot Mountain, NC
Wastewater Project #3
WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr | Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com
0 150 300 600
Feet
1 inch = 300 feet
Legend
Project Pump Station
Project Force Main
Project Gravity Main
Pump Station to be Eliminated
Manhole
Gravity Sewer
Forcemain
Road Centerline
Pilot Mountain Town Li
124
Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Sewer Projects Map3.mxd
Printed Date: 2/26/2021
Created By: JAR



Pilot Mountain, NC
Wastewater Project #4

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr I Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 100 200 400 Feet

1 inch = 200 feet

Pilot Mountain, NC
Water Distribution
Academy St Extension

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr | Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

0 37.5 75 150 Feet

1 inch = 75 feet

Legend

- Academy St Extension Project
- Water Hydrant
- Water System Valve
- Water Hydrant Valve
- Reducer
- Tee
- Pump (PS)
- Tank
- Water Main
- Lateral

Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Water Projects - Academy St Extension.mxd

Printed Date: 2/17/2021 Created By: JAR

Pilot Mountain, NC
Water Distribution
Burlington Ln Improvements

WithersRavenel
Engineers | Planners | Surveyors
115 MacKenan Dr | Cary NC, 27511
t: 919.469.3340
license #: C-0832
www.withersravenel.com

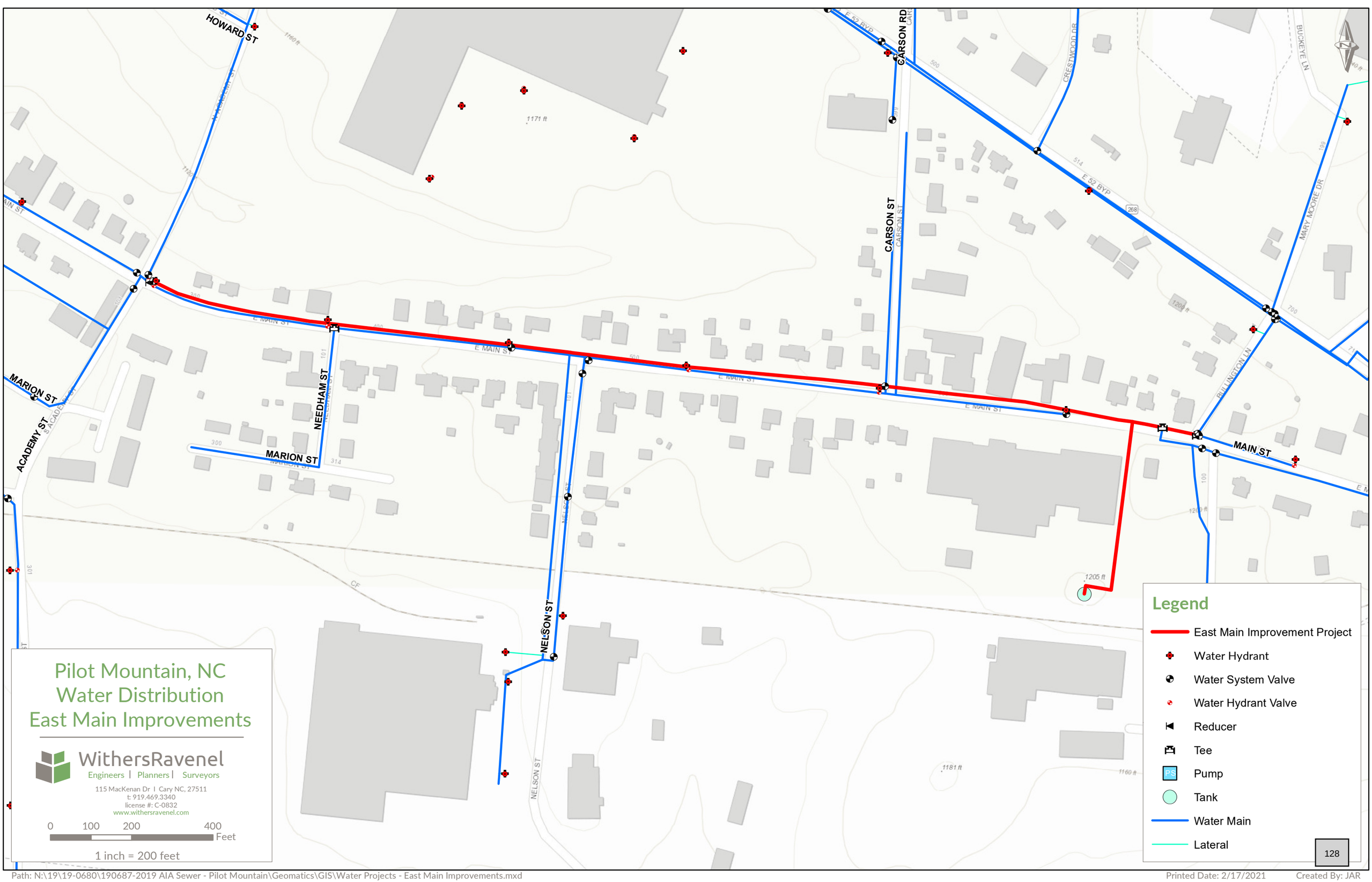
0 25 50 100 Feet

1 inch = 50 feet

Legend

- Burlington Ln Improvement Project
- Water Hydrant
- Water System Valve
- Water Hydrant Valve
- Tee
- Pump
- Tank
- Water Main
- Lateral

127



Path: N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Water Projects - East Main Improvements.mxd

Printed Date: 2/17/2021 Created By: JAR

APPENDIX III – SANITARY SEWER SMOKE TESTING TECHNICAL MEMO

WithersRavenel

Our People. Your Success.

Sanitary Sewer Smoke Testing Technical Memo

Prepared for:

Town of Pilot Mountain, NC
124 W Main St
Pilot Mountain, NC 27041
Phone: (336) 368-2247

Prepared by:

WithersRavenel, Inc.
424 Gallimore Rd. Suite C
Greensboro, NC 27409
Phone: (336) 605-3009
License #: C-0832

Made possible through funding provided by:

I. Executive Summary

Smoke testing was conducted in the Town of Pilot Mountain from June 15 through July 20, 2020. This testing was done utilizing a smoke machine supplied by WithersRavenel and a crew comprised of employees from WithersRavenel and Town of Pilot Mountain. During the five weeks, the entire collections network for the town was tested. This resulted in over 99,000 LF of gravity sewer line and over 400 manholes being smoke tested in the areas shown below, see Figure 2.

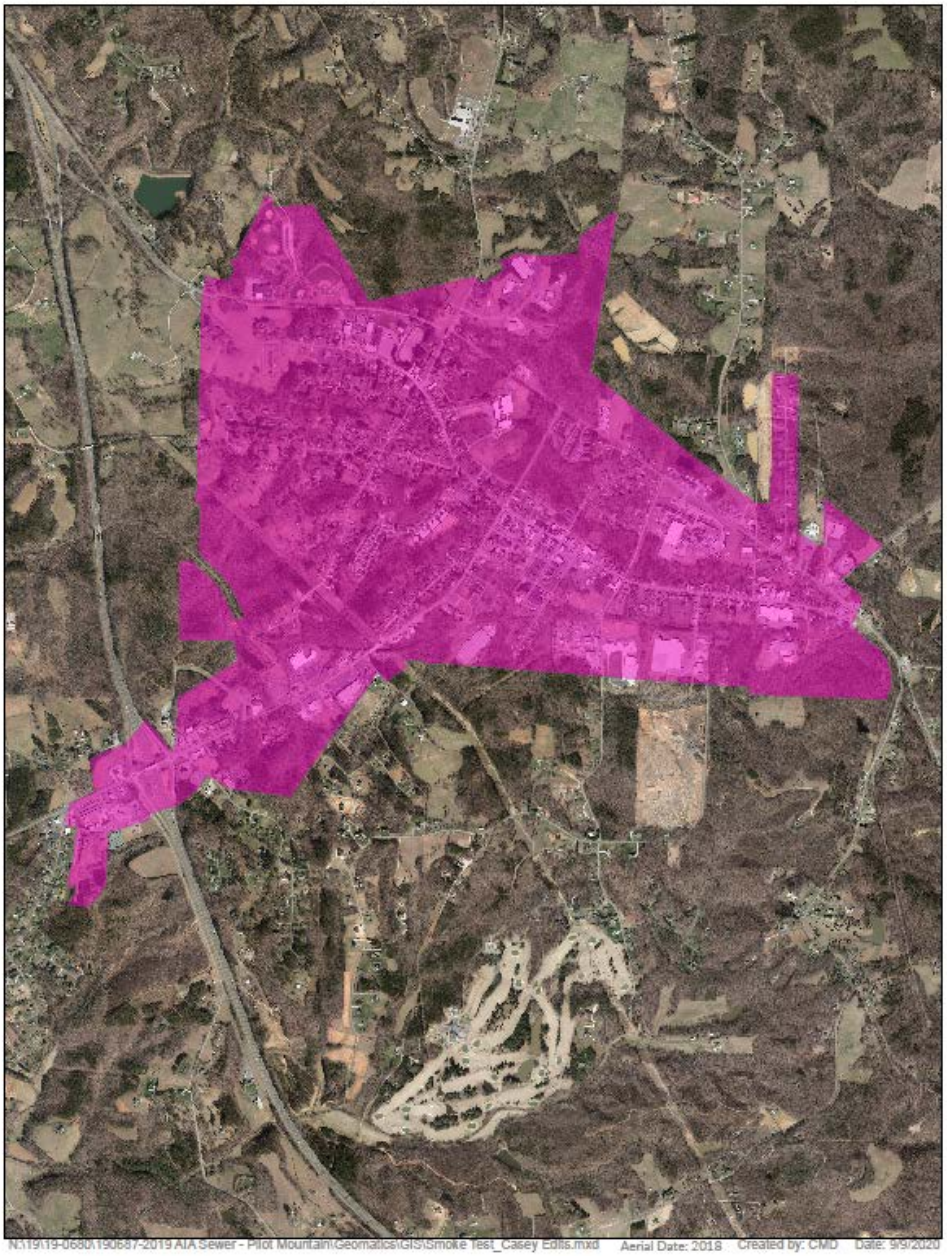


Figure 1 – Smoke Testing Occurred Over the Full Extents of The Pilot Mountain Municipal Town Limits

II. Overall Defect Summary

In order to test this area, the smoke machine was placed on 85 manholes. During testing, the majority of the crew walked the surrounding area and inspected for defects. All visible defects were recorded and photos were taken to aid in post-field inspection and for future relocation of each defect. The defects discovered were as follows:

- 107 cleanout defects
- 2 defects in meter boxes
- 7 stormwater cross-connections
- 2 roof drain connections
- 56 manhole defects
- 4 lateral defects
- 26 other unique defects

As well as locating these defects we were also able to find other data that the town can use to update their GIS database and locate the manholes covered by pavement, brush, or grass. These findings include three unmarked manholes that were not shown or shown incorrectly on current GIS data and thirty-one covered manholes that were shown on GIS data but not accessible in the field. These findings were included to increase the accuracy of the town's GIS database and sewer model.

III. Drainage Defect Summary

This smoke testing was conducted in order to locate and reduce the amount of inflow and infiltration reaching the Pilot Mountain wastewater treatment plant. To better analyze the effects on I&I, each defect was noted by either being able or unable to drain surface runoff. There were 133 defects in total that were able to drain into the sewer system, they are categorized as follows:

- 89 defects in cleanouts and meter boxes
- 9 stormwater cross-connections
- 21 manholes defects
- 4 defects over the sewer mains and laterals
- 10 other unique defects

All of these defects will be contributing to the amount of total wastewater treated each year. However, each defect will contribute a different amount of stormwater into the sewer system. To best identify the larger flow contributions, the areas around each defect

was analyzed to determine their likelihood of impact during rain events. The following list of defects has columns showing the smoke volume, whether the defect can drain, the structure condition, and whether the issue was resolved. These lists are not in any ranked order. Maps showing the locations of the defects can be found below the table of defects.

IV. Attachments

Table 1 –Defects Found in The Pilot Mountain Collections System

Point	Engineer's Comments	Defect Type	Location Surface	Smoke Volume	Can Defect Drain Water	Structure Condition	Was issue Resolved?
93	Storm water cross connection	Curb Inlet	Landscaping	Low	Yes	Poor	No
205	Floor drain in garage bay of public works building	Grate Inlet	Pavement	Moderate	Yes	Good	No
212	Storm water cross connection	Grate Inlet	Grass	Low	Yes	Fair	No
166	Storm water cross connection	Grate Inlet	Grass	Low	Yes	Fair	No
204	Storm water cross connection	Grate Inlet	Pavement	Moderate	Yes	Fair	No
92	Storm water cross connection	Grate Inlet	Pavement	Moderate	Yes	Fair	No
202	Storm water cross connection - large paved area draining into catch basin	Grate Inlet	Pavement	Heavy	Yes	Fair	No
273	Gutter drain smoking	Roof Drain	Grass	Heavy	Yes	Good	No
41	Smoke under entrance ramp to community college	Roof Drain	Pavement	Moderate	Yes	Good	No
123	Incorrect storm lid on sanitary sewer	Manhole	Grass				No
155	Incorrect storm lid on sanitary sewer	Manhole	Pavement				No
219	Infiltration dripping from manhole riser section, needs to be lined	Manhole	Grass		Yes	Fair	No
94	Mahole lid popped up by fallen tree	Manhole	Grass	Low	No	Good	No
259	Manhole is clogged - no movement of water at all	Manhole	Grass		No	Fair	No
330	Manhole is clogged - smoke barely getting through - needs to be cleaned - maybe private line?	Manhole	Grass		No	Fair	No
331	Manhole not accessible to assess from either direction	Manhole	Grass		No	Good	No
326	Manhole not connected to sewer line - Town says is connected to building here	Manhole	Pavement		No	Good	No
55	Manhole ring knocked off of cone	Manhole	Grass	Heavy	Yes	Poor	No
62	Manhole ring knocked off of cone	Manhole	Grass	Heavy	Yes	Good	No
164	Manhole ring not fastened to cone section - needs resealed	Manhole	Grass	Moderate	No	Fair	No
319	Manhole ring not fastened to cone section - needs resealed	Manhole	Grass	Low	No	Fair	No

Point	Engineer's Comments	Defect Type	Location Surface	Smoke Volume	Can Defect Drain Water	Structure Condition	Was issue Resolved?
173	Manhole ring not fastened to cone section - needs resealed	Manhole	Grass	Moderate	No	Poor	No
169	Manhole ring not fastened to cone section - needs resealed	Manhole	Grass	Heavy	No	Fair	No
314	Manhole ring not fastened to cone section - needs resealed	Manhole	Grass	Heavy	Yes	Poor	No
138	Manhole ring not fastened to cone section - needs resealed	Manhole	Grass	Low	No	Fair	No
149	Manhole ring not fastened to cone section - needs resealed	Manhole	Grass	Low	Yes	Poor	No
150	Manhole ring not fastened to cone section - needs resealed	Manhole	Pavement	Low	Yes	Good	No
258	Manhole ring not fastened to cone section - needs resealed	Manhole	Grass	Moderate	Yes	Good	No
127	Manhole ring not fastened to cone section - needs resealed - manhole on plate	Manhole	Grass	Low	Yes	Fair	No
184	Manhole ring not fastened to flat top, needs resealed	Manhole	Grass	Moderate	No	Fair	No
80	Manhole riser is cracked	Manhole	Grass	Moderate	Yes	Poor	No
20	Pipe Smoking near manhole	Manhole	Landscaping	Low	Yes	Poor	No
102	Ring has been bent - cover not sealed correctly	Manhole	Grass	Heavy	Yes	Fair	No
100	Smoke coming from cracks in manhole riser	Manhole	Grass	Low	No	Fair	No
261	Smoke coming from cracks in manhole riser	Manhole	Grass	Moderate	Yes	Poor	No
95	Smoke coming from exposed brick on broken concrete section	Manhole	Grass	Low	No	Fair	No
133	Smoke coming from hole in manhole ring	Manhole	Grass	Moderate	Yes	Poor	No
4	Smoke coming from hole in manhole ring	Manhole	Grass	Heavy	Yes	Poor	No
151	Smoke coming from manhole riser	Manhole	Grass	Low	No	Poor	No
178	Smoke coming from manhole riser	Manhole	Grass	Moderate	No	Fair	No
165	Smoke coming from manhole riser	Manhole	Grass	Moderate	No	Good	No
168	Smoke coming from manhole riser	Manhole	Grass	Low	No	Poor	No
316	Smoke coming from manhole riser	Manhole	Grass	Low	No	Fair	No
257	Smoke coming from manhole riser	Manhole	Grass	Low	No	Fair	No
63	Smoke coming from under ring	Manhole	Grass	Low	No	Poor	No
75	Smoke coming from under ring	Manhole	Grass	Low	Yes	Good	No
122	Smoke coming from under ring	Manhole	Grass	Low	No	Poor	No

Point	Engineer's Comments	Defect Type	Location Surface	Smoke Volume	Can Defect Drain Water	Structure Condition	Was issue Resolved?
129	Smoke coming from under ring	Manhole	Grass	Moderate	Yes	Poor	No
131	Smoke coming from under ring	Manhole	Grass	Moderate	Yes	Poor	No
265	Smoke coming from under ring	Manhole	Grass	Heavy	No	Fair	No
182	Smoke coming from under ring	Manhole	Grass	Moderate	No	Fair	No
317	Smoke coming from under ring	Manhole	Grass	Low	No	Fair	No
3	Smoke coming from under ring	Manhole	Grass	Moderate	Yes	Poor	No
5	Smoke coming from under ring	Manhole	Grass	Moderate	No	Poor	No
126	Smoke coming from under ring	Manhole	Grass	Low	Yes	Fair	No
320	Smoke coming from under ring	Manhole	Grass	Low	No	Fair	No
325	Smoke coming from under ring	Manhole	Grass	Moderate	Yes	Fair	No
54	Smoke coming from under ring - concrete above ring is broken	Manhole	Grass	Low	Yes	Poor	No
231	Smoke coming from under ring - concrete riser around rim is broken	Manhole	Grass	Moderate	No	Fair	No
229	Smoke coming from under ring - ring not attached to concrete	Manhole	Grass	Moderate	No	Good	No
171	Smoke coming out of the ground next to the manhole	Manhole	Grass	Moderate	No	Fair	No
188	Smoke from around base on manhole ring - needs resealed	Manhole	Grass	Moderate	No	Fair	No
262	Smoke leaking from under flat top lid of pump station	Manhole	Grass	Low	No	Good	No
115	Smoke under manhole	Manhole	Grass	Heavy	No	Good	No
130	This one needs a closer look by Darian - potential leak	Manhole	Grass	Heavy	Yes	Failing	No
311	Smoke coming from fence post next to clean out. Either broken lateral or leak in clean out joint	Over Lateral	Grass	Low	Yes	Failing	No
211	Smoke coming from hole in the ground	Over Lateral	Grass	Low	Yes	Failing	No
245	Smoke seeping from ground ~2 ft upstream of clean out	Over Lateral	Grass	Low	Yes	Failing	No
243	Smoke seeping from ground, likely lateral or buried clean out	Over Lateral	Grass	Low	Yes	Failing	No
209	2" pipe with no cap - Cleanout cap missing?	Cleanout	Pavement	Moderate	Yes	Good	No
198	Cleanout and cap are different materials	Cleanout	Pavement	Low	No	Fair	No

Point	Engineer's Comments	Defect Type	Location Surface	Smoke Volume	Can Defect Drain Water	Structure Condition	Was issue Resolved?
35	Cleanout broken	Cleanout	Grass	Low	No	Fair	No
240	Cleanout broken	Cleanout	Grass	None	Yes	Poor	No
307	Cleanout broken	Cleanout	Grass	Moderate	Yes	Fair	No
46	Cleanout broken	Cleanout	Grass	Heavy	Yes	Poor	No
216	Cleanout broken	Cleanout	Grass	Heavy	Yes	Poor	No
217	Cleanout broken	Cleanout	Grass	Heavy	No	Fair	No
251	Cleanout broken	Cleanout	Grass	Moderate	No	Poor	No
272	Cleanout broken	Cleanout	Grass	Heavy	No	Fair	No
276	Cleanout broken	Cleanout	Grass	Low	Yes	Poor	No
277	Cleanout broken	Cleanout	Grass	Moderate	Yes	Poor	No
17	Cleanout broken	Cleanout	Grass	Low	Yes	Fair	No
294	Cleanout broken	Cleanout	Pavement	Low	Yes	Fair	No
175	Cleanout broken - looks like it was hit and turned	Cleanout	Grass	Moderate	Yes		No
309	Cleanout broken and cap missing	Cleanout	Grass	Heavy	Yes	Poor	No
160	Cleanout broken and cap missing	Cleanout	Grass	Low	Yes	Good	No
225	Cleanout broken and cap missing	Cleanout	Grass	Heavy	Yes	Failing	No
247	Cleanout broken and cap missing	Cleanout	Grass	Heavy	Yes	Poor	No
58	Cleanout broken and cap missing	Cleanout	Grass	Heavy	Yes	Poor	No
281	Cleanout broken and cap missing	Cleanout	Grass	Moderate	Yes	Fair	No
289	Cleanout broken and cap missing	Cleanout	Grass	Moderate	Yes	Fair	No
201	Cleanout broken and cap missing	Cleanout	Pavement	Low	Yes	Poor	No
293	Cleanout cap broken	Cleanout	Grass	Moderate	Yes	Good	No
49	Cleanout cap broken	Cleanout	Grass	Moderate	Yes	Good	No
304	Cleanout cap broken	Cleanout	Grass	Moderate	Yes	Good	No
24	Cleanout cap broken	Cleanout	Grass	Low	Yes	Good	No
33	Cleanout cap broken	Cleanout	Grass	Heavy	No	Fair	No
60	Cleanout cap broken	Cleanout	Grass	Heavy	Yes	Poor	No

Point	Engineer's Comments	Defect Type	Location Surface	Smoke Volume	Can Defect Drain Water	Structure Condition	Was issue Resolved?
70	Cleanout cap broken	Cleanout	Grass	Moderate	Yes	Poor	No
74	Cleanout cap broken	Cleanout	Grass	Moderate	Yes	Poor	No
77	Cleanout cap broken	Cleanout	Grass	Heavy	Yes	Poor	No
79	Cleanout cap broken	Cleanout	Grass	Heavy	No	Poor	No
85	Cleanout cap broken	Cleanout	Grass	Moderate	No	Poor	No
90	Cleanout cap broken	Cleanout	Grass	Moderate	No	Poor	No
98	Cleanout cap broken	Cleanout	Grass	Moderate	No	Fair	No
104	Cleanout cap broken	Cleanout	Grass	Heavy	Yes	Poor	No
136	Cleanout cap broken	Cleanout	Grass	Moderate	Yes	Poor	No
140	Cleanout cap broken	Cleanout	Grass	Heavy	Yes	Poor	No
144	Cleanout cap broken	Cleanout	Grass	Moderate	Yes	Poor	No
158	Cleanout cap broken	Cleanout	Grass	Moderate	No	Poor	No
284	Cleanout cap broken	Cleanout	Landscaping	Moderate	Yes	Good	No
312	Cleanout cap broken	Cleanout	Pavement	Low	Yes	Good	No
296	Cleanout cap broken	Cleanout	Pavement	Low	Yes	Poor	No
8	Cleanout cap broken - likely hit by lawnmower	Cleanout	Grass	Moderate	Yes	Poor	No
65	Cleanout cap broken - likely hit by lawnmower	Cleanout	Grass	Heavy	Yes	Fair	No
139	Cleanout cap broken - likely hit by lawnmower	Cleanout	Grass	Heavy	Yes	Poor	No
141	Cleanout cap broken - likely hit by lawnmower	Cleanout	Grass	Moderate	Yes	Fair	No
142	Cleanout cap broken - likely hit by lawnmower	Cleanout	Grass	Low	Yes	Good	No
145	Cleanout cap broken - likely hit by lawnmower	Cleanout	Grass	Low	Yes	Good	No
148	Cleanout cap broken - likely hit by lawnmower	Cleanout	Grass	Low	Yes	Good	No
200	Cleanout cap broken and gurgling - likely partial clog	Cleanout	Grass	Low	Yes	Good	No
275	Cleanout cap fell off pipe - could be broken under	Cleanout	Grass	Moderate	Yes	Good	No
283	Cleanout cap missing	Cleanout	Grass	Moderate	Yes	Fair	No
299	Cleanout cap missing	Cleanout	Grass	Moderate	Yes	Good	No
15	Cleanout cap missing	Cleanout	Grass	Low	Yes	Good	No

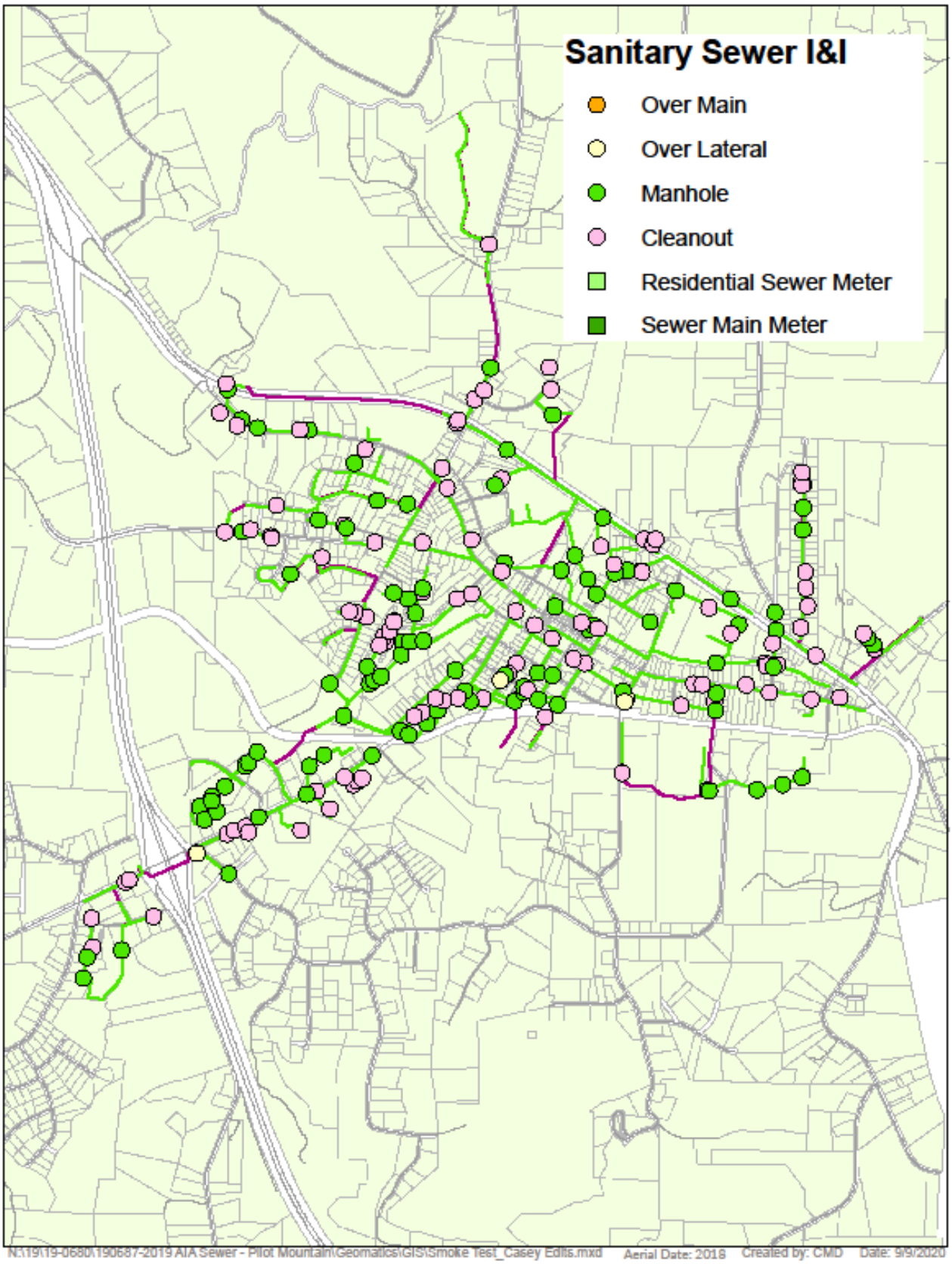
Point	Engineer's Comments	Defect Type	Location Surface	Smoke Volume	Can Defect Drain Water	Structure Condition	Was issue Resolved?
18	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Good	No
22	Cleanout cap missing	Cleanout	Grass	Low	Yes	Good	No
23	Cleanout cap missing	Cleanout	Grass	Moderate	Yes	Good	No
30	Cleanout cap missing	Cleanout	Grass	Moderate	Yes	Poor	No
31	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Fair	No
39	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Fair	No
44	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Good	No
57	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Good	No
59	Cleanout cap missing	Cleanout	Grass	Moderate	Yes	Good	No
64	Cleanout cap missing	Cleanout	Grass	Moderate	Yes	Good	No
73	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Fair	No
87	Cleanout cap missing	Cleanout	Grass	Moderate	Yes	Good	No
110	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Good	No
111	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Poor	No
113	Cleanout cap missing	Cleanout	Grass	Low	Yes	Good	No
117	Cleanout cap missing	Cleanout	Grass	Moderate	Yes	Poor	No
119	Cleanout cap missing	Cleanout	Grass	Low	Yes	Good	No
120	Cleanout cap missing	Cleanout	Grass	Low	Yes	Good	No
135	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Poor	No
143	Cleanout cap missing	Cleanout	Grass	Low	Yes	Good	No
146	Cleanout cap missing	Cleanout	Grass	Low	Yes	Poor	No
227	Cleanout cap missing	Cleanout	Grass	Low	Yes	Good	No
248	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Fair	No
253	Cleanout cap missing	Cleanout	Grass	Moderate	Yes	Good	No
266	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Poor	No
278	Cleanout cap missing	Cleanout	Grass	Moderate	Yes	Good	No
298	Cleanout cap missing	Cleanout	Grass	Heavy	Yes	Poor	No

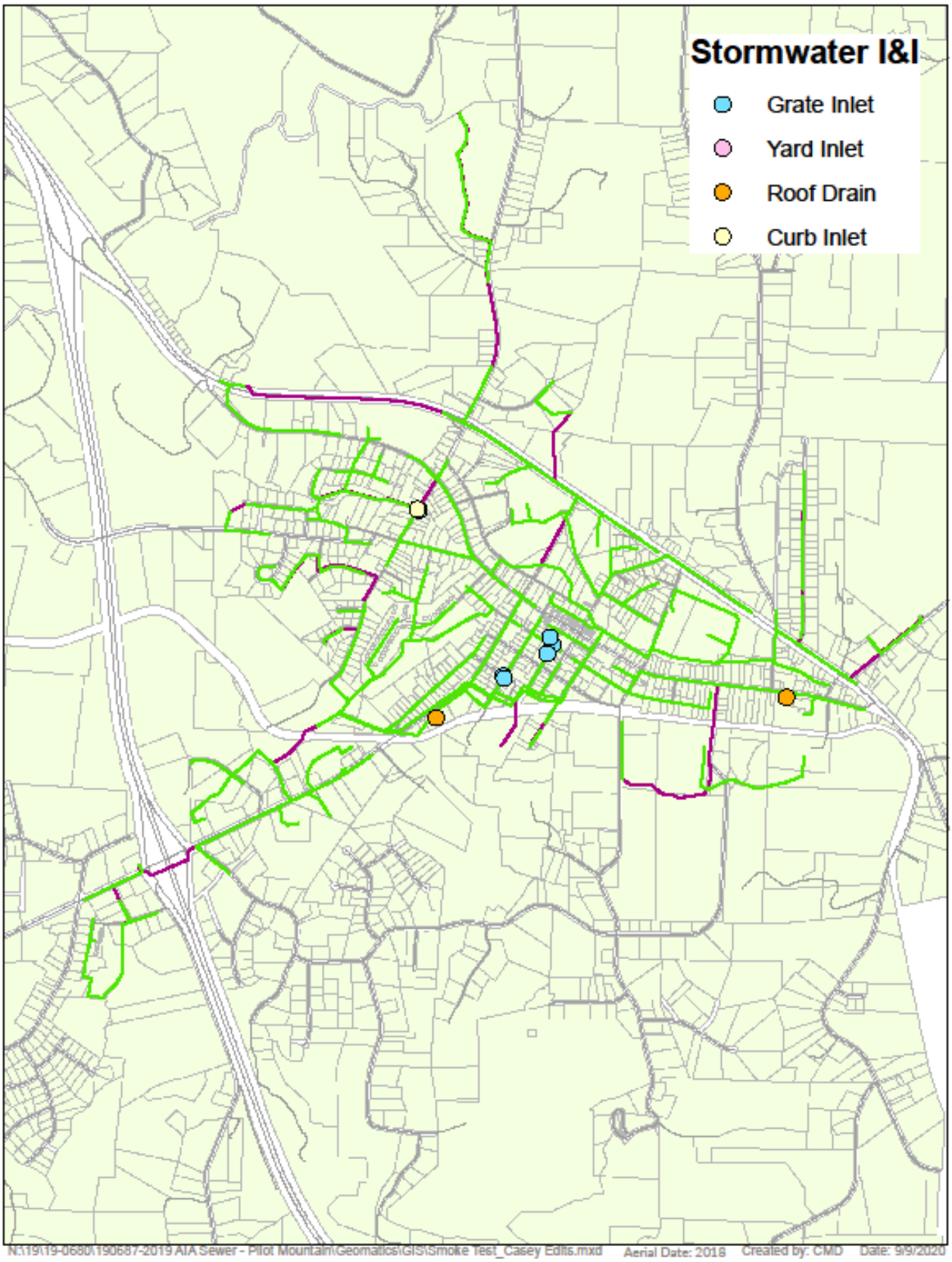
Point	Engineer's Comments	Defect Type	Location Surface	Smoke Volume	Can Defect Drain Water	Structure Condition	Was issue Resolved?
112	Cleanout cap missing	Cleanout	Gravel	Low	Yes	Poor	No
53	Cleanout cap missing	Cleanout	Landscaping	Heavy	Yes	Good	No
88	Cleanout cap missing	Cleanout	Landscaping	Moderate	No	Fair	No
280	Cleanout cap missing	Cleanout	Pavement	Moderate	Yes	Good	No
310	Cleanout cap missing	Cleanout	Pavement	Heavy	Yes	Good	No
156	Cleanout cap missing	Cleanout	Pavement	Moderate	No	Fair	No
308	Cleanout cap missing	Cleanout	Grass	Moderate	Yes	Excellent	No
66	Cleanout cap missing - buried in ground	Cleanout	Grass	Low	Yes	Poor	No
6	Cleanout cap missing - buried in ground	Cleanout	Grass	Moderate	Yes	Poor	No
2	Cleanout cap missing - cleanout threads broken on side	Cleanout	Grass	Moderate	Yes	Poor	No
235	Cleanout cap missing - fernco attached	Cleanout	Grass	Low	No	Poor	No
34	Cleanout cap missing - gurgling	Cleanout	Grass	Heavy	Yes	Fair	No
121	Cleanout cap not sealed	Cleanout	Grass	Low	No	Poor	No
45	Cleanout cap not sealed	Cleanout	Grass	Low	No	Fair	No
36	Cleanout cap not sealed	Cleanout	Grass	Moderate	No	Fair	No
37	Cleanout cap not sealed	Cleanout	Grass	Moderate	No	Fair	No
297	Cleanout cap not sealed	Cleanout	Pavement	Heavy	Yes	Fair	No
176	Cleanout cap not sealed - under water meter valve lid	Cleanout	Pavement	Heavy	Yes	Poor	No
97	Cleanout has no threads to screw in cap	Cleanout	Grass	Heavy	No	Excellent	No
14	Cleanout needs replaced - wrong material	Cleanout	Grass	Moderate	Yes	Poor	No
208	Cluster of clean outs that are broken and have no lids - 1” pipe near clean ours is smoking	Cleanout	Grass	Moderate	Yes	Poor	No
40	Side of clean out cut open	Cleanout	Grass	Moderate	Yes	Poor	No
193	Smoke coming from under building - leaking cleanout covered by building is Darian’s guess	Cleanout	Pavement	Low	Yes	Fair	No
234	Vent pipe near ground - open to allow smoke out - is under roof	Cleanout	Grass	Low	No	Good	No
269	Smoke coming from water meter box	Water Meter	Grass	Low	Yes	Good	No

Point	Engineer's Comments	Defect Type	Location Surface	Smoke Volume	Can Defect Drain Water	Structure Condition	Was issue Resolved?
27	Water meter using repurposed sewer manhole cover. Should not be marked as a manhole	Water Meter	Gravel		Yes	Fair	No
318	Aerial line starting to swag	Other	Grass		No	Good	No
153	Broken sewer pipe sticking out of the hill side - need to verify	Other	Grass		No	Good	No
215	Building window smoking - smoke may be getting inside?	Other	Other	Low	No	Poor	No
322	Drain near old sludge drying bed - near former treatment plant location	Other	Grass	Heavy	Yes	Good	No
99	Hole in the ground near manhole	Other	Grass	Low	Yes	Failing	No
238	No smoke coming to end manhole - will be jetted by the town	Other			No	Good	No
189	No smoke getting to dead end manhole - line needs jetted - likely clog in the line	Other			No	Good	No
328	No smoke getting to end manhole - likely clog or swag	Other			No	Good	No
196	Not getting smoke either direction on this line - needs jetted - likely clogged or swag	Other			No	Good	No
233	Not getting smoke to the end manhole - likely clog or swag in the line here	Other			No	Good	No
107	Sag or break in the line - smoke did not come between the two manholes	Other			No	Good	No
252	Smoke barely getting through this line from either direction - likely clog or swag	Other	Pavement		No	Good	No
191	Smoke coming from old roof drain connection pipe, needs to be capped	Other	Grass	Moderate	No	Fair	No
10	Smoke coming from under sidewalk curb	Other	Pavement	Moderate	No	Poor	No
221	Smoke coming from water filled pit behind the fence - fence is locked	Other					No
9	Smoke coming out from under the bush in the storm drain ditch	Other	Grass	Low	Yes	Failing	No
19	Smoke from ground on norther side of manhole/right side of photo	Other	Grass	Low	Yes		No
162	Smoke in ground of abandoned lot, service from former structure not sealed	Other	Grass	Moderate	Yes	Failing	No

Point	Engineer's Comments	Defect Type	Location Surface	Smoke Volume	Can Defect Drain Water	Structure Condition	Was issue Resolved?
179	Smoke is pulsing from manhole - swag or belly in the line here	Other					No
323	Smoke not getting to lift station - likely swag	Other	Grass				No
81	Smoke seeping from ground around decaying tree roots	Other	Other	Low	Yes		No
207	Smoking around edge of sidewalk pavers next to clean outs and grease traps	Other	Pavement	Low	Yes	Fair	No
47	Storm water culvert full of smoke	Other	Grass	Moderate	Yes	Fair	No
192	Swag or blockage in line,smoke could not travel past this point in either direction. Needs jetted	Other	Grass				No
220	This pump station does not belong to the Town - need to make sure this is metered	Other					No
249	Very little smoke making it through from either side here - possible clog or swag - maybe roots	Other	Pavement				No
183	Does not seem to be a manhole - structure not connected to system	Structure	Pavement				No
69	Manhole covered by brush	Covered Manhole	Brush				No
327	Manhole covered by brush	Covered Manhole	Brush				No
285	Manhole covered by brush	Covered Manhole	Brush				No
286	Manhole covered by brush	Covered Manhole	Brush				No
290	Manhole covered by brush	Covered Manhole	Brush				No
203	Manhole covered by grass	Covered Manhole	Grass				No
226	Manhole covered by grass	Covered Manhole	Grass				No
71	Manhole covered by grass	Covered Manhole	Grass				No
313	Manhole covered by grass - White arrow pointing to a partially dig out hole	Covered Manhole	Grass				No
28	Manhole covered by pavement	Covered Manhole	Pavement				No
42	Manhole covered by pavement	Covered Manhole	Pavement				No
172	Manhole covered by pavement	Covered Manhole	Pavement				No
268	Manhole covered by pavement	Covered Manhole	Pavement				No
232	Manhole covered by pavement	Covered Manhole	Pavement				No
11	Manhole covered by pavement	Covered Manhole	Pavement				No

Point	Engineer's Comments	Defect Type	Location Surface	Smoke Volume	Can Defect Drain Water	Structure Condition	Was issue Resolved?
12	Manhole covered by pavement	Covered Manhole	Pavement				No
50	Manhole covered by pavement	Covered Manhole	Pavement				No
295	Manhole covered by pavement	Covered Manhole	Pavement				No
302	Manhole covered by pavement	Covered Manhole	Pavement				No
21	Manhole covered by pavement	Covered Manhole	Pavement				No
161	Manhole covered by pavement	Covered Manhole	Pavement				No
292	Manhole covered by pavement	Covered Manhole	Pavement				No
108	Manhole covered by pavement	Covered Manhole	Pavement				No
214	Manhole covered by pavement	Covered Manhole	Pavement				No
236	Manhole covered by pavement	Covered Manhole	Pavement				No
254	Manhole covered by pavement	Covered Manhole	Pavement				No
255	Manhole covered by pavement	Covered Manhole	Pavement				No
210	Manhole covered by pavement	Covered Manhole	Pavement				No
244	Manhole covered by pavement	Covered Manhole	Pavement				No
186	Manhole covered by pavement	Covered Manhole	Pavement				No
25	Manhole covered with dirt	Covered Manhole	Grass				No
180	Cannot find manhole	Missing Manhole					No
237	Cannot find manhole	Missing Manhole					No
222	Could not find manhole	Missing Manhole					No
67	Could not locate - potentially covered with grass?	Missing Manhole	Grass				No
105	Could not locate MH. Got smoke through from both sides but only to one MH farther. Possible break	Missing Manhole	Grass				No
185	Couldn't locate manhole - looks to be located under building?	Missing Manhole					No
230	Manhole not located	Missing Manhole	Grass				No
125	Manhole unlabeled	Unlabeled Manhole	Grass	Low	Yes	Good	No
301	Unlabeled manhole	Unlabeled Manhole	Pavement	Heavy	No	Good	No
152	Unlabeled manhole - smoke coming from under the rim	Unlabeled Manhole	Grass	Moderate	No	Poor	No


Sanitary Sewer I&I
Over Main
Over Lateral
Manhole
Cleanout
Residential Sewer Meter
Sewer Main Meter
N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Smoke Test_Casey Edits.mxd
Aerial Date: 2018
Created by: CMD
Date: 9/9/2020


Stormwater I&I
Grate Inlet
Yard Inlet
Roof Drain
Curb Inlet
N:\19\19-0680\190687-2019 AIA Sewer - Pilot Mountain\Geomatics\GIS\Smoke Test_Casey Edits.mxd
Aerial Date: 2018
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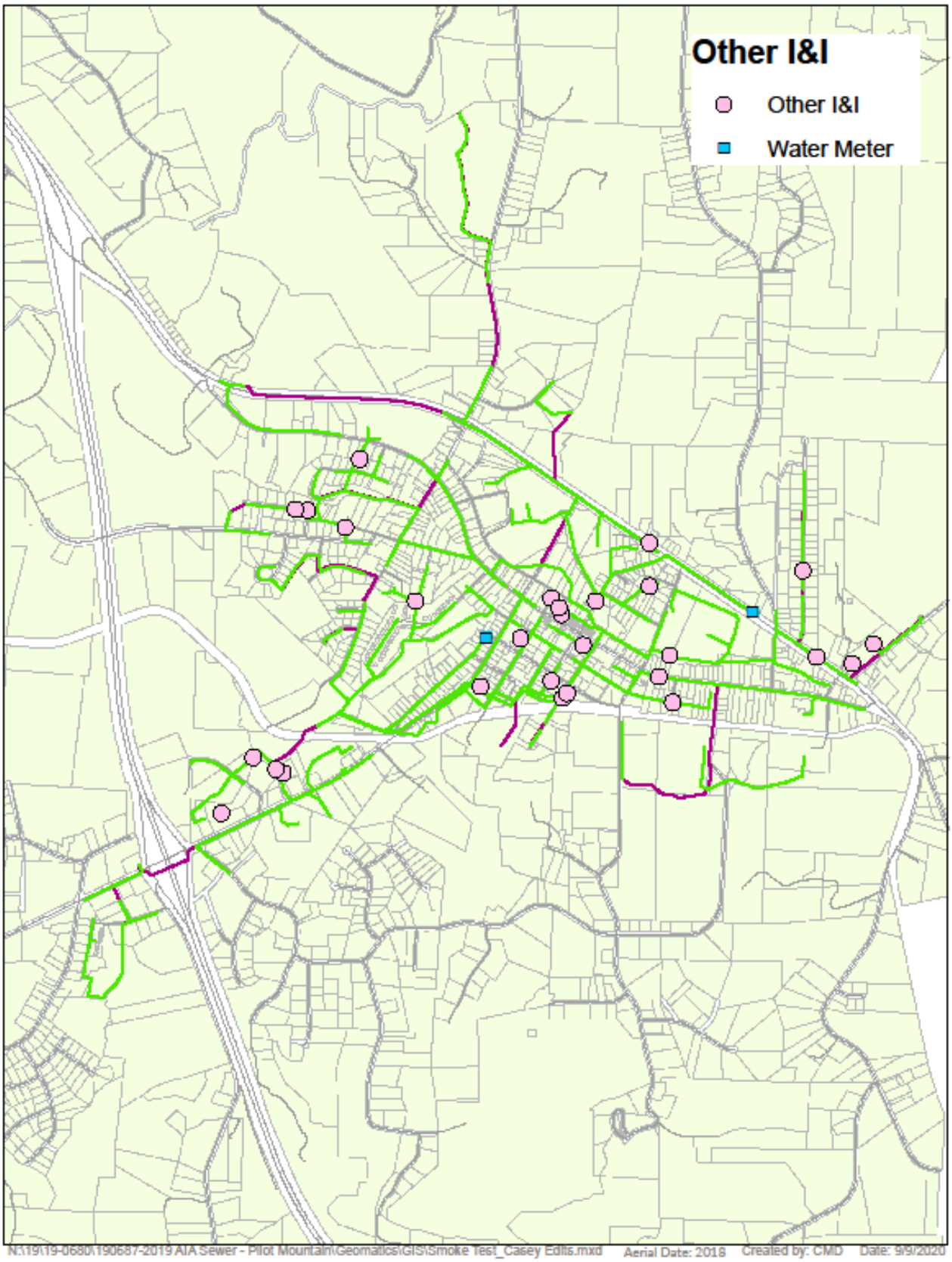
Other I&I
Other I&I
Water Meter
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Aerial Date: 2018
Created by: CMD
Date: 9/9/2020

APPENDIX IV – WATER AND SEWER SYSTEM FINANCIAL ANALYSIS AND CAPITAL IMPROVEMENTS PLAN UPDATE

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TABLES AND CHARTS

Introduction

The Town of Pilot Mountain engaged WithersRavenel to update the long-term capital and financial plans for its water and sewer fund as part of its Asset Inventory and Assessment grants. This report documents the resultant findings, analyses, and proposed changes. The water and sewer plants have capacities of 1.5 MGD each and currently serve a population of approximately 1,700. The Town receives water from Toms Creek in the north of Town and discharges treated wastewater into Heatherly Creek south of Town. The Town operates the Water and Sewer fund as a separate, self-supporting enterprise with revenues and expenditures accounted for separately from its General Fund.

WithersRavenel assisted the Town in updating and prioritizing its Capital Improvements Plan (CIP) and reviewed the order and timing in which projects should be completed. In addition to the CIP, the analysis addresses financing and future water and sewer revenues for the Town of Pilot Mountain. In conducting this study, WithersRavenel reviewed previously prepared studies and usage projections and projected the financial impact projected changes would have on the fund and its users. The following objectives were identified for the study:

- Assist the Town with updating its 10-year CIP for the Water and Sewer fund and summarize capital funding assumptions.
- Prepare a 10-year financial analysis for the fund.
- Determine the adequacy of existing rates and charges to recover current and future operating and capital costs.

Certain assumptions have been made with respect to conditions that may occur in the future. While these assumptions are reasonable for the purposes of this study, they are dependent upon future events and actual conditions may differ from those assumed. In addition, information has been used and relied upon which has been provided by others. This information includes, among other things, audited financial statements, annual operating budgets, and capital improvement projects. While this information is deemed reliable, the information has not been independently verified and no assurances are offered with respect thereto. To the extent that actual future conditions differ from those assumed herein or provided by others, the actual results may differ from those anticipated.

This analysis addresses revenue requirements, the financial analysis, the CIP summary, debt service requirements and packages, and presents findings and conclusions.

Revenue Requirement

The revenue requirement for the water and sewer fund consists of the costs required to assure the adequacy and continuity of safe and reliable services and includes costs associated with operations, maintenance, financing of capital improvements and replacement of facilities. The determination of the fund's revenue requirements was made in a manner consistent with standard accounting and American Water Works Association (AWWA) utility rate-making principles. The revenue requirement for the systems consists of the following cost components:

- Operating Expenses: The operation costs, equipment, utilities, water treatment costs, sewer treatment costs, purchased services, and other expenses necessary to operate the systems and maintain the facilities. Also included are the costs incurred from staffing the systems. These costs consist of items such as salaries, retirement programs, insurance plans, and other benefits for the employees.

- Capital Outlay: One-time expenses paid with available funds to purchase items such as equipment, facility improvements and additions.

- Debt Service: The annual payments of principal and interest to pay back funds used to finance capital projects in the past.

The total of all the above items is the required revenue for the fund and is shown in the following table for the last audited fiscal year, FY 2020. These figures serve as the basis for helping project the financial status of the fund in the future.

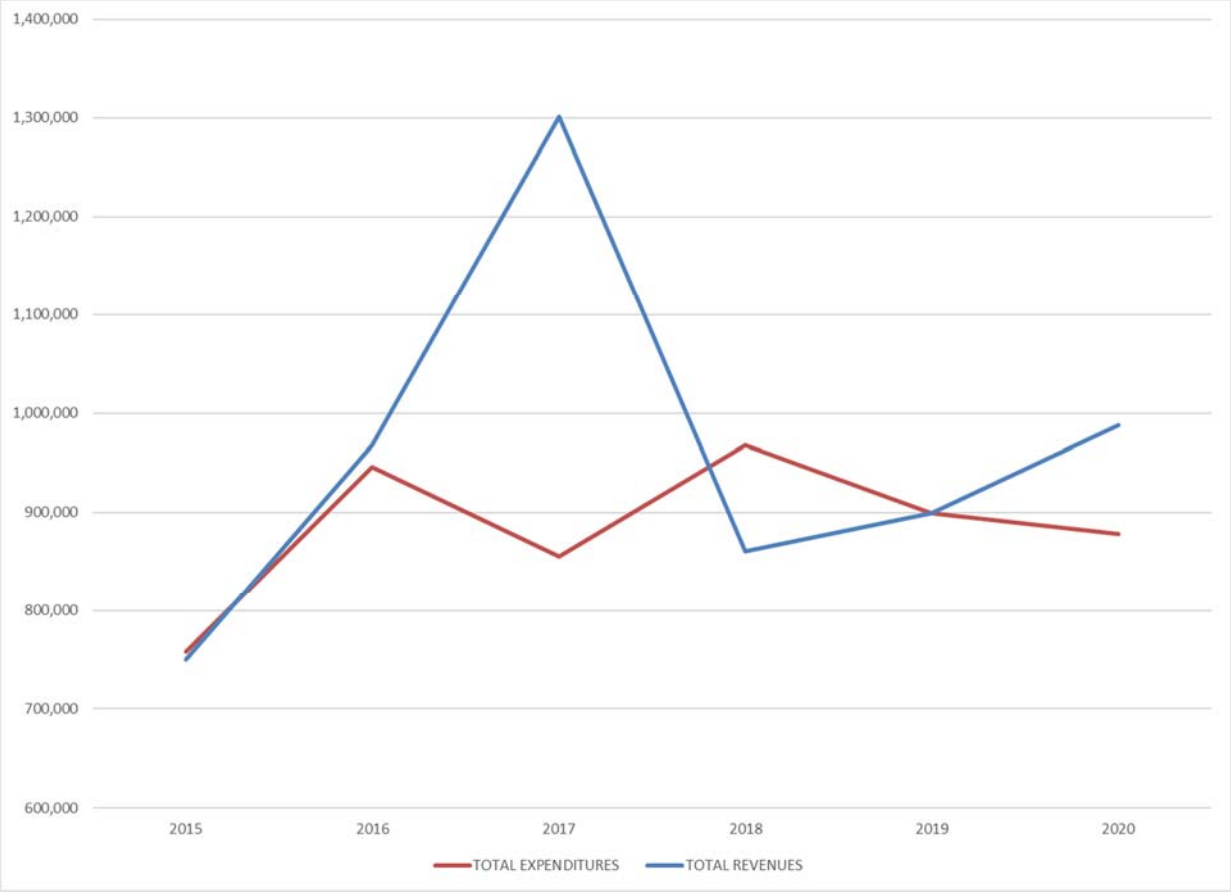
TABLE 1
Revenue Requirement

CATEGORY	FY 2020 COST
OPERATIONS	$ 739,742
CAPITAL OUTLAY	$ 6,623
DEBT SERVICE	$ 132,187
TOTAL EXPENDITURES	**$ 878,552**

Financial History

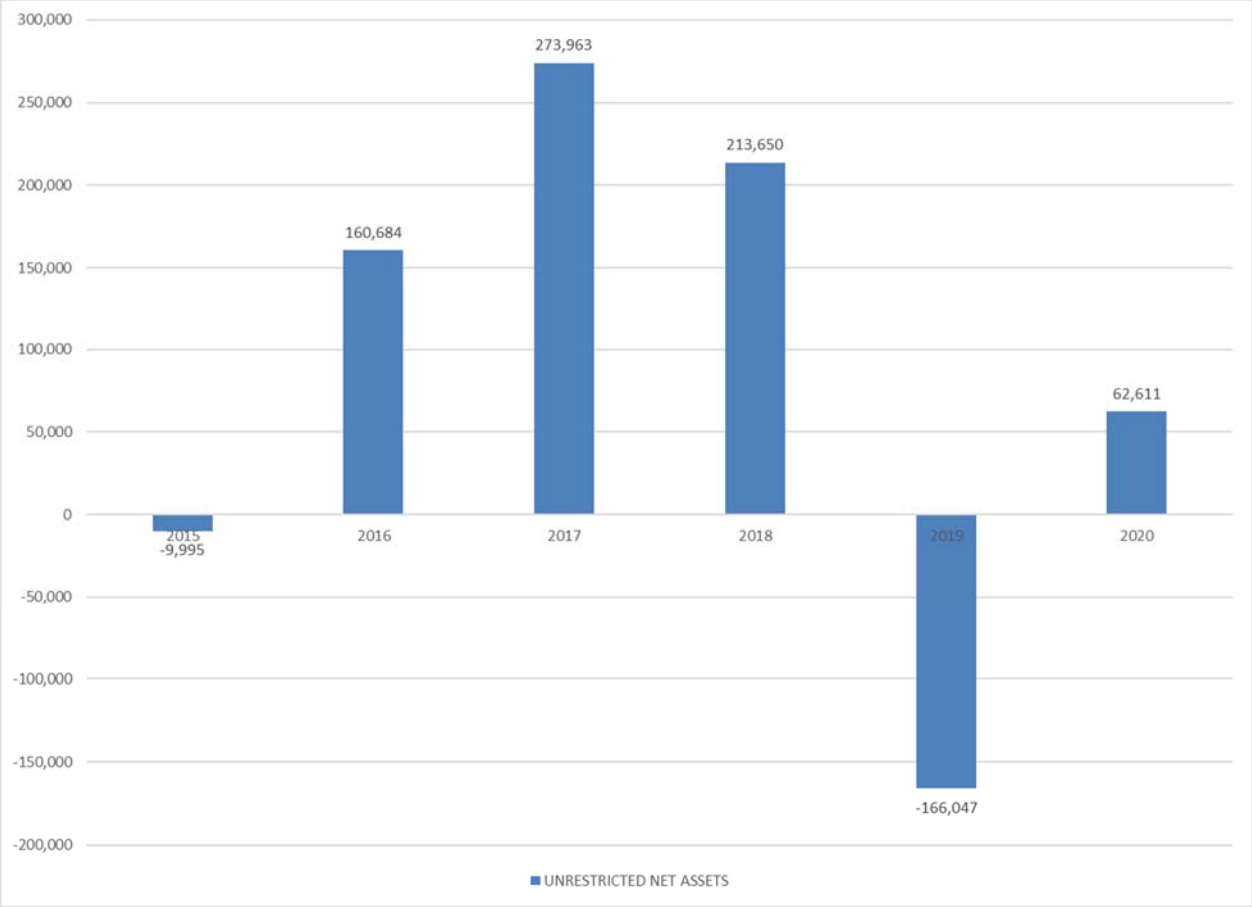
In conducting the financial analysis, the Town's audited financial statements from FY 2015 through FY 2020 were compiled along with the Budget and Year-to-Date reports for FY 2021. Non-recurring capital outlays were separated from other expenditures to ensure the costs used for projections were consistent with prior years. Historical trends for each of the line items were analyzed to anticipate how each revenue and expenditure would change over the next ten years. As shown in Chart 2, the Water and Sewer fund's expenditures have exceeded its revenues before accruals during three of the past six years. The revenue spikes in FY 2017 and FY 2020 were the result of non-operating financing proceeds received from issuing debt and transfers of money, respectively. However, it is important for the fund to receive sufficient operating revenue from rates and fees to pay for its costs.

Chart 2
FY 2015 - 2020 Revenues vs Expenditures



Furthermore, Unrestricted Net Assets have been less than 30% of the budget since at least FY 2015 and have been negative in FY 2015 and FY 2019. Insufficient operating revenue is the primary reason for this decline. Details are shown in Chart 3.

Chart 3
FY 2015 - 2020 Unrestricted Net Assets



After discussions with Town staff, we concurred that future revenues from water and sewer user charges, taps, and other fees would increase by an average annual rate of 0.5%. Infrastructure Investment Fees are assumed to be used only for future capital needs, as per Town staff. Regarding future expenditures, it is projected that Salaries and Benefits would grow at an average annual rate of 4% and Professional Services would increase at an average annual rate of 3%. All other operating expenditures are projected to increase at an average annual rate of 2%, despite the fact Contracted Services increased significantly in FY 2021 due to the staffing reductions. Lastly, future capital costs are assumed to be incurred as described on the following page.

Capital Improvements Plan

The Capital Improvements Plan reflects the fund's planned capital improvements for the next ten years. Cost estimates for projects not scheduled for the current year were adjusted for inflation. Initial discussions with Town staff developed CIPs containing projects of various priorities totaling approximately $11.1 million. The Project Leadership Group decided to reschedule $3.8 million of the lesser priority projects beyond ten years so that the CIP only includes projects of the highest importance. As is illustrated in Table 4, there are ten improvement projects proposed for the fund through FY 2031 by the Town staff. In addition, there are three more projects planned beyond FY 2031. Due to the financial hardships that these projects may place upon the fund, the analysis assumes that each improvement is planned to be paid either by a capital outlay / pay-as-you-go (paygo) in a specific fiscal year or by new debt issuances resulting in annual debt service payments.

This leads to the matter of financing over $6.9 million of projects found in the proposed Capital Improvements Plans. The yearly costs exceed $1 million during some years which may place pressure upon the fund budget. The largest projects include:

WATER AND SEWER

- $3,237,810 for High-Risk Gravity Main Rehabilitation
- $1,134,505 for High-Risk Water Main Rehabilitation
- $766,898 for Extreme Risk Gravity Main Rehabilitation
- $657,221 for Installing Additional Water Mains

TABLE 4
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
CAPITAL IMPROVEMENTS PLAN

PROJECT NUMBER	PROJECT LOCATION	INFLATED COST	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031		YEARS 11+ 2032+
	WATER IMPROVEMENTS													
	Water Distribution													
1	Extreme Risk Water Main Rehabilitation	28,030	28,030											
2	High Risk Water Main Rehabilitation	1,134,505								1,134,505				
3	Significant Risk Main Rehabilitation	0												1,305,920
4	Install Additional Water Mains	657,221					657,221							
	Hydrants and Valves													
5	Replace Hydrant Assembly	336,726					160,903			175,823				
6	Install Additional Water Main Valves	112,551					112,551							
	Water Storage Tanks													
7	Install Altitude Valve on Pilot Center Tank	61,532			61,532									
8	Install Tank Mixing Equipment for Golf Course Rd Tank	37,153				37,153								
	WATER SUBTOTAL	2,367,717	28,030	0	61,532	37,153	930,675	0	0	1,310,328	0	0		1,305,920
	WASTEWATER IMPROVEMENTS													
	Sewer Collection													
9	Extreme Risk Gravity Main Rehabilitation	766,898					766,898							
10	High Risk Gravity Main Rehabilitation	3,237,810								3,237,810				
11	Significant Risk Gravity Main Rehabilitation	0												1,659,068
	Lift Station													
12	Offsite Pump Station (No. 18) and Aerial Crossing	621,281					621,281							
13	Upgrade Lola Lane Pump Station	0												880,000
	WASTEWATER IMPROVMENTS SUBTOTAL	4,625,988	0	0	0	0	1,388,179	0	0	3,237,810	0	0		2,539,068
	TOTAL	6,993,706	28,030	0	61,532	37,153	2,318,854	0	0	4,548,138	0	0		3,844,988
							DEBT PKG 1			DEBT PKG 2				
	DEBT PACKAGES	6,866,991					2,318,854			4,548,138				
	ANNUAL DEBT	6,866,991	0	0	0	0	2,318,854	0	0	4,548,138	0	0		
	ANNUAL CAPITAL OUTLAY	126,715	28,030	0	61,532	37,153	0	0	0	0	0	0		

Debt Service Requirements

The Water and Sewer fund had eight outstanding debt obligations in FY 2021. Five of the loans require payments in FY 2021 while the remaining three loans do not begin repayment until FY 2022 and FY 2023. One equipment loan will mature this year and three additional loans will mature in FY 2024. When the maturing loan payments are combined, the payment reduction will total over $100,000. However, this savings will be offset by the three new debt issuances whose payments total $113,000. In FY 2027, an additional $15,000 of payment capacity will be available when the USDA loan matures. A summary of the existing debt packages is shown in Table 5.

TABLE 5
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
DEBT SERVICE SUMMARY

TYPE	NAME	CURRENT 2021	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031
CURRENT DEBT												
WATER	H-SRG-W-98-0831, DRINKING WATER	30,012	29,312	28,613	27,914							
WATER	USDA WATER	18,900	18,200	17,500	16,800	16,100	15,400	14,700				
BOTH	REGIONS BANK EQUIPMENT LOAN	18,318										
BOTH	CAPITAL BANK - TRACTOR	8,586	8,402	8,220	8,039							
WATER	CAPITAL BANK WATER METERS	54,792	54,792	54,792	54,792							
SEWER	SUNSET SEWER REHAB		50,302	50,302	50,302	50,302	50,302	50,302	50,302	50,302	50,302	50,302
WATER	SUNSET WATER		5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810
WATER	INTERCONNECT (NET CONTRIBUTIONS)			56,583	56,583	56,583	56,583	56,583	56,583	56,583	56,583	56,583
TOTAL CURRENT DEBT		**130,607**	**166,818**	**221,821**	**220,240**	**128,795**	**128,095**	**127,395**	**112,695**	**112,695**	**112,695**	**112,695**

To maintain a positive net income with large capital improvement projects, the analysis prudently assumes that funds will be acquired using borrowed capital and Infrastructure Investment Fee funds. The remaining yearly capital requirements will be paid by annual capital outlays that range from $0 to $67,500. Additionally, $550,000 from Infrastructure Investment Fees are projected to be used in FY 2026 and FY 2029. The planned method to finance the improvements in the CIP is shown in the following table:

TABLE 6
Proposed Debt Packages

FISCAL YEAR	TYPE	PRINCIPAL	RATE	TERM (YEARS)
2026	SRF	$ 1,918,854	4%	20
2029	SRF	$ 4,398,138	4%	20

When including the debt package into the fund's financial analysis, we concluded that the net income will remain positive over most of the next ten years. Furthermore, net income will abide by General Statue 159-181, which states amongst other things that net income should not be negative for three or more consecutive fiscal years. The impact on the fund is shown in Table 7.

TABLE 7
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
FINANCIAL ANALYSIS WITH MODERATE CIP

LINE ITEM	AUDIT 2015	AUDIT 2016	AUDIT 2017	AUDIT 2018	AUDIT 2019	AUDIT 2020	ESTIMATE 2021	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031
REVENUES:																	
WATER SALES	405,865	468,070	480,393	454,681	460,163	485,555	507,000	509,535	512,083	514,643	517,216	519,802	522,401	525,013	527,638	530,277	532,928
SEWER CHARGES	309,588	339,224	359,261	358,878	337,448	345,723	364,000	365,820	367,649	369,487	371,335	373,191	375,057	376,933	378,817	380,711	382,615
INFRASTRUCTURE INVESTMENT FEE							54,990	55,265	55,541	55,819	56,098	56,379	56,660	56,944	57,228	57,515	57,802
TAPS AND CONNECTION FEES	2,215	3,990	14,874	14,982	1,660	3,245	15,000	15,075	15,150	15,226	15,302	15,379	15,456	15,533	15,611	15,689	15,767
OTHER	32,466	40,937	32,710	6,661	88,921	80,577	12,660	12,723	12,787	12,851	12,915	12,980	13,045	13,110	13,175	13,241	13,307
NONOPERATING INCOME:																	
SALE OF CAPITAL ASSETS			8,891	497	10,831		50,000										
TRANSFERS (IN)		29,106		24,990		72,943											
FINANCING SOURCES		86,221	405,000														
FUND BALANCE APPROPRIATED																	
TOTAL REVENUES	750,134	967,548	1,301,129	860,689	899,023	988,043	1,003,650	958,418	963,210	968,026	972,867	977,731	982,620	987,533	992,470	997,433	1,002,420
NEW SOURCES OF REVENUE:																	
REVENUE FROM WATER RATE INCREASE								56,049	118,854	141,642	165,435	190,274	216,203	243,264	271,505	300,972	331,716
PERCENTAGE INCREASE								11.0%	11.0%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
REVENUE FROM SEWER RATE INCREASE								40,240	85,331	101,692	118,774	136,607	155,222	174,651	194,926	216,082	238,155
PERCENTAGE INCREASE								11.0%	11.0%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
REVENUE FROM INFRASTRUCTURE INVESTMENT FEE INCREASE								6,079	12,891	15,363	17,943	20,637	23,450	26,385	29,448	32,644	35,978
PERCENTAGE INCREASE								11.0%	11.0%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
TOTAL REVENUES	750,134	967,548	1,301,129	860,689	899,023	988,043	1,003,650	1,060,786	1,180,287	1,226,723	1,275,019	1,325,250	1,377,494	1,431,833	1,488,349	1,547,131	1,608,269
EXPENDITURES:																	
SEWER DEPARTMENT:																	
SALARIES AND BENEFITS	123,853	103,373	2,043				66,700	68,368	70,077	71,829	73,624	75,465	77,352	79,285	81,267	83,299	85,382
UNIFORMS	225						450	461	473	485	497	509	522	535	548	562	576
PROFESSIONAL SERVICES	6,805	7,827	6,405	7,210	6,438	12,638	0	0	0	0	0	0	0	0	0	0	0
UTILITIES	58,128	57,565	56,806	52,886	73,203	76,220	40,000	40,800	41,616	42,448	43,297	44,163	45,046	45,947	46,866	47,804	48,760
MAINTENANCE & REPAIRS	21,268	62,126	23,509	5,912	15,745	16,162	25,500	26,010	26,530	27,061	27,602	28,154	28,717	29,291	29,877	30,475	31,084
CHEMICALS	6,514	6,726	4,793	6,002	5,898	5,562	8,800	8,976	9,156	9,339	9,525	9,716	9,910	10,108	10,311	10,517	10,727
SUPPLIES	7,890	12,307	2,912	2,111	4,693	2,359	1,000	1,020	1,040	1,061	1,082	1,104	1,126	1,149	1,172	1,195	1,219
CONTRACTED SERVICES	53,876	61,287	85,752	83,345	92,314	97,965	5,570	5,709	5,852	5,998	6,148	6,302	6,459	6,621	6,787	6,956	7,130
INSURANCE AND BONDS	6,638	6,633	4,600	5,000	2,810	2,800	5,790	5,906	6,024	6,144	6,267	6,393	6,520	6,651	6,784	6,920	7,058
MISCELLANEOUS	6,990	9,728	6,220	33,511	4,551	1,036	11,720	11,954	12,193	12,437	12,686	12,940	13,199	13,463	13,732	14,006	14,287
WATER ADMINISTRATION:																	
SALARIES AND BENEFITS	208,507	187,629	63,056	66,130	73,707	90,516	92,760	96,470	100,329	104,342	108,516	112,857	117,371	122,066	126,948	132,026	137,307
UNIFORMS	594	761															
PROFESSIONAL SERVICES	4,676	6,056	11,920	16,301	28,069	33,282	28,740	29,459	30,195	30,950	31,724	32,517	33,330	34,163	35,017	35,892	36,790
UTILITIES	40,307	46,356	909	1,035	1,072	876	990	990	990	990	990	990	990	990	990	990	990
MAINTENANCE & REPAIRS	27,403	30,220															
CHEMICALS	12,216	17,855															
SUPPLIES	14,706	14,090	1,025	3,040	2,219	3,036	910	928	947	966	985	1,005	1,025	1,045	1,066	1,088	1,109
CONTRACTED SERVICES	382	32,995															
INSURANCE AND BONDS	6,638	6,633	4,600	7,710	1,942	3,024	4,340	4,427	4,515	4,606	4,698	4,792	4,888	4,985	5,085	5,187	5,290
MISCELLANEOUS	3,191	9,514	6,030	16,014	6,582	8,070	7,050	7,191	7,335	7,482	7,631	7,784	7,939	8,098	8,260	8,425	8,594
SEWER TREATMENT:																	
SALARIES AND BENEFITS			108,797	124,228	107,028	98,497											

TABLE 7
TOWN OF PILOT MOUNTAIN
WATER AND SEWER FUND
FINANCIAL ANALYSIS WITH MODERATE CIP

LINE ITEM	AUDIT 2015	AUDIT 2016	AUDIT 2017	AUDIT 2018	AUDIT 2019	AUDIT 2020	ESTIMATE 2021	YEAR 1 2022	YEAR 2 2023	YEAR 3 2024	YEAR 4 2025	YEAR 5 2026	YEAR 6 2027	YEAR 7 2028	YEAR 8 2029	YEAR 9 2030	YEAR 10 2031
PROFESSIONAL SERVICES			9,503	7,718	4,872	6,681											
UTILITIES			45,083	44,344	40,466	43,687	72,000	73,440	74,909	76,407	77,935	79,494	81,084	82,705	84,359	86,047	87,768
MAINTENANCE & REPAIRS			10,571	10,158	1,197	7,081	23,500	23,970	24,449	24,938	25,437	25,946	26,465	26,994	27,534	28,085	28,646
CHEMICALS			16,509	15,667	16,219	17,525	5,800	5,916	6,034	6,155	6,278	6,404	6,532	6,662	6,796	6,932	7,070
SUPPLIES			3,879	1,510	1,402	1,989	1,200	1,224	1,248	1,273	1,299	1,325	1,351	1,378	1,406	1,434	1,463
CONTRACTED SERVICES			4,618	4,160	4,933	25,283	128,690	131,907	135,205	138,585	142,050	145,601	149,241	152,972	156,796	160,716	164,734
INSURANCE AND BONDS			4,600	3,290	5,011	5,190	3,340	3,407	3,475	3,544	3,615	3,688	3,761	3,837	3,913	3,992	4,071
MISCELLANEOUS			6,919	6,319	3,262	3,516	20,260	20,665	21,079	21,500	21,930	22,369	22,816	23,272	23,738	24,213	24,697
LINE MAINTENANCE:																	
SALARIES AND BENEFITS			83,563	89,342	77,801	55,217	70,350	73,164	76,091	79,134	82,300	85,592	89,015	92,576	96,279	100,130	104,135
PROFESSIONAL SERVICES			2,769	1,800	450	14	0	0	0	0	0	0	0	0	0	0	0
UTILITIES			1,280	924	1,301	1,658	660	686	714	742	772	803	835	869	903	939	977
MAINTENANCE & REPAIRS			31,086	23,728	12,908	38,904	39,500	40,290	41,096	41,918	42,756	43,611	44,483	45,373	46,281	47,206	48,150
SUPPLIES			8,176	16,198	10,434	10,703	10,000	10,200	10,404	10,612	10,824	11,041	11,262	11,487	11,717	11,951	12,190
CONTRACTED SERVICES			20,900	5,111	3,806	6,823	37,500	38,438	39,398	40,383	41,393	42,428	43,489	44,576	45,690	46,832	48,003
INSURANCE AND BONDS			4,600	2,545	6,833	4,806	5,140	5,243	5,348	5,455	5,564	5,675	5,788	5,904	6,022	6,143	6,266
MISCELLANEOUS			9,745	10,584	75,507	58,622	61,210	62,434	63,683	64,957	66,256	67,581	68,932	70,311	71,717	73,152	74,615
TOTAL OPERATING EXPENDITURES	610,807	679,681	653,178	673,833	692,673	739,742	779,470	799,653	820,405	841,742	863,682	886,245	909,449	933,315	957,862	983,113	1,009,088
CAPITAL OUTLAY	31,198	110,748	72,501	63,856	40,997	6,623	10,800	28,030	0	61,532	37,153	0	0	0	0	0	0
TRANSFER TO CAPITAL RESERVE FUND							54,990	55,265	55,541	55,819	56,098	56,379	56,660	56,944	57,228	57,515	57,802
DEBT:																	
EXISTING DEBT SERVICE	116,322	113,951	129,253	138,187	131,679	132,187	130,607	166,818	221,821	220,240	128,795	128,095	127,395	112,695	112,695	112,695	112,695
NEW DEBT SERVICE								0	0	0	0	0	140,290	140,290	140,290	461,845	461,845
TRANSFERS (OUT)		41,341		91,421	34,164												
TOTAL EXPENDITURES	758,327	945,721	854,932	967,297	899,513	878,552	975,867	1,049,766	1,097,767	1,179,333	1,085,728	1,070,719	1,233,795	1,243,244	1,268,076	1,615,168	1,641,431
REVENUES OVER EXPENDITURES	-8,193	21,827	446,197	-106,608	-490	109,491	27,783	11,020	82,521	47,390	189,290	254,531	143,699	188,588	220,273	-68,037	-33,162
ACCRUAL ADJUSTMENTS	-139,884	6,252	-507,373	-11,578	-58,516	378,277											
NET INCOME	-148,077	28,079	-61,176	-118,186	-59,006	487,768	27,783	11,020	82,521	47,390	189,290	254,531	143,699	188,588	220,273	-68,037	-33,162
UNRESTRICTED NET ASSETS	-9,995	160,684	273,963	213,650	-166,047	62,611	90,394	101,414	183,935	231,325	420,615	675,146	818,845	1,007,433	1,227,706	1,159,669	1,126,508
UNRESTRICTED NET ASSETS / TOTAL EXPEND	-1.32%	16.99%	32.05%	22.09%	-18.46%	7.13%	9.26%	9.66%	16.76%	19.61%	38.74%	63.06%	66.37%	81.03%	96.82%	71.80%	68.63%
CAPITAL PROJECTS AND RESERVE FUNDS						80,000	134,990	190,255	245,796	301,615	357,713	14,092	70,752	127,696	34,925	92,439	150,241

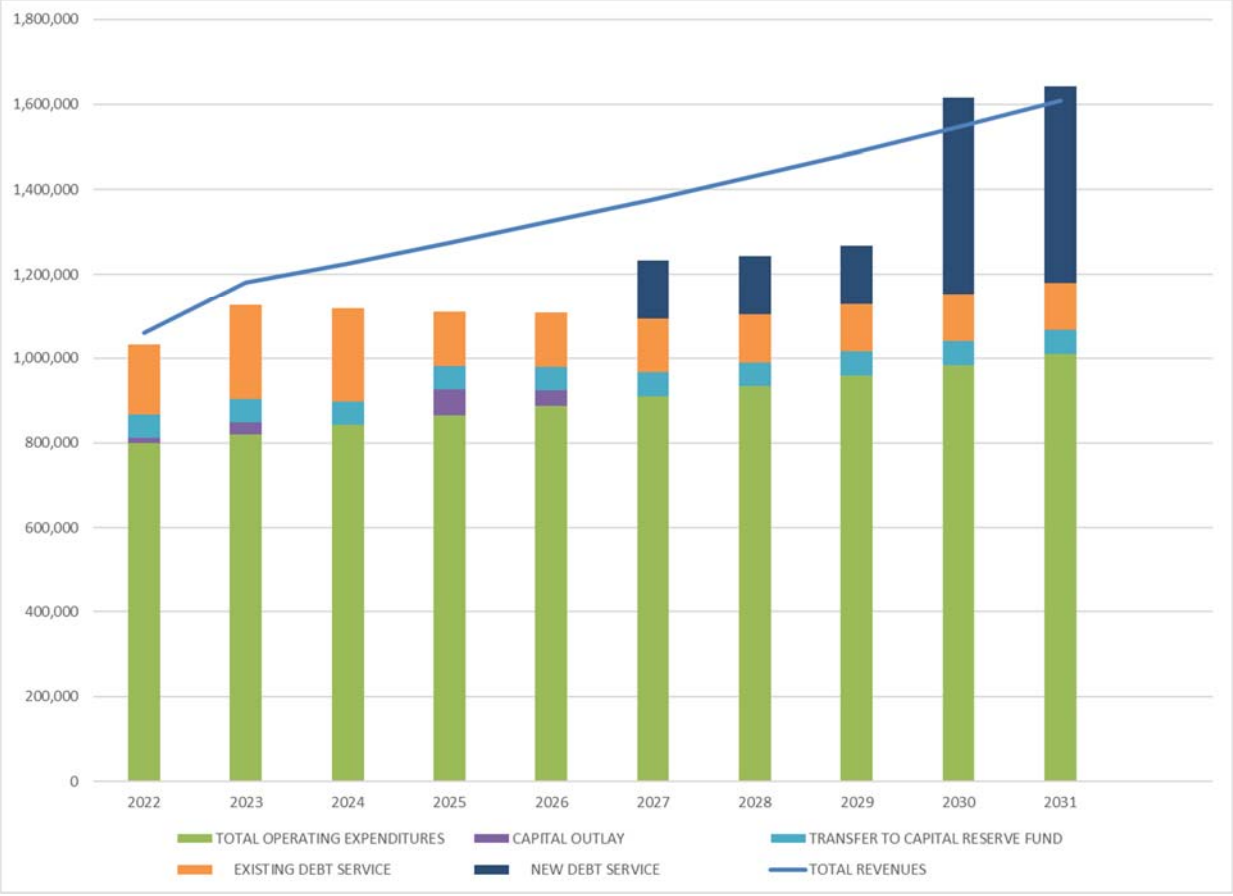
NEW DEBT:	DEBT 1	DEBT 2
PROJECT AMOUNT	2,318,854	4,548,138
RESERVES CONTRIBUTION	400,000	150,000
LOAN AMOUNT	1,918,854	4,398,138
PAYMENT	70,145	160,777
ANNUAL PAYMENTS	140,290	321,554
RATE	4.00%	4.00%
TERM	20	20

Financial Analyses

Each of the columns in the financial models represents the Town's fund revenues and expenditures for a specific fiscal year. Revenues and expenditures from past audited years appear in columns on the left side of the table followed by adjacent columns on the right showing projections for the current fiscal year and ten additional years thereafter. Each row in the table shows a revenue or expense line item from the audit and/or projections. Revenues are listed at the top of the table followed by operating expenses, capital outlays, and debt payments.

Several notable line items are highlighted in yellow including capital outlay, debt, and new revenue sources. Also highlighted are each fiscal year's net income or loss followed by projected Unrestricted Fund balances. The proposed water and sewer revenue increases over the next ten years are also highlighted in the table. These increases are high enough to yield feasible operations for the funds yet not so high as to create excessive fund balances. The projected impact on the fund is shown in Chart 8.

Chart 8
Projected Revenues and Expenditures



As discussed next, current revenues are high enough to yield feasible operations but may not be adequate for increasing the unrestricted net assets or funding future increases in operating costs and capital needs.

Findings

The following characteristics stand out when analyzing the Town's FY 2021 water and sewer fund financial status.

- The fund receives approximately $55,000 from its Infrastructure Investment Fees that are reserved for funding future capital needs.
- Revenues and expenditures have similarly increased between FY 2015 and 2020 at an average annual rate of approximately 5%.
- Unrestricted net assets have been less than 20% of the budget during four of the last six fiscal years.
- Annual debt service has been steady since FY 2017 at approximately $130,000 but it will increase over the next two years to repay new debt issuances.
- Significant capital outlay is planned over the next ten years requiring over $450,000 in new annual revenue to repay new loans.

Outcomes

As a result of our analysis, we have modeled the following water and sewer revenue increases to raise fund balance and finance system growth, inflation, and capital needs. The water and sewer increases would affect fixed and volume charges but not tap or other miscellaneous charges. These increases are prioritized and arranged over time to minimize to the extent possible the impact to most users yet address the need for more revenue. Before the CIP was prioritized, required revenue increases totaled approximately 35% over the first two years. The Town's prioritization of capital projects resulted in lesser revenue needs, as shown below.

- FY 2022 and FY 2023 11% annual increases in water and sewer revenues.
- FY 2024 – 2031 3.5% annual increases in water and sewer revenues.

The increases will help increase fund balance to over $1 million by FY 2028, fund large capital needs, and growing operating costs while considering limited growth in water and sewer usage. It is worth mentioning that an increase in water and sewer revenue may require a greater increase in rates due to the price elasticity of demand. When rates increase customers' usages slightly decrease. However, the revenue loss from the lower water usage is less than the revenue gained from higher rates. Consequently, rate increases generate more revenue for the program but the percentage increases in rates oftentimes must exceed the percentage increases in required revenues.

Conclusions

Based upon our analyses, we have concluded that the water and sewer fund has not been sufficiently recovering its system costs through current revenues and has Unrestricted Net Assets representing only 7% of the annual budget. The current water and sewer rates will not be enough for future increases in operating costs and planned capital projects. However, our estimated annual revenue increases will address these issues and prepare for the phase-in of additional debt service payments, operating, and capital costs associated with the CIP. The Town should consider the issuance of debt for the long-term financing of capital improvements. This would allow debt service payments to be spread over a longer period to minimize rate shock for current customers. Additionally, it allows future customers who will benefit from the improvements pay a fair share of the costs.

The increases are estimated from the current fiscal year's data and projections of future events. If revenues decline due to any one of several risks, rates may need to increase further to replace the lost revenue. The risks include, but are not limited to, the following:

- Declines in usage due to COVID-19.
- Water and sewer usage decline due to higher rates.
- Operating costs growing at unsustainable levels, exceeding those projected.
- Higher than projected construction cost estimates.
- Rising interest rates or unobtainable bank funding.

Due to the multiple risks facing the Town it is recommended that the Town review the assumptions and calculations each year using updated information to determine if adjustments are required at that time to meet established financial objectives.

FY 2022 Budget Presentation
Background Information:
I have included my proposed budget for FY 2022. I have recommended that the tax rate remain the same and that water/sewer rates be increased by 17%. This is based on the rate study done as a part of the AMP project recently completed by WithersRavenel.

Staff Recommendation:	Staff recommends the Board discuss this budget and plan to adopt it after a June public hearing.

Possible Board of Commissioner Actions
• For information and discussion only
Attachments
• Fiscal Year 2022 Proposed Budget

Town of Pilot Mountain, North Carolina
FY 2021-2022 Annual Budget

Budget Message

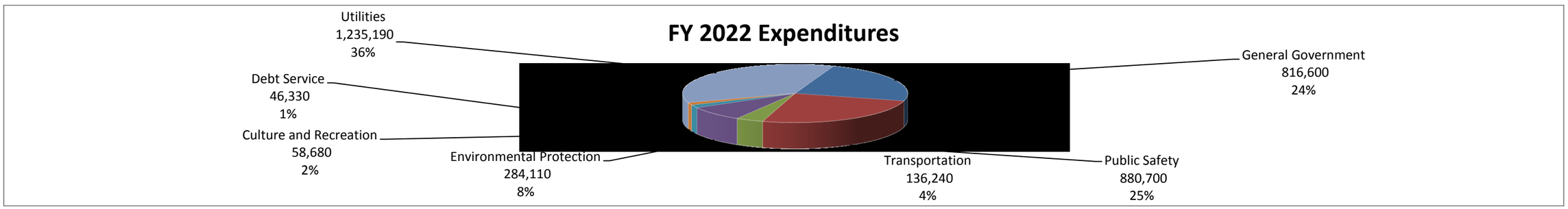
April 8, 2021

To: Honorable Evan J Cockerham &
Members of the Pilot Mountain Board of Commissioners

I am pleased to present to you the FY 2021-2022 Proposed Budget for the Town of Pilot Mountain. The General Fund Budget totals $2,222,830 which is an increase of 3.76% from the FY 2020-2021 budget, as amended throughout the year. The Water/Sewer Fund budget totals $1,180,200 which is a 15% increase over the amended budget for the current fiscal year. The budget for FY 2020-2021 was extremely difficult to develop because of the uncertainty surrounding the effects that the pandemic would have on our revenues. The Board budgeted a 14% reduction in sales tax revenue for FY 2021. As it turns out, we actually saw a year over year increase in our sales tax revenues of 9%. Economists are predicting continued growth in the economy and therefore the NCLM has suggested that we can expect sales tax revenues to grow by at least 3% during FY 2022. Surry County re-valued all property during 2021 and so we are looking at a growth of approximately 5.8% in our property tax base. This means an increase of approximately $75,000 in property tax revenues, if the Board does not adjust the tax rate. The Town will also receive the second round of stimulus funds from the American Recovery Plan Act towards the end of FY 2022 and I have budgeted these to be used for water/sewer projects, assistance to non-profits, and the creation of a fund for help to small businesses. All these items, along with the continued growth of profits at the ABC store and modest growth in other revenue areas have made the FY 2022 budget much easier to prepare. The revenue neutral tax rate for FY 2022 is $.538 per $100 of valuation. I have recommended that the tax rate remain at its current $.57 per $100 of valuation.

I am recommending an increase in the water/sewer rate for FY 2022 as called for in the rate study prepared by WithersRavenel. The rate study that was prepared by WithersRavenel indicates that we need to plan for an increase of 25%-35% over the next two fiscal years depending on the CIP model that we choose. I have recommended an increase of 17% to the water sewer rate for FY 2022. This rate increase, combined with a similar increase in FY 2023 will allow us to choose the aggressive CIP that will allow us to accomplish much needed water sewer projects more quickly. While I understand that this is a significant rate increase, it is necessary so that we can continue to meet our existing debt service demands, operate and maintain our system, and generate the necessary cash flow to take on additional debt service in the future. The current average usage for our customers is 3914 gallons a month which results in a water/sewer bill of $75.43. After the increase that I have proposed above, the new bill for our average customer would be $87.41. Over the last six years we have been able to accomplish a lot of work in our water and sewer system and have been able to manage that with very modest rate increases. Unfortunately we will have to enact rate increases to continue the good work that we have been able to do and continue to make improvements to the financial position of the fund.

Summary:	Estimated Revenues	Total Appropriation	Encumbered Fund Balance
General Fund	$2,222,830	$2,222,830	$0
Enterprise Fund	$1,180,200	$1,180,200	$0
Capital Reserve Fund	$54,990	$54,990	$0
Total:	$3,458,020	$3,458,020	$0



GENERAL FUND
The proposed general fund budget does not make any changes to the existing tax rate of $.57/$100 of valuation.

GOVERNING BODY
The increase in this department is to transfer ARPA funds from the General Fund to the Water/Sewer Fund.

ADMINISTRATION
There are no significant changes to this budget.

COMMUNITY AND ECONOMIC DEVELOPMENT
This department reflects the costs for continuing the Town's relationship with Benchmark and the Surry County Economic Development Partnership. The increase in this department is the contribution to non-profits.

DOWNTOWN REVITILIZATION
This is a houses our downtown revitalization efforts. The increase in this department is to move our Main Street Coordinator to a full time position.

POLICE
The budget for the police department includes the cost of adding a full time employee to serve as a detective and the purchase of two additional vehicles.

TRANSPORTATION
There are no significant changes to this department.

SANITATION
There are no significant changes to this department.

WATER/SEWER FUND
The increases to this fund are due to funds from the ARPA and the increase in the water/sewer rates.

CONCLUSION
In conclusion, this budget maintains the current tax rate, makes increases to the water/sewer rates, and continues to provide high quality service to our citizens. I believe that this budget accomplishes the goals that the Board has laid out and does so at the lowest possible cost to our citizens and customers. I look forward to working with you all to finalize this budget for the next fiscal year. It is important to note that the creation of this budget would not have been possible without the dedicated assistance of the Town's employees and the help of the Board of Commissioners.

Respectfully submitted,

James Michael Boaz
Town Manager

Balance Sheet

Town of Pilot Mountain, NC -- FY 2021-2022

Fund: General	2019-2020 Fiscal(Act)	2020-2021 Fiscal(Est)	2021-2022 Requested	2021-2022 Recommended
Revenue	(1,850,185)	(2,198,551)	(2,222,660)	(2,222,660)
Appropriations - General Government	548,080	591,571	564,500	560,870
Appropriations- Planning & Economic Develop.	279,291	137,672	250,849	255,730
Appropriations - Public Safety	770,264	939,881	886,352	880,700
Appropriations- Environmental Protection	228,196	218,484	282,659	284,110
Appropriations - Transportation	83,661	124,543	135,417	136,240
Appropriations - Culture and Recreation	60,186	64,096	58,682	58,680
Appropriations- Debt Service	38,371	76,569	46,330	46,330
TOTALS	157,864	(45,734)	2,129	-

Fund: Water & Sewer	2019-2020 Fiscal(Act)	2020-2021 Fiscal(Est)	2021-2022 Requested	2021-2022 Recommended
Revenue	(865,526)	(1,162,683)	(1,180,200)	(1,180,200)
Appropriations - Water & Sewer	564,703	1,162,683	898,557	1,180,200
TOTALS	(300,823)	(0)	(281,643)	-

Fund: Capital Reserve	2019-2020 Fiscal(Act)	2020-2021 Fiscal(Est)	2021-2022 Requested	2021-2022 Recommended
Revenue	(56,041)	(108,832)	(54,990)	(54,990)
Appropriations - Capital Reserve	5,000	107,000	54,990	54,990
TOTALS	(51,041)	(1,832)	-	-

Revenue Summary

Town of Pilot Mountain, NC -- FY 2021-2022

Vital Statistics:

- Pilot Mountain Tax Base-$138,683,114
- ***Ad Valorem Tax Rate -- $.57/$100***
- One penny generates $13,868 in additional revenue
- ***Tax Collection Rate -- 99.17%***

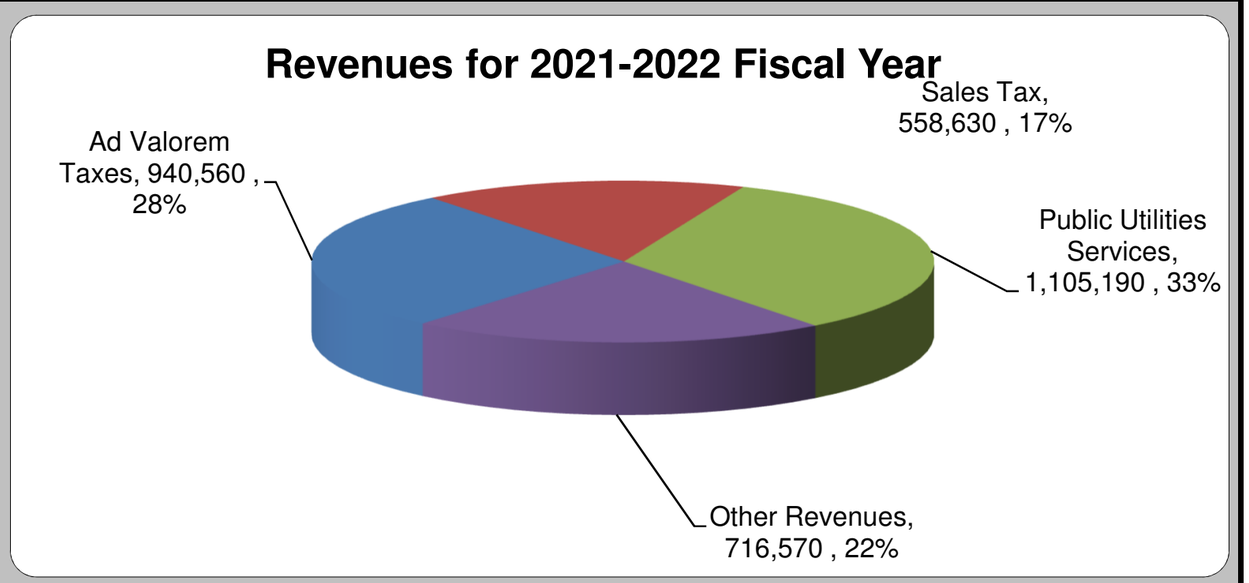
Description:

1) ***Ad Valorem Taxes*** -
This is revenue generated from tax on real and personal property. The current tax rate is $.57 per $100 of valuation.

2) ***Sales Taxes*** -
Sales taxes are those collected by the State and distributed to the Town.

3) Public Utilities Services
These are revenues that are generated by the Water Department.

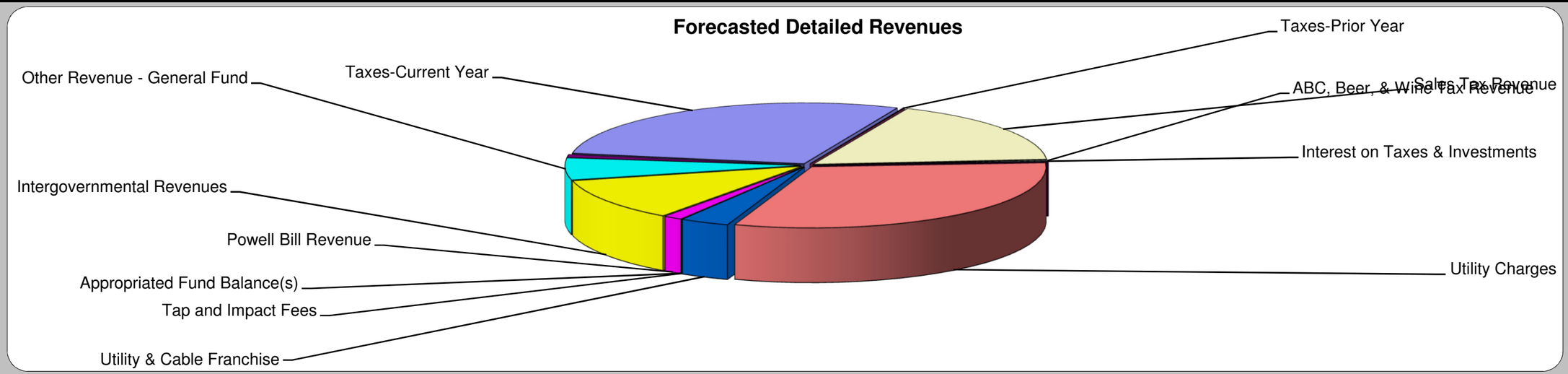
4) Other Revenues
These are other revenues collected by the Town including Utility Franchise tax, cemetery plot sales, rental fees, etc.



Description	2019-2020 Fiscal Year	%	2020-2021 Fiscal Year	%	**2021-2022 Fiscal Year**	%
Ad Valorem Taxes	806,878	29.7%	811,053	26.5%	**940,560**	**28.3%**
Sales Tax	487,324	17.9%	545,000	17.8%	**558,630**	**16.8%**
Public Utilities Services	921,568	33.9%	1,271,515	41.6%	**1,105,190**	**33.3%**
Other Revenues	503,190	18.5%	431,141	14.1%	**716,570**	**21.6%**
TOTALS	2,718,960		3,058,710		**3,320,950**	

Detailed Revenue Summary

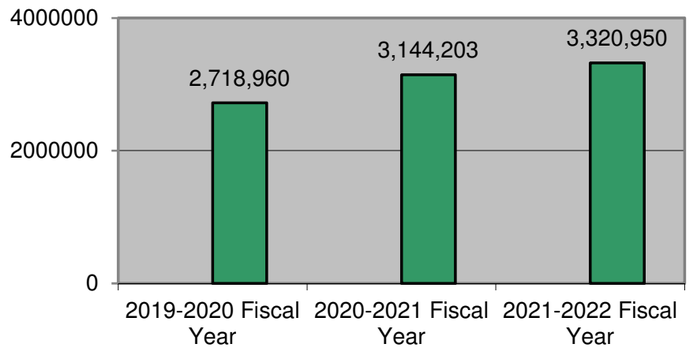
Town of Pilot Mountain, NC -- FY 2021-2022



Description:

This page gives a more detailed description of all revenue sources.

Total Revenues per Fiscal Year



Description	2019-2020 Fiscal Year	%	2020-2021 Fiscal Year	%	**2021-2022 Fiscal Year**	%
Taxes-Current Year	798,473	29.4%	886,119	28.2%	938,060	28.2%
Taxes-Prior Year	8,405	0.3%	10,427	0.3%	2,500	0.1%
Sales Tax Revenue	487,324	17.9%	545,000	17.3%	558,630	16.8%
ABC, Beer, & Wine Tax Revenue	6,820	0.3%	6,668	0.2%	6,900	0.2%
Interest on Taxes & Investments	7,306	0.3%	4,674	0.1%	2,600	0.1%
Utility Charges	837,737	30.8%	872,534	27.8%	1,022,540	30.8%
Utility & Cable Franchise	113,637	4.2%	106,622	3.4%	110,000	3.3%
Tap and Impact Fees	5,453	0.2%	1,645	0.1%	1,800	0.1%
Appropriated Fund Balance(s)	0	0.0%	0	0.0%	0	0.0%
Powell Bill Revenue	43,583	1.6%	41,301	1.3%	42,000	1.3%
Intergovernmental Revenues	129,481	4.8%	110,628	3.5%	365,650	11.0%
Other Revenue - General Fund	202,364	7.4%	161,248	5.1%	189,420	5.7%
Other Revenue - Water & Sewer	22,337	0.8%	288,504	9.2%	25,860	0.8%
Other Revenue - Capital Reserve	56,041	2.1%	108,832	3.5%	54,990	1.7%
TOTALS	2,718,960		3,144,203		**3,320,950**	

FY 2021-2022 BUDGET ESTIMATE - REVENUES

CODE: FUND: **GENERAL** DEPARTMENT: **REVENUE**

ACCOUNT	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 BUDGET OFFICER ESTIMATE	BUDGET YEAR 21-22 APPROVED ESTIMATE
Prior Year Tax Revenue	10-3010-2004	**8,405**	2,500	9,927	500	**10,427**	2,500	
Ad Valorem Tax Revenue	10-3010-2005	**734,854**	782,000	775,626	25,000	**800,626**	858,060	
DMV Tax Revenue	10-3010-9301	**63,619**	78,000	50,494	35,000	**85,494**	80,000	
Tax Penalties & Interest	10-3170-0000	**6,729**	5,000	3,169	1,500	**4,669**	2,500	
Controlled Substance Tax	10-3317-0000	**-**	-	-		**-**		
Police Reports and Fees	10-3319-0000	**330**	300	65	25	**90**	250	
Civil Citations	10-3319-0100	**-**	100	-		**-**		
Miscellaneous Revenue	10-3350-0000	**4,047**	1,500	6,220	150	**6,370**	1,500	
Sale of Fixed Assets	10-3350-0200	**7,310**	55,000	-	10,000	**10,000**		
Downtown Contributions	10-3350-0300	**300**	500	-		**-**	500	
Dinner on Main Street	10-3350-0400	**-**	7,500	-		**-**	7,500	
Food Truck Festival	10-3350-0600	**1,000**	2,680	-	-	**-**	6,000	
Bench Purchase	10-3350-0700	**900**	-	-	-	**-**		
Glow Party	10-3350-0800	**1,624**	5,000	-	-	**-**	-	
Summer Concert	10-3350-0900	**10,475**	10,000	650	-	**650**	5,000	
Hometown Heroes	10-3350-1000	**-**		1,875			1,900	
Rental/Lease Income	10-3360-0000	**11,950**	4,200	2,800	500	**3,300**	4,200	
Insurance Proceeds	10-3360-0100	**-**	12,476	12,226		**12,226**	-	
Utilities Franchise Tax	10-3370-0000	**113,637**	118,140	51,622	55,000	**106,622**	110,000	
Solid Waste Disposal Tax	10-3375-0000	**1,148**	1,000	546	500	**1,046**	1,050	
Beer & Wine Tax	10-3410-0000	**6,820**	6,930	168	6,500	**6,668**	6,900	
Copies	10-3412-4100	**5**	-	-		**-**		
Powell Bill Distribution	10-3440-0000	**43,583**	43,420	41,301	-	**41,301**	42,000	
Local Option Sales Tax	10-3450-0000	**487,324**	448,844	399,534	133,178	**545,000**	558,630	
Federal Fuel Tax Refund	10-3456-0000	**-**	-	-		**-**		
Court Costs Fees	10-3510-0000	**5,930**	200	165	-	**165**	200	
Planning/Zoning Fees	10-3550-0000	**2,155**	1,500	1,680	500	**2,180**	1,500	
Solid Waste Fee	10-3590-0000	**74,910**	73,010	46,170	25,000	**71,170**	72,470	
Cemetery Plot Sales	10-3610-0000	**11,800**	6,000	2,750	4,000	**6,750**	5,000	
TDA Administrative Fee	10-3770-0000	**859**	500	510	100	**610**	500	
TDA Reimbursements	10-3770-0500	**-**	2,900		2,900	**2,830**	2,900	
Interest on Investments	10-3831-4910	**568**	500	3	1	**4**	100	
Interest on Controlled Substance Tax	10-3831-4915	**0**	-	0	-	**0**	-	
Interest on Powell Bill Investments	10-3831-4916	**9**	20	0	0	**0**	-	
Recreation Contribution	10-3831-4930	**72,984**	-	-	-	**-**	-	
ABC Law Enforcement	10-3837-1000	**3,514**	2,000	6,182	-	**6,182**	6,000	
Law Enforcement Contributions	10-3837-2000	**-**			-	**-**		
Law Enforcement Grants	10-3837-3000	**975**		-	-	**-**		
Grants	10-3837-4000	**35,744**	325,000	70,383	252,000	**322,383**	205,000	
Reimbursement for Services	10-3838-4950	**10,502**	15,000	5,982	4,000	**9,982**	10,000	
ABC Profit Sharing	10-3837-1100	**50,000**	90,000	43,671	60,000	**103,671**	150,000	
Mistletoe Market	10-3850-0850	**2,750**	2,500	-	-	**-**	2,500	
Appropriated Fund Balance	10-3690-0000		-		-	**-**	-	
Appropriated Powell Bill Fund Balance	10-3690-0000				-	**-**		
Loan Proceeds	10-3900-0100	**73,425**	38,060	-	38,134	**38,134**	78,000	
TOTALS		**1,850,185**	**2,142,280**	**1,533,720**	**654,488**	**2,198,551**	**2,222,660**	**-**

CODE: FUND: **WATER/SEWER** DEPARTMENT: **REVENUE**

ACCOUNT	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 BUDGET OFFICER ESTIMATE	BUDGET YEAR 21-22 APPROVED ESTIMATE
Miscellaneous Revenue	60-3350-0000	**(4,087)**	300	4,600	-	**4,600**	300	
Sale of Fixed Assets	60-3350-0001	**-**	50,000	-	10,000	**10,000**	-	
Insurance Proceeds	60-3360-0000	**-**	37,475	37,475		**37,475**		
Bad Debt	60-3361-0000	**716**	42,000	45	42,000	**42,045**	-	
Charges for Water	60-3710-0000	**488,539**	505,000	326,564	183,691.99	**510,256**	597,000	
Charges for Sewer	60-3710-0100	**348,565**	364,000	231,679	130,319.50	**361,999**	423,540	
Returned Check Fee	60-3710-0500	**370**	560	342	-	**342**	560	
Service Initiation Fee	60-3710-0600	**2,208**	1,800	1,395	250	**1,645**	1,800	
Bulk Sale of Water	60-3710-5100	**633**	2,000	280		**280**	2,000	
Late Fee	60-3720-0000	**13,860**	15,000	8,043	5,000.00	**13,043**	15,000	
Tap/Connection Fees	60-3730-0000	**3,245**	-	-	-	**-**	-	
Delinquent Fees	60-3750-0000	**11,478**	10,000	880	2,000.00	**2,880**	10,000	
Transfer from General Fund	60-3890-9995	**-**	-	-		**178,119**	130,000	
Transfer from Capital Reserve Fund	60-3890-9996	**-**	-	-	-	**-**	-	
Loan Proceeds	60-3900-0100	**-**	-	-		**-**	-	
Appropriated Retained Earnings	60-3990-0000	**-**	-	-		**-**		
TOTALS		**865,526**	**1,028,135**	**611,303**	**373,261**	**1,162,683**	**1,180,200**	**-**

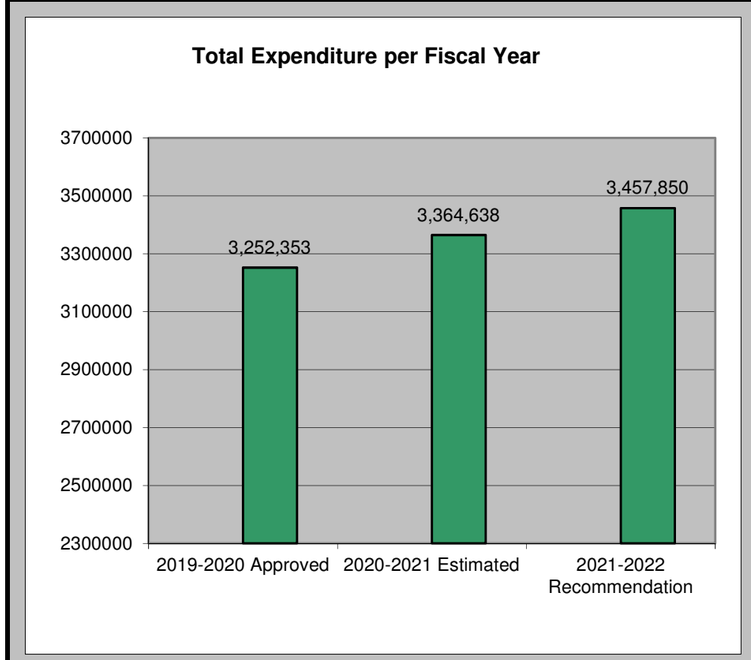
15%

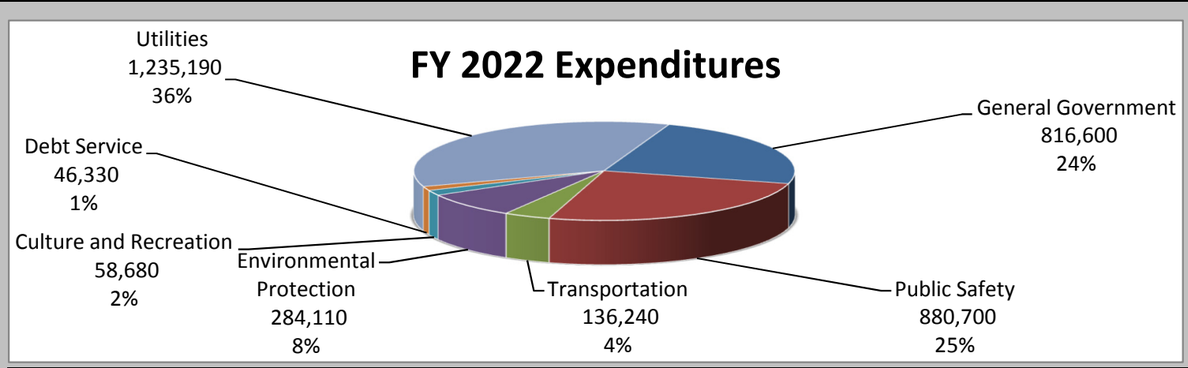
CODE: FUND: **CAPITAL RESERVE** DEPARTMENT: **REVENUE**

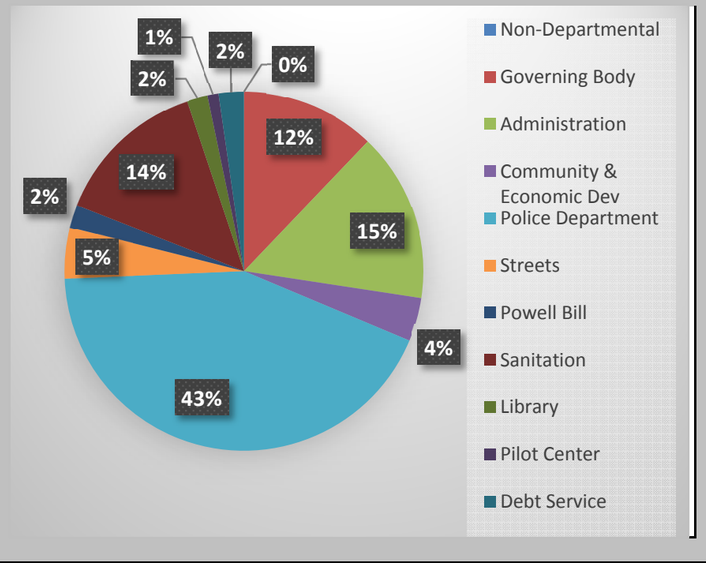
ACCOUNT	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 BUDGET OFFICER ESTIMATE	BUDGET YEAR 21-22 APPROVED ESTIMATE
Infrastructure Investment Fee	95-3710-0200	**56,041**	54,990	37,221	18,610.71	**55,832**	54,990	54,990
Transfer from W/S Fund	95-3890-9996	**-**				**-**		
Fund Balance Appropriated	95-3990-0000	**-**	-	-	53,000	**53,000**		
TOTALS		**56,041**	**54,990**	**37,221**	**71,611**	**108,832**	**54,990**	**54,990**

Total Expenditures Summary

Town of Pilot Mountain, NC -- FY 2021-2022



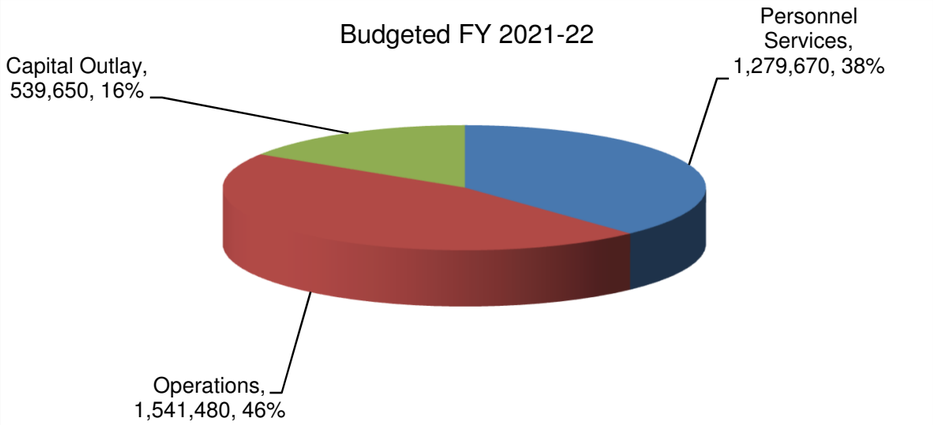


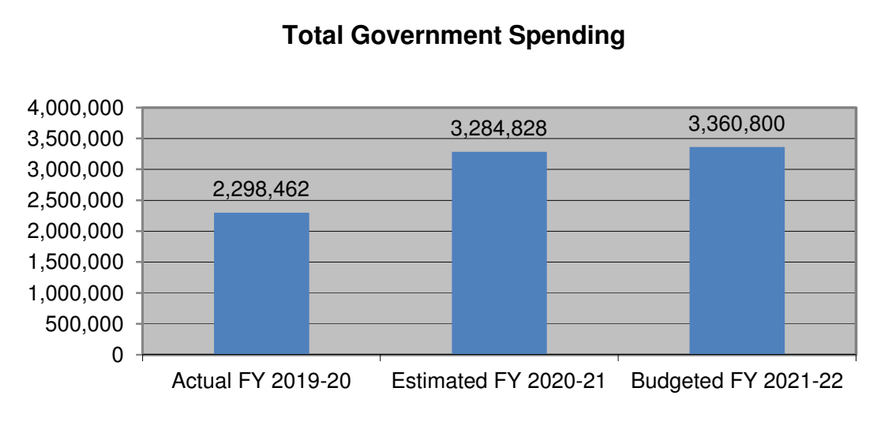


Department	2019-2020 Approved	%	2020-2021 Estimated	%	2021-2022 Recommendation	%
Non-Departmental						
Non-Departmental	43,050	1.3%	-	0	**-**	**0.0%**
General Government						
Governing Body	284,710	8.8%	317,845	9.4%	**248,410**	**7.2%**
Administration	275,160	8.5%	288,011	8.6%	**312,460**	**9.0%**
Community & Economic Dev	74,830	2.3%	54,542	1.6%	**80,460**	**2.3%**
Downtown Revitilization	107,550	3.3%	83,131	2.5%	**175,270**	**5.1%**
Public Safety						
Police Department	995,258	30.6%	952,631	28.3%	**880,700**	**25.5%**
Transportation						
Streets	95,230	2.9%	90,991	2.7%	**94,240**	**2.7%**
Powell Bill	34,840	1.1%	33,552	1.0%	**42,000**	**1.2%**
Environmental Protection						
Sanitation	224,580	6.9%	218,484	6.5%	**284,110**	**8.2%**
Culture and Recreation						
Library	40,340	1.2%	35,321	1.0%	**38,340**	**1.1%**
Pilot Center	20,340	0.6%	28,775	0.9%	**20,340**	**0.6%**
Debt Service						
Debt Service	65,330	2.0%	76,569	0.02276	**46,330**	**1%**
Utilities						
General	167,190	5.1%	302,651	9.0%	**143,970**	**4.2%**
Water Administration	134,790	4.1%	133,207	4.0%	**142,430**	**4.1%**
Production	165,530	5.1%	190,231	5.7%	**155,130**	**4.5%**
WW Treatment	254,790	7.8%	240,644	7.2%	**257,950**	**7.5%**
Maintenance	263,835	8.1%	294,182	8.7%	**480,720**	**13.9%**
Capital Reserve	5,000	0.2%	107,000	3.2%	**54,990**	**1.6%**
TOTALS	3,252,353		3,364,638		**3,457,850**	

Total Government Expenditure Summary

Town of Pilot Mountain, NC -- FY 2021-2022





Category	Actual FY 2019-20	Estimated FY 2020-21	Budgeted FY 2021-22
Personnel Services	1,061,573	1,167,763	1,279,670
Operations	1,143,559	1,634,135	1,541,480
Capital Outlay	93,329	482,930	539,650
TOTAL	2,298,462	3,284,828	3,360,800

Total Government Expenditure Summary

This chart shows a breakdwon of total government spending on personnel expenses, operations, and capital outlay for the previous fiscal year, current fiscal year, and the projected budget for the next fiscal year.

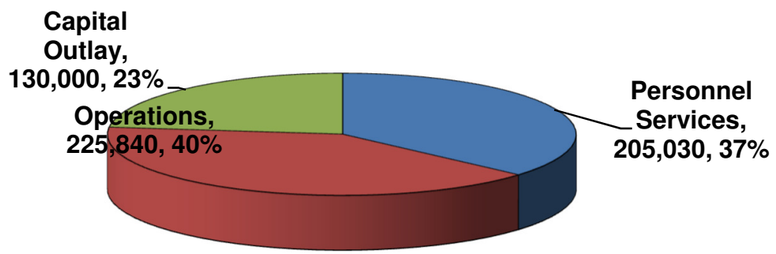
2019-2020 BUDGET ESTIMATE - EXPENDITURES

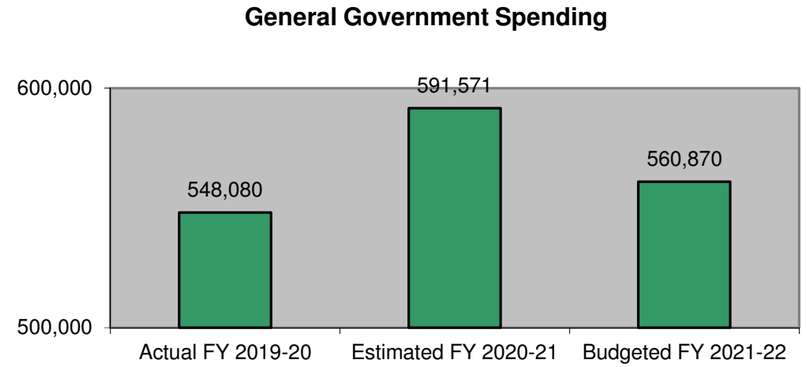
CODE: FUND: **General** DEPARTMENT: **Non-Departmental**

OBJECT OF EXPENDITURE	NUMBER	2017-2018 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 19-20 REQUESTED	BUDGET YEAR 19-20 RECOMMENDED	BUDGET YEAR 19-20 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Non-Departmental											
Contingency	10-4650-9910	-	5,000.00			-		-		(5,000)	-100%
Police Seperation Allowance	10-4650-1230	-	13,770.00							(13,770)	-100%
FICA	10-4650-1810	-	1,050.00							(1,050)	
Contribution to Rescue Sq	10-4650-6130	-	10,000.00					-		(10,000)	-100%
Retireee Ins Costs	10-4650-1850	-	8,230.00					-		(8,230)	-100%
Unemployment Costs	10-4650-5000	-	5,000.00					-		(5,000)	-100%
TOTALS		**-**	**43,050**	**-**	**-**	**-**	**-**	**-**	**-**	(43,050)	-100%

General Government Expenditure Summary

Town of Pilot Mountain, NC -- FY 2021-2022





Category	Actual FY 2019-20	Estimated FY 2020-21	Budgeted FY 2021-22
Personnel Services	199,170	199,405	205,030
Operations	310,926	214,047	225,840
Capital Outlay	37,984	178,119	130,000
TOTAL	548,080	591,571	560,870

Summary of Activities:

The General Government functional area is used to account for general government related expenditures. It includes the Governing Body and Administration departments. The activities for these departments include general admnistration, legislative action, and other related activities.

Accomplishments from Previous Year

During FY 2020-2021 the General Government departments secured the Town's 2nd CAFER award and began working with a new firm to prepare financial statements. These departments also finalized applications to the LGC for approval of finacning of various projects and oversaw a numbe of capital projects.

2021-2022 BUDGET ESTIMATE - EXPENDITURES

Governing Body

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Governing Body											
Board Member Compensation	10-4110-1000	**15,600**	15,600	10,194	5,406	**15,600**	15,600	15,600		-	0%
FICA	10-4110-1810	**1,194**	3,500	777	2,723	**1,193**	1,193	1,190		(2,310)	-66%
Group Insurance	10-4110-1860	**846**	830	243	173	**416**	416	420		(410)	-49%
Professional Services	10-4110-1980	**59,645**	33,010	59,438	3,500	**62,938**	42,068	42,070		9,060	27%
Supplies/Materials	10-4110-2600	**228**	250	7,808	75	**7,883**	500	500		250	100%
Meeting/Event Provisions	10-4110-2650	**-**	500	417	300	**717**	500	500		-	0%
Travel	10-4110-3110	**6,644**	4,750	82	-	**82**	4,750	4,750		-	0%
Printing	10-4110-3260	**-**	-	-		**-**	-	-		-	#DIV/0!
Legal Advertising	10-4110-3700	**876**	500	478		**478**	500	500		-	0%
Insurance	10-4110-4510	**2,690**	4,630	4,630		**4,630**	4,629	4,630		-	0%
Dues and Subscriptions	10-4110-4910	**3,372**	3,750	3,139		**3,139**	3,750	3,750		-	0%
Miscellaneous	10-4110-9000	**119,318**	42,390	650	42,000	**42,650**	500	500		(41,890)	-99%
Transfer to Water/Sewer Fund	10-4110-9995	**-**	171,000		178,119	**178,119**	170,000	130,000		(41,000)	-24%
Contingency	10-4110-9910		4,000				9,920	44,000			
Trasfer to Capital Project Fund	10-4110-9999	**17,850**	-	-		**-**	-	-	-	-	
TOTALS		**228,263**	284,710	87,855	232,297	317,845	254,327	248,410	**-**	(76,300)	-27%

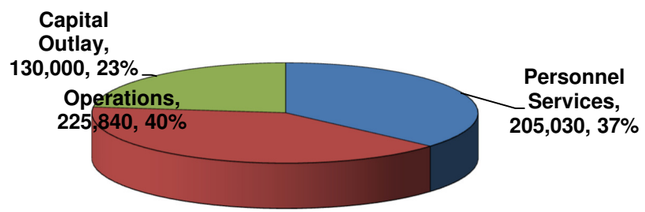
2021-2022 BUDGET ESTIMATE - EXPENDITURES

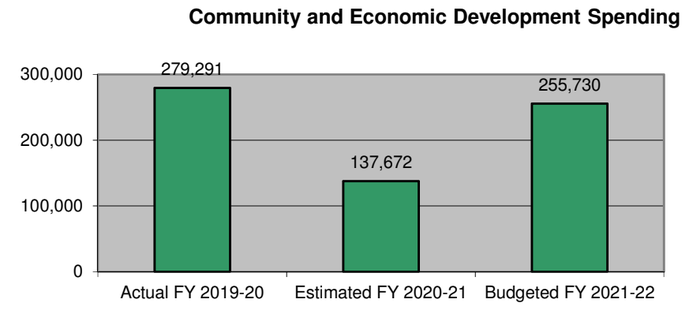
CODE: FUND: **General** DEPARTMENT: **Administration**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Administration											
Salaries and Wages	10-4120-1210	**128,117**	135,060	78,187	48,867	**127,053**	139,280	139,280		4,220	3%
Overtime	10-4120-1220	**-**	750	-	-	**-**	769	770		20	3%
Intern Salary	10-4120-1230	**270**	-	-	-	**-**				-	#DIV/0!
FICA	10-4120-1810	**8,534**	9,950	5,408	3,380	**8,788**	10,249	10,250		300	3%
State Retirement	10-4120-1820	**11,775**	13,040	7,292	4,558	**11,850**	13,441	15,020		1,980	15%
401k	10-4120-1825	**8,202**	6,370	5,151	3,219	**8,370**	6,569	6,570		200	3%
Health Insurance	10-4120-1850	**24,632**	15,920	15,245	10,889	**26,134**	15,931	15,930		10	0%
Collection Fees-MV	10-4120-1900	**2,318**	3,000	2,304	750	**3,054**	3,100	3,100		100	3%
Collection Fees-RP	10-4120-1905	**11,704**	12,700	8,731	2,500	**11,231**	12,500	12,500		(200)	-2%
Professional Services	10-4120-1910	**22,619**	27,190	17,643	11,000	**28,643**	57,716	58,420		31,230	115%
Contracted Services	10-4120-1980	**831**	-	1,420	3,813	**5,233**				-	#DIV/0!
Bank Service Charges	10-4120-2500	**2,680**	1,900	1,913	500	**2,413**	2,700	2,700		800	42%
Office Supplies	10-4120-2600	**8,492**	2,530	12,215	250	**12,465**	3,500	3,500		970	38%
Departmental Supplies	10-4120-2610	**10,862**	11,000	8,568	5,250	**13,818**	8,500	8,500		(2,500)	-23%
Travel & Training	10-4120-3110	**10,808**	7,500	1,989	250	**2,239**	8,000	8,000		500	7%
Telephone & Comms	10-4120-3210	**1,861**	2,430	1,185	236.97	**1,422**	2,548	2,550		120	5%
Postage	10-4120-3250	**931**	950	619	300	**919**	900	900		(50)	-5%
Printing	10-4120-3260	**166**	-	-	-	**-**	-			-	#DIV/0!
Utilities	10-4120-3310	**5,723**	6,350	2,650	1,893	**4,542**	5,000	5,000		(1,350)	-21%
M&R Building & Grounds	10-4120-3510	**25,116**	7,000	4,955	3,000	**7,955**	8,000	8,000		1,000	14%
M&R Equipment	10-4120-3540	**3,336**	750	414	-	**414**	500	500		(250)	-33%
Signage	10-4120-3550	**-**	-		-	**-**				-	#DIV/0!
Advertising	10-4120-3700	**-**	-		-	**-**				-	#DIV/0!
Insurance	10-4120-4510	**8,791**	8,070	8,070	-	**8,070**	8,071	8,070		-	0%
Dues & Subscriptions	10-4120-4910	**1,514**	2,200	2,816	-	**2,816**	2,900	2,900		700	32%
Unemployment Expense	10-4120-5000		-	-	-	**-**				-	#DIV/0!
Capital Outlay	10-4120-7115	**20,134**	-	-	-	**-**	-			-	#DIV/0!
Miscellaneous	10-4120-9000	**400**	500	582	-	**582**				(500)	-100%
TOTALS		**319,817**	275,160	187,356	100,655	**288,011**	310,173	312,460	-	37,300	14%

Planning & Economic Development Expenditure Summary

Town of Pilot Mountain, NC -- FY 2021-2022





Category	Actual FY 2019-20	Estimated FY 2020-21	Budgeted FY 2021-22
Personnel Services	43,228	47,564	79,020
Operations	236,062	90,108	141,710
Capital Outlay	0	0	35,000
TOTAL	279,291	137,672	255,730

Summary of Activities:

The Planning and Economic Development functional area includes the Community & Economic Development and Downtown Development departments. These departments are responsible for our planning, code enforcement, economic development, and downtown development activities.

Accomplishments from Previous Year

During FY 2020-2021 the Community and Economic Development departments worked to support businesses as much as possible during the COVID pandemic. We also started the process to update the Comprehensive Pland and began the Downtown Associate Community Program.

2021-2022 BUDGET ESTIMATE - EXPENDITURES

CODE: FUND: **General** DEPARTMENT: **Community & Economic Devel.**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Community and Econ De											
Professional Services	10-4490-1910	**15,213**	14,830	10,832	8,710	**19,542**	13,958	13,960	13,960	(870)	-6%
Contracted Services	10-4490-1980	**21,003**	21,000	14,002	6,998	**21,000**	21,000	21,000	21,000	-	0%
Office Supplies	10-4490-2600					**-**				-	
Travel & Training	10-4490-3110					**-**				-	
Printing	10-4490-1210					**-**				-	
Advertising	10-4490-3700		-			**-**				-	#DIV/0!
Recreation Allocation	10-4490-3950	**92,984**	10,000	10,000	-	**10,000**	1,500	1,500	1,500	(8,500)	-85%
Contributions to Non-Profits	10-4490-4000		25,000			**-**	40,000	40,000	40,000		
Contributions to TDA	10-4490-6800		-			**-**				-	
Façade Improvement Gr	10-4490-6900					**-**				-	
Economic Development	10-4490-6990	**4,000**	4,000	4,000	-	**4,000**	4,000	4,000	4,000	-	0%
Small Town Main Street	10-4490-6995					**-**				-	
Miscellaneous	10-4490-9000	**-**				**-**				-	#DIV/0!
TOTALS		**133,200**	74,830	38,834	15,708	**54,542**	80,458	80,460	80,460	(9,370)	-13%

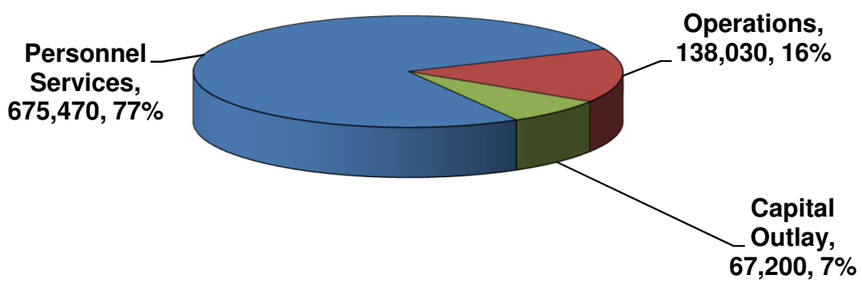
2021-2022 BUDGET ESTIMATE - EXPENDITURES

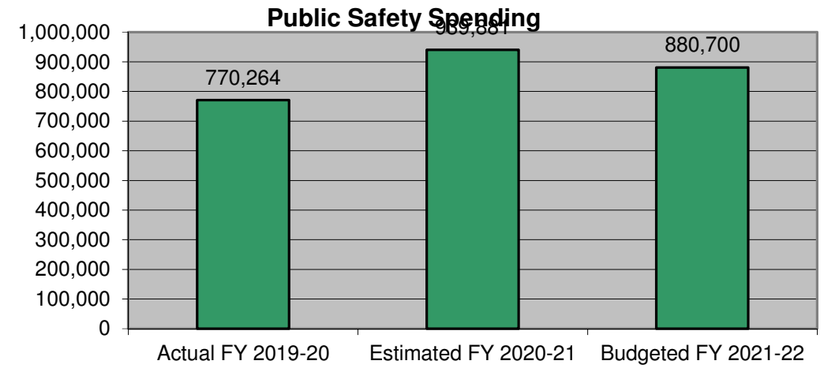
CODE: FUND: **General** DEPARTMENT: **Downtown Revitilization**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Downtown Revitilization											
Salaries and Wages	10-4495-1210	**35,376**	42,360	23,751	14,845	**38,596**	57,702	57,700		15,340	36%
Overtime	10-4495-1220	**-**	-	-	-	**-**	1,000	1,000		1,000	
FICA	10-4495-1810	**2,727**	3,240	1,838	1,149	**2,987**	4,414	4,410		1,170	36%
State Retirement	10-4495-1820	**3,328**	3,750	2,639	1,649	**4,288**	5,182	5,790		2,040	54%
401k	10-4495-1825	**1,783**	1,830	1,042	651	**1,694**	2,533	2,530		700	38%
Health Insurance	10-4495-1850	**15**	-	-	-	**-**	7,585	7,590		7,590	#DIV/0!
Professional Services	10-4495-1910	**6,639**	5,030	2,955	2,500	**5,455**	5,405	12,410		7,380	147%
Temporary Labor	10-4495-1915		10,230	-	-	**-**	10,230	-		(10,230)	-100%
Motor Fuels	10-4495-2510		-							-	#DIV/0!
Departmental Supplies	10-4495-2600	**31,482**	3,000	6,219	1,000	**7,219**	5,000	5,000		2,000	67%
Travel & Training	10-4495-3110	**8,012**	7,500	1,117	500	**1,617**	6,500	6,500		(1,000)	-13%
Telephone & Comms	10-4495-3210	**588**	1,340	663	600	**1,263**	1,573	1,570		230	17%
Insurance	10-4495-4510	**3,450**	4,270	4,270	-	**4,270**	4,267	4,270		-	0%
Façade Grant Program	10-4495-6500	**16,000**	5,000	5,799	2,000	**7,799**	8,000	8,000		3,000	60%
Farmer's Market	10-4495-6600	**-**	-		-	**-**				-	#DIV/0!
Dinner on Main	10-4495-6700	**-**	7,500			**-**		7,500		-	0%
Food Truck	10-4495-6750	**(100)**	2,500	1,650	2,500	**4,150**	6,000	6,000		3,500	140%
Main Street Benches	10-4495-6800	**-**	-	-		**-**				-	#DIV/0!
Special Events	10-4495-6755	**27,578**	10,000	3,794	-	**3,794**	10,000	10,000		-	0%
Capital Expenditures	10-4495-7110	**-**				**-**	35,000	35,000		35,000	#DIV/0!
Miscellaneous	10-4495-9000	**9,213**	-	-	-	**-**		-		-	#DIV/0!
TOTALS		**146,091**	107,550	55,737	27,394	**83,131**	170,391	175,270	-	67,720	63%

Public Safety Expenditure Summary

Town of Pilot Mountain, NC -- FY 2021-2022





Category	Actual FY 2019-20	Estimated FY 2020-21	**Budgeted FY 2021-22**
Personnel Services	570,138	654,303	**675,470**
Operations	111,596	196,579	**138,030**
Capital Outlay	88,530	89,000	**67,200**
TOTAL	770,264	939,881	880,700

Summary of Activities:

This functional area is used to account for the activities of the Pilot Mountain Police Department.

Performance Measures from Previous Fiscal Year:

The Police Department continued its excellent service to the Pilot Mountain community, saw the installation of a new Chief of Police, completed a re-write of the Departmen's SOP manual, and worked dilligently to address the illegal narcotic issues in Town.

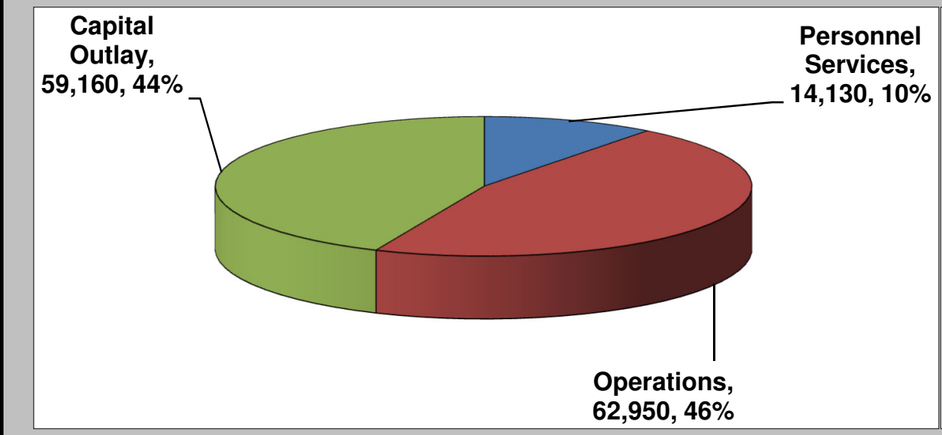
2021-2022 BUDGET ESTIMATE - EXPENDITURES

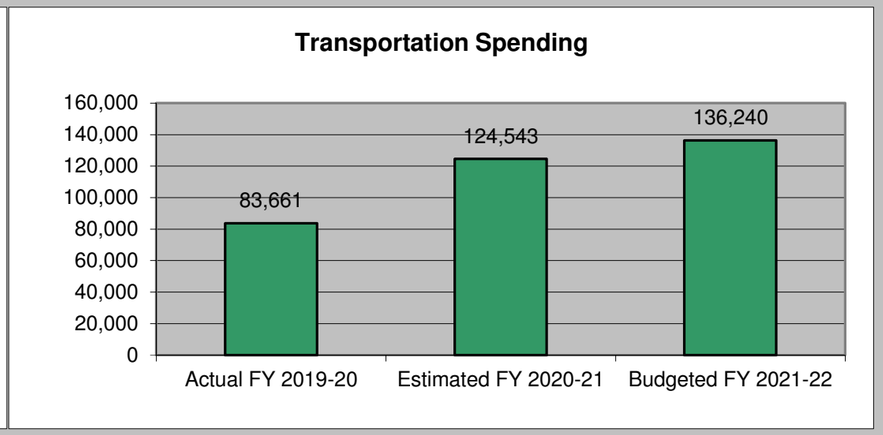
CODE: FUND: **General** DEPARTMENT: **Police**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Police											
Salaries and Wages	10-4510-1210	**367,168**	448,957	253,874	158,671	**412,546**	427,274	427,270		(21,687)	-5%
OT Wages	10-4510-1220	**10,277**	8,960	7,296	4,560	**11,857**	10,520	10,520		1,560	17%
Special Separation Allowance	10-4510-1230	**7,504**	15,060	11,510	7,194	**13,770**	15,059	15,060		-	
Part Time Salaries	10-4510-1240	**30,882**	22,500	17,906	11,191	**29,097**	30,000	30,000		7,500	33%
FICA	10-4510-1810	**30,756**	32,070	21,965	13,728	**36,742**	36,173	36,170		4,100	13%
Retirement	10-4510-1820	**35,955**	40,370	25,690	16,056	**41,746**	46,346	51,500		11,130	28%
401K	10-4510-1825	**16,948**	18,730	14,026	8,766	**22,792**	21,484	21,480		2,750	15%
Health Insurance	10-4510-1850	**70,649**	74,560	45,127	32,234	**85,754**	83,468	83,470		8,910	12%
Professional Services	10-4510-1935	**1,250**	1,130	668	500	**1,168**	3,200	3,200		2,070	183%
Contracted Services	10-4510-1980	**11,107**	18,740	12,140	6,000	**18,140**	19,963	19,960		1,220	7%
Uniforms	10-4510-2120	**2,931**	3,250	1,384	750	**2,134**	3,000	3,000		(250)	-8%
Motor Fuels	10-4510-2510	**14,301**	18,000	11,233	8,023	**19,256**	21,000	21,000		3,000	17%
Office Supplies	10-4510-2600	**2,756**	89,075	2,707	1,000	**3,707**	3,000	3,000		(86,075)	-97%
Departmental Supplies	10-4510-2610	**19,942**	62,500	49,786	47,500	**97,286**	19,000	19,000		(43,500)	-70%
Vehicle Supplies	10-4510-2640	**788**	1,750	158	1,200	**1,358**	1,750	1,750		-	0%
Travel/Training	10-4510-3110	**2,513**	2,200	1,449	500	**1,949**	3,000	3,000		800	36%
Telephone & Communication	10-4510-3210	**8,700**	8,090	5,850	4,178	**10,028**	12,237	12,240		4,150	51%
Postage	10-4510-3250	**159**	150	26	50	**76**	100	100		(50)	-33%
Printing	10-4510-3260	**49**	-	-	-	**-**				-	#DIV/0!
Utilities	10-4510-3310	**6,470**	6,250	3,768	2,692	**6,460**	6,500	6,500		250	4%
M&R Buildings/Grounds	10-4510-3510	**(9,000)**	4,250	4,209	-	**4,209**	5,000	5,000		750	18%
M&R Vehicles	10-4510-3530	**8,475**	8,500	9,962	2,500	**12,462**	5,000	5,000		(3,500)	-41%
M&R Equipment	10-4510-3540	**525**	250	99	-	**99**	1,000	1,000		750	300%
K-9 Program	10-4510-3560	**929**	1,250	-	750	**750**	1,250	1,250		-	0%
Community Outreach	10-4510-3570	**550**	600	260	500	**760**	800	800		200	33%
Insurance	10-4510-4510	**22,275**	16,730	16,756	-	**16,756**	16,728	16,730		-	0%
Dues & Subscriptions	10-4510-4910	**789**	800	582	-	**582**	1,000	1,000		200	25%
Contribution to Rescue Squad	10-4510-6130	**12,000**	12,000		12,000	**12,000**	12,000	12,000		-	0%
Capital Outlay - Vehicles	10-4510-7110	**76,118**	76,536	-	77,000	**77,000**	78,000	67,200		(9,336)	-12%
Capital Outlay - Equipment	10-4510-7115	**12,412**	-	-	12,000	**12,000**	-	-		-	#DIV/0!
Miscellaneous	10-4510-9000	**5,016**	2,000	150		**150**	2,500	2,500		500	25%
TOTALS		771,193	995,258	518,579	429,543	952,631	886,352	880,700	-	(114,558)	-12%

Transportation Expenditure Summary

Town of Pilot Mountain, NC -- FY 2021-2022





Category	Actual FY 2019-20	Estimated FY 2020-21	**Budgeted FY 2021-22**
Personnel Services	14,529	11,754	**14,130**
Operations	62,632	112,789	**62,950**
Capital Outlay	6,500	0	**59,160**
TOTAL	83,661	124,543	136,240

Summary of Activities:

This functional area is used to account for expenses related to maintenance, repair, and construction of the Town's streets and sidewalks. It includes clearing of drainage ditches, mowing, snow removal, pothole repair, sidewalk repair, and other related expenditures.

Performance Measures from Previous Fiscal Year:

The Street department completed the process of replacing street signs and did a significant amount of patching during FY 2021. The department is preparing for the large paving project that will begin in the 2021 paving season.

2021-2022 BUDGET ESTIMATE - EXPENDITURES

CODE:				FUND:	General			DEPARTMENT:	Streets and Highways			
			CURRENT YEAR				BUDGET YEAR 21-22			Year to Year	Year to Year
OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	BUDGETED AMOUNT	ACTUAL 30-Apr	ESTIMATED May/June	ESTIMATED ENTIRE YEAR	REQUESTED	RECOMMENDED	APPROVED	Budget $$ Change	Budget % Change
Streets	4560										
Salaries and Wages	10-4560-1210	**10,540**	9,690	5,772	3,608	**9,380**	10,192	10,190		500	5%
OT Salaries	10-4560-1220	**-**	290	-	-	**-**	-	-		(290)	
FICA	10-4560-1810	**710**	760	434	271	**705**	780	780		20	3%
State Retirement	10-4560-1820	**451**	1,000	37	23	**61**	1,023	1,140		140	14%
401k	10-4560-1825	**242**	490	-	-	**-**	500	500		10	2%
Health Insurance	10-4560-1850	**2,587**	1,520	939	670	**1,609**	1,518	1,520		-	0%
Tempoary Labor	10-4560-1910	**33,447**	24,180	20,935	4,000	**24,935**	-	-		(24,180)	-100%
Professional Services	10-4560-1925	**3,361**	4,510	1,960	392	**2,353**	4,557	5,260		750	17%
Contracted Services	10-4560-1980	**56**	-	779	-	**779**				-	#DIV/0!
Rental-Building/Equipment	10-4560-2100	**780**	1,350	440	500	**940**	1,000	1,000		(350)	-26%
Uniforms	10-4560-2120	**-**	120	157	157		78	80		(40)	-33%
Departmental Supplies	10-4560-2610	**5,362**	5,000	2,419	1,500	**3,919**	4,500	4,500		(500)	-10%
Travel/Training	10-4560-3110	**-**	-	25	-	**25**				-	#DIV/0!
Telephone & Comms	10-4560-3210	**616**	610	605	600	**1,205**	614	610		-	0%
Printing	10-4560-3260	**-**	-	-	-	**-**				-	#DIV/0!
Utilities	10-4560-3310	**39,912**	36,750	20,786	14,847	**35,633**	37,500	37,500		750	2%
M&R Buildings/Grounds	10-4560-3510	**1,165**	2,500	300	500	**800**	1,000	1,000		(1,500)	-60%
M&R Vehicles	10-4560-3530	**1,173**	1,200	882	500	**1,382**	1,500	1,500		300	25%
M&R Equipment	10-4560-3540	**1,514**	1,600	701	500	**1,201**	1,500	1,500		(100)	-6%
M&R Sidewalks	10-4560-3542	**1,326**	-	1,346	-	**1,346**	-	-		-	#DIV/0!
Signage	10-4560-3550	**759**	-	445	500	**945**	1,000	1,000		1,000	#DIV/0!
Insurance	10-4560-4510	**1,743**	3,660	3,660	-	**3,660**	3,655	3,660		-	0%
Capital Outlay - Vehicles	10-4560-7110	**-**	-		-	**-**		-		-	#DIV/0!
Capital Outlay - Equipment	10-4560-7115	**6,500**	-	-	-	**-**	22,000	22,000		22,000	#DIV/0!
Miscellaneous	10-4560-9000	**77**	-	40	75	**115**	500	500		500	#DIV/0!

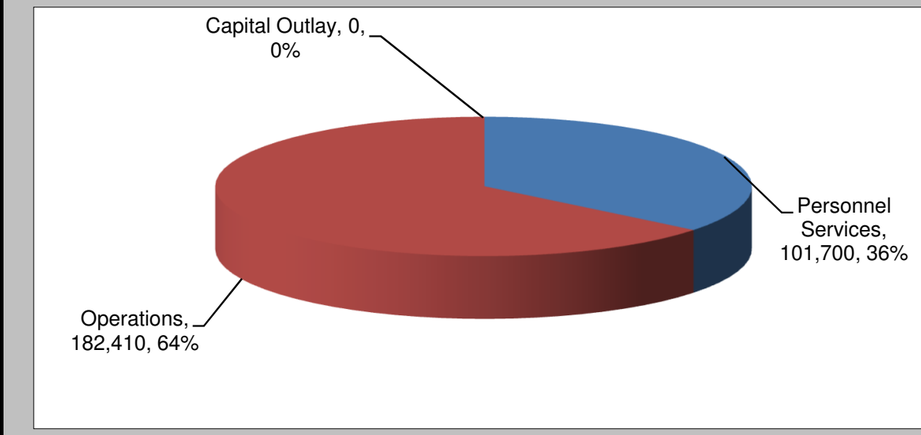
2021-2022 BUDGET ESTIMATE - EXPENDITURES

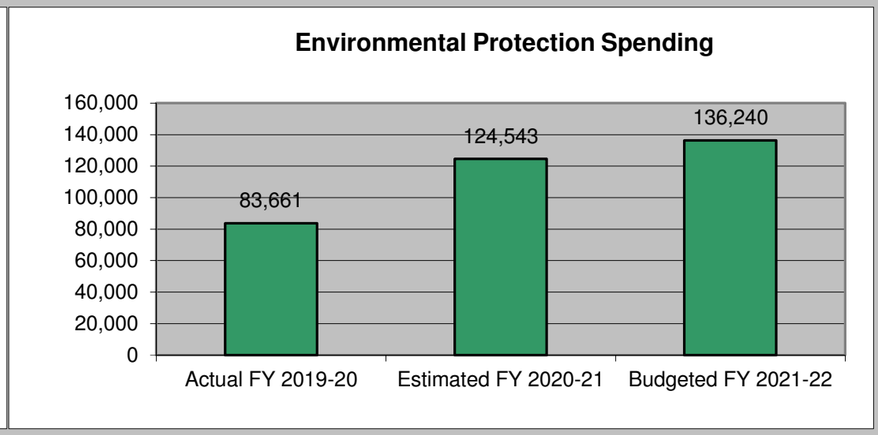
CODE: FUND: **General** DEPARTMENT: **Powell Bill**

OBJECT OF EXPENDITURE		2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Powell Bill	10-4570-0000										
Professional Services	10-4570-1900	1,940	-	28,468		28,468		-	-	-	
Contract Labor	10-4570-1910	-				-		-	-	-	
Contract Work	10-4570-1920					-		-	-	-	
Supplies and Materials	10-4570-2600	867	1,500	1,744	-	1,744	1,500	1,500	1,500	-	
Insurance	10-4570-4510	1,979	3,340	3,340	-	3,340	3,341	3,340	3,340	-	0%
Capital Improvements	10-4570-7125	-	17,000		-	-				(17,000)	
Capital Equipment	10-4570-7115	-	13,000		-	-				(13,000)	
Transfer to Capital Prj.	10-4570-9999	-	-	-	-	-	37,159	37,160		37,160	#DIV/0!
TOTALS		4,786	**34,840**	33,552	-	33,552	42,000	42,000	4,840	7,160	21%

Environmental Protection Expenditure Summary

Town of Pilot Mountain, NC -- FY 2021-2022





Category	Actual FY 2019-20	Estimated FY 2020-21	**Budgeted FY 2021-22**
Personnel Services	84,466	93,801	**101,700**
Operations	137,832	124,683	**182,410**
Capital Outlay	5,898	0	**0**
TOTAL	228,196	218,484	284,110

Summary of Activities:

This functional area is used to account for expenditures related to keeping the Town clean. It includes the cost for garbage and recycling collection as well as yard waste collection, bullky item collection, and other related activities.

Performance Measures from Previous Fiscal Year:

The Sanitation crew continued to use the new brush pickup schedule that was developed last year. We completed our two bulky item pickup weeks. The Department also completed an RFP for solid waste services and contracted out brush collection, mowing, and leaf pickup services.

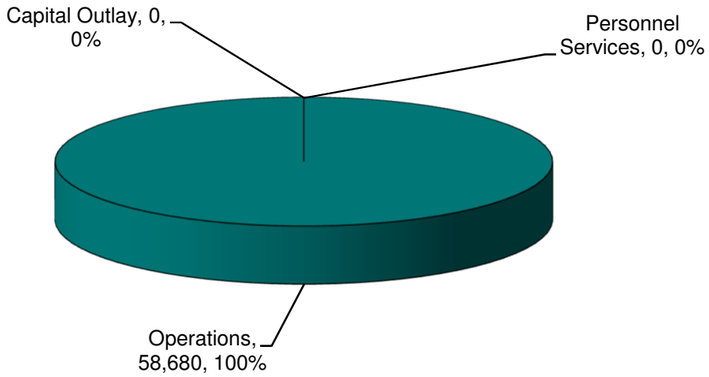
2021-2022 BUDGET ESTIMATE - EXPENDITURES

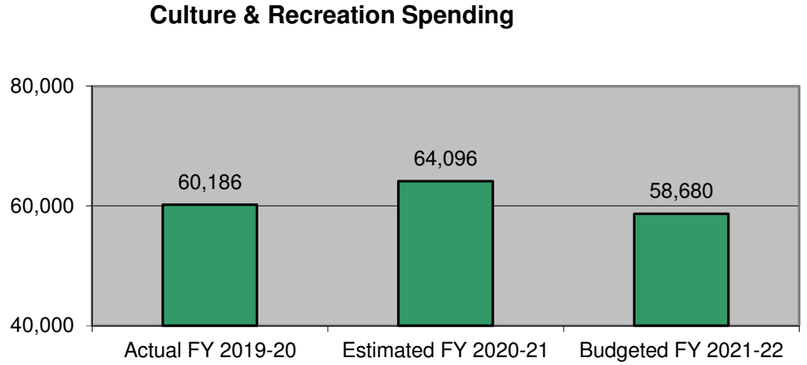
CODE: FUND: **General** DEPARTMENT: **Sanitation**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Sanitation	4580										
Salaries and Wages	10-4580-1210	**59,513**	65,330	38,771	24,232	**63,003**	70,012	70,010		4,680	7%
OT Salaries	10-4580-1220	**728**	1,770	2,479	1,550	**4,029**	1,562	1,560		(210)	-12%
FICA	10-4580-1810	**4,306**	4,730	3,037	1,898	**4,936**	4,962	4,960		230	5%
State Retirement	10-4580-1820	**4,967**	6,200	3,366	2,104	**5,469**	6,509	7,270		1,070	17%
401k	10-4580-1825	**1,544**	3,030	929	581	**1,510**	3,181	3,180		150	5%
Health Insurance	10-4580-1850	**13,407**	14,710	8,665	6,189	**14,854**	14,723	14,720		10	0%
Temporary Labor	10-4580-1910	**33,339**	24,180	20,785	-	**20,785**	-	-		(24,180)	-100%
Contracted Services	10-4580-1980	**1,704**	2,640	1,840	1,000	**2,840**	22,686	23,390		20,750	786%
Contracted Services-Wst Mang	10-4580-2005	**81,726**	70,710	47,165	32,000	**79,165**	71,830	71,830		1,120	2%
Contracted Services-Landscaping	10-4580-2010	**-**				**-**	67,000	67,000		67,000	
Landfill Charges	10-4580-2020	**224**	250	41	50	**91**	250	250		-	0%
Rental Building/Equipment	10-4580-2100		2,250	-	-	**-**				(2,250)	-100%
Uniforms	10-4580-2120	**1,704**	390	613	500	**1,113**	390	390		-	0%
Motor Fuels	10-4580-2510	**7,610**	8,750	5,039	3,500	**8,539**	4,500	4,500		(4,250)	-49%
Supplies & Materials	10-4580-2600	**1,003**	1,500	2,454	500	**2,954**	2,500	2,500		1,000	67%
Vehicle Supplies	10-4580-2640	**6**	110	-	-	**-**	500	500		390	355%
Travel/Training	10-4580-3110	**-**	-	-	-	**-**				-	#DIV/0!
Telephone	10-4580-3210	**-**	610	331	330	**661**	614	610		-	0%
Postage	10-4580-3250	**-**	-	-	-	**-**				-	#DIV/0!
Utilities	10-4580-3310	**2,532**	2,500	1,270	850	**2,120**	2,500	2,500		-	0%
M&R Buildings/Grounds	10-4580-3510	**1,820**	1,250	627	-	**627**	2,000	2,000		750	60%
M&R Vehicle	10-4580-3530	**24**	500	146	-	**146**	500	500		-	0%
M&R Equipment	10-4580-3540	**1,532**	3,230	463	200	**663**	1,500	1,500		(1,730)	-54%
Insurance	10-4580-4510	**4,608**	4,940	4,940	-	**4,940**	4,939	4,940		-	0%
Dues & Subscriptions	10-4580-4910	**-**	-	-	-	**-**				-	#DIV/0!
Capital Outlay - Vehicles	10-4580-7110	**-**	-	-	-	**-**				-	#DIV/0!
Capital Outlay - Equipment	10-4580-7115	**5,898**	5,000	-	-	**-**	-			(5,000)	-100%
Miscellaneous	10-4580-9000	**-**		40	-	**40**				-	#DIV/0!
TOTALS		**228,196**	**224,580**	143,001	75,483	218,484	**282,659**	284,110	-	59,530	27%

Culture & Recreation Expenditure Summary

Town of Pilot Mountain, NC -- FY 2021-2022





Category	Actual FY 2019-20	Estimated FY 2020-21	Budgeted FY 2021-22
Personnel Services	0	0	0
Operations	60,186	64,096	58,680
Capital Outlay	0	0	0
TOTAL	60,186	64,096	58,680

Summary of Activities:

This functional area is used to account for expendtures that are related to culture and recreation. This fucntional area includes the Library and Pilot Center departments.

Performance Measures from Previous Fiscal Year:

2021-2022 BUDGET ESTIMATE - EXPENDITURES

CODE: FUND: **General** DEPARTMENT: **Pilot Center**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Pilot Center	4620		-								
Contracted Services	10-4620-1980	**815**	-	785		**785**		-	-	-	
Utilities	10-4620-3310	**14,224**	15,000	8,471	6,051	**14,522**	15,000	15,000	15,000	-	0%
M&R Facilities/Grounds	10-4620-3510	**262**	2,000	8,493		**8,493**	2,000	2,000	2,000	-	0%
M&R Equipment	10-4620-3540	**172**	-	1,635		**1,635**				-	
Insurance	10-4620-4510	**2,055**	3,340	3,340		**3,340**	3,341	3,340	3,340	-	0%
TOTALS		**17,528**	**20,340**	**22,724**	**6,051**	**28,775**	**20,341**	**20,340**	**20,340**	-	0%

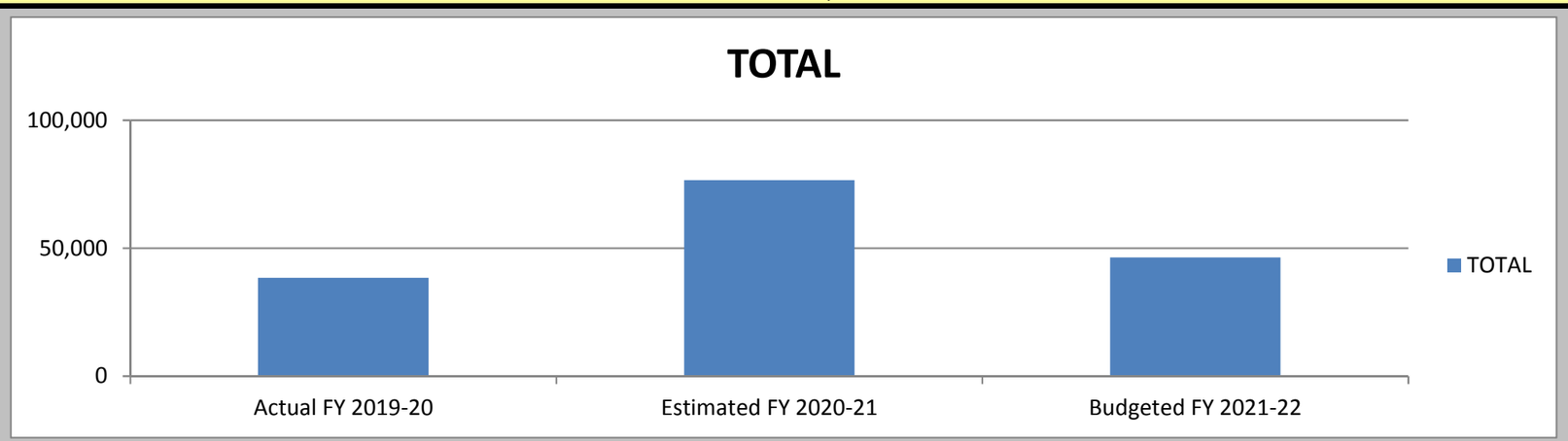
2021-2022 BUDGET ESTIMATE - EXPENDITURES

CODE: FUND: **General** DEPARTMENT: **Library**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Library	4630		-								
M&R Facilities/Grounds	10-4630-3520	**5,058**	2,000	16		**16**				(2,000)	
Insurance	10-4630-4510	**2,055**	3,340	3,340			3,341	3,340			
Contribution to NWRL	10-4630-6100	**35,000**	35,000		35,000	**35,000**	35,000	35,000		-	0%
M&R Facilities/Equipment	10-4630-6200	**546**		305		**305**		-		-	#DIV/0!
Miscellaneous	10-4630-9000	**-**				**-**		-		-	N/A
TOTALS		**42,658**	**40,340**	**3,661**	**35,000**	**35,321**	**38,341**	**38,340**	**-**	(2,000)	-5%

Debt Service Expenditure Summary

Town of Pilot Mountain, NC -- FY 2021-2022



Category	Actual FY 2019-20	Estimated FY 2020-21	Budgeted FY 2021-22
Debt Service	38,371	76,569	46,330
TOTAL	38,371	76,569	**46,330**

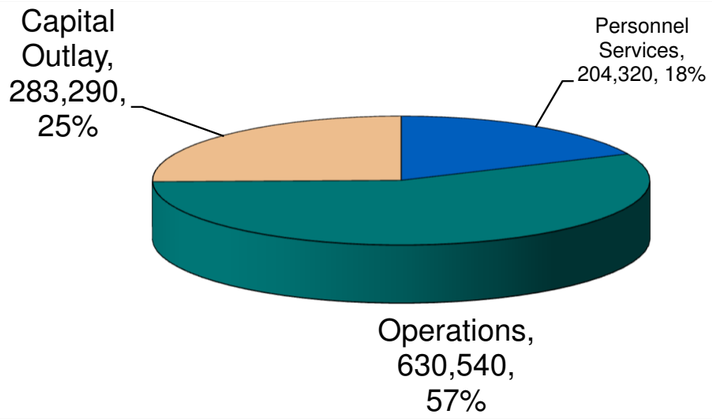
2020-2021 BUDGET ESTIMATE - EXPENDITURES

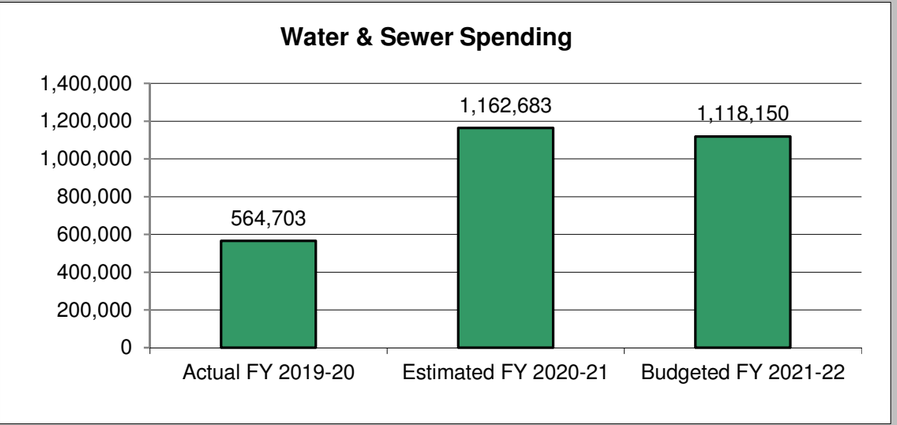
CODE: FUND: **General** DEPARTMENT: **Debt Service**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Debt Service	9100		-								
Loan Payment-Pilot Center	10-9100-1000	**11,243**	22,490	22,487	11,243	**33,730**	22,487	22,490	**22,490**	-	0%
Loan Payment Backhoe/Dump Truck	10-9100-1100	**27,127**	18,320	18,320		**18,320**				(18,320)	-100%
Loan Payment-Streets	10-9100-1200	**-**	0			**-**				-	
Loan Payment-2020 Tahoes	10-9100-1400		15,710	15,709		**15,709**	15,709	15,710	**15,710**		
Loan Payment-Truck	10-9100-1300	**-**	8,810	8,810		**8,810**					0%
Loan Payment-Tahoe	10-9100-1400						8,134	8,130	**8,130**		
TOTALS		**38,371**	**65,330**	**65,326**	**11,243**	**76,569**	**46,330**	**46,330**	**46,330**	(18,320)	-28%

Water & Sewer Expenditure Summary

Town of Pilot Mountain, NC -- FY 2021-2022





Category	Actual FY 2019-20	Estimated FY 2020-21	Budgeted FY 2021-22
Personnel Services	193,269	208,500	**204,320**
Operations	422,017	845,372	**630,540**
Capital Outlay	-50,583	108,811	**283,290**
TOTAL	564,703	1,162,683	1,118,150

Summary of Activities:

This functional area includes all of the activities related to operating the water and sewer functions. It inlcudes the debt service for water and sewer projects, general administration, water production, sewer treatment, and water and sewer line maintenance activiities.

Performance Measures from Previous Fiscal Year:

Continued to work to obtain easements for the Mt. Airy Interconnect project, completed the bid process for this project, and secured the additional funding necessary to construction this project. Completed the AIA project, completd the Sunset Sewer and Water projects and continued the design work on the WWTP project.

2021-2022 BUDGET ESTIMATE - EXPENDITURES

CODE: FUND: **Water** DEPARTMENT: **Non-Departmental**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Non-Departmental	7000										
Charge Back Fee	60-7000-0000	**-**				**-**					
Loan Payment-Backhoe Dumptruck	60-7000-1000	**-**	18,320	18,318	-	**18,318**	-	-	**-**	(18,320)	-100%
Loan Payment-Truck	60-7000-1100	**-**				**-**	-	-	**-**	-	
Loan Payment-Effluent Pump Station	60-7000-1200	**-**				**-**	-	-	**-**	-	
Loan Payment-WS GO Bonds	60-7000-1300	**-**	18,900	-	18,900	**18,900**	18,200	18,200	**18,200**	(700)	-4%
Loan Payment-Water Lines & Plant	60-7000-1400	**-**	30,010	1,399	28,611	**30,010**	29,312	29,310	**29,310**	(700)	-2%
Loan Payment-Water Meters	60-7000-1500	**-**	54,790	54,792	157,060	**211,852**	-	-	**-**	(54,790)	
Loan Payment-Tractor	60-7000-1600	**-**	8,950	8,584	14,987	**23,571**	-	-	**-**	(8,950)	
Loan Payment-Suimset Sewer	60-7000-1700						50,302	50,300	**50,300**		
Loan Payment-Sunset Water	60-7000-1800						11,750	11,750	**11,750**		
Unemployment Expense	60-7000-1860	**-**	-			**-**	-	-	**-**	-	
Contingency	60-7000-9910	**-**	36,220	-	-	**-**	25,000	34,410		(1,810)	-5%
Contribution to Capital Reserve Fund	60-7000-9995	**-**			-	**-**					
Contribution to Capital Reserve	60-7000-9999	**-**			-	**-**	-			-	
TOTALS		**-**	**167,190**	**83,092**	**219,558**	**302,651**	**134,565**	**143,970**	**109,560**	(85,270)	-51%

2021-2022 BUDGET ESTIMATE - EXPENDITURES

CODE: FUND: **Water** DEPARTMENT: **Water Administration**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Water Administration	7700										
Salaries and Wages	60-7700-1210	**54,049**	66,030	43,996	23,373	67,369	63,116	61,900		(4,130)	-6%
OT Wages	60-7700-1220	**-**	1,040	-	-	-	769	770		(270)	-26%
FICA	60-7700-1810	**5,319**	5,080	3,377	2,110	5,487	4,828	4,740		(340)	-7%
State Retirement	60-7700-1820	**-**	6,660	3,568	2,230	5,798	6,334	7,080		420	6%
401k	60-7700-1825	**1,384**	3,250	916	572	1,488	3,096	3,040		(210)	-6%
Health Insurance	60-7700-1850	**7,404**	10,700	4,760	3,400	8,159	10,692	10,690		(10)	0%
Professional Services	60-7700-1980	**33,282**	28,740	17,619	11,000.00	28,619	43,178	43,880		15,140	53%
Telephone	60-7700-3210	**876**	990	224	200	424	1,040	990		-	0%
Supplies and Materials	60-7700-2600	**3,036**	910	1,010	50	1,060				(910)	-100%
Travel & Training	60-7700-3310	**-**	-	-	-	-	-			-	#DIV/0!
Insurance	60-7700-4510	**3,024**	4,340	4,340	-	4,340	4,337	4,340		-	0%
Postage	60-7700-3250	**5,465**	4,900	3,518	2,000	5,518				(4,900)	-100%
M&R Buildings/Grounds	60-7700-3510	**-**	-	-	-	-	-			-	#DIV/0!
M&R Equipment	60-7700-3520	**-**	-	-	-	-	-			-	#DIV/0!
Bank Fees/Service Charges	60-7700-2500	**2,606**	2,150	2,945	2,000	4,945	5,000	5,000		2,850	133%
Capital Equipment	60-7700-7715				-	-	-			-	
Contribution to Capital Reserve	60-7700-7790				-	-	-			-	
Pension Expense	60-7700-9999	**1,269**			-	-	-	-		-	
TOTALS		**117,714**	**134,790**	86,272	46,935	133,207	142,390	142,430	-	**7,640**	6%

2021-2022 BUDGET ESTIMATE - EXPENDITURES

CODE: FUND: **Water** DEPARTMENT: **Production**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Production	30-812-0000										
Pension Expense/Revenue	60-7810-1200	**(1,376)**		-1767.2	-	(1,767)				-	
Salaries and Wages	60-7810-1210	**70,107**	50,530	32,578	18,325	50,903	51,772	51,770		1,240	2%
OT Wages	60-7810-1220	**1,965**	1,380	1,872	1,170	3,043	1,413	1,410		30	2%
FICA	60-7810-1810	**5,417**	3,870	2,529	1,581	4,110	3,961	3,960		90	2%
State Retirement	60-7810-1820	**-**	2,240	3,104	1,940	5,043	2,243	2,510		270	12%
401k	60-7810-1825	**3,604**	1,100	1,673	1,045	2,718	1,096	1,100		-	0%
Health Insurance	60-7810-1850	**10,677**	7,580	4,764	3,403	8,167	7,579	7,580		-	0%
Professional Services	60-7810-1920	**-**	-	-		-				-	#DIV/0!
Lab Testing	60-7810-1930	**6,681**	6,900	2,485	1,775	4,260	5,000	5,000		(1,900)	-28%
Conracted Services	60-7810-1980	**25,283**	5,570	25,266	2,500	27,766	5,692	6,640		1,070	19%
Treatment Chemicals	60-7810-2050	**17,525**	8,800	12,406	1,000	13,406	13,500	13,500		4,700	53%
Uniforms	60-7810-2120	**701**	450	269	-	269	500	500		50	11%
Motor Fuels	60-7810-2510	**(94)**	-		-	-				-	#DIV/0!
Supplies & Materials	60-7810-2600	**1,989**	1,000	657	150	807	1,000	1,000		-	0%
Vehicle Supplies	60-7810-2640	**-**	-		-	-				-	#DIV/0!
Travel/Training	60-7810-3110	**150**	500	135	100	235	500	500		-	0%
Telephone	60-7810-3210	**2,255**	2,370	1,812	362	2,174	2,314	2,370		-	0%
Utilities	60-7810-3310	**41,432**	40,000	24,244	17,317	41,562	42,000	42,000		2,000	5%
M&R Facilities/Grounds	60-7810-3510	**2,102**	3,500	1,150	-	1,150	2,500	2,500		(1,000)	-29%
M&R Vehicle	60-7810-3530	**251**	-	-	-	-	-	-		-	#DIV/0!
M&R System	60-7810-3545	**4,728**	22,000	7,012	-	7,012	5,000	5,000		(17,000)	-77%
Insurance	60-7810-4510	**5,190**	5,790	5,790	-	5,790	5,793	5,790		-	0%
Dues & Subscriptions	60-7810-4910	**445**	950	213	-	213	1,000	1,000		50	5%
Permits	60-7810-4920	**1,090**	1,000	2,560	-	2,560	1,000	1,000		-	0%
Penalties/Fines	60-7810-4920	**2,600**		-	-	-					
Capital Outlay - Buildings	60-7810-7105			10,811	-	10,811				-	
Capital Outlay - Vehicles	60-7810-7110				-	-				-	
Capital Outlay - Equipment	60-7810-7115	**-**			-	-				-	
Capital Outlay - System	60-7810-7125				-	-				-	
Miscellaneous	60-7810-9000				-	-				-	
Transfer to Capital Project	60-7810-9999	**(57,205)**	-	-	-	-					
TOTALS		145,516	**165,530**	139,563	50,669	190,231	153,863	155,130	-	**(10,400)**	-6%

2021-2022 BUDGET ESTIMATE - EXPENDITURES

CODE: FUND: **Water** DEPARTMENT: **WW Treatment**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
WW Treatment	7815										
Pension Expense/Revenue	60-7815-1200	**0**			-	-				**-**	
Professional Services	60-7815-1920	**-**	-	-	-	-	-			**-**	
Lab Testing	60-7815-1930	**12,638**	9,750	6,056	3,500	9,556	10,000	10,000		**250**	3%
Contracted Services	60-7815-1980	**97,965**	128,690	63,224	39,515	102,739	128,804	129,750		**1,060**	1%
Chemicals	60-7815-2050	**5,562**	5,800	5,640	750	6,390	6,500	6,500		**700**	12%
Motor Fuels	60-7815-2510	**1,468**	2,100	655	250	905	1,000	1,000		**(1,100)**	-52%
Supplies & Materials	60-7815-2600	**891**	1,200	2,955	250	3,205	3,500	3,500		**2,300**	
Vehicle Supplies	60-7815-2640	**-**	500	-	-	-				**(500)**	-100%
Travel/Training	60-7815-3110	**255**	500	236	100	336	500	500		**-**	0%
Telephone	60-7815-3210	**2,941**	2,910	1,652	330	1,982	2,856	2,860		**(50)**	-2%
Utilities	60-7815-3310	**73,279**	72,000	46,723	33,374	80,097	82,000	82,000		**10,000**	14%
M&R-Buildings/Grounds	60-7815-3510	**60**	2,000	60	-	60	1,500	1,500		**(500)**	-25%
M&R-Vehicle	60-7815-3530	**2,813**	1,500	58	-	58	1,500	1,500		**-**	0%
M&R-Equipment	60-7815-3540	**9,389**	-	8,383	-	8,383	5,000	5,000		**5,000**	#DIV/0!
M&R-System	60-7815-3545	**3,900**	20,000	14,567	-	14,567	5,000	5,000		**(15,000)**	-75%
Insurance	60-7815-4510	**2,800**	3,340	3,340	-	3,340	3,341	3,340		**-**	0%
Dues & Subscriptions	60-7815-4910	**-**	300	213	-	213	500	500		**200**	67%
Licenses/Permits	60-7815-4920	**781**	4,200	8,814	-	8,814	5,000	5,000		**800**	19%
Capital Outlay - Vehicles	60-7815-7110				-	-				**-**	
Capital Outlay - Equipment	60-7815-7115				-	-				**-**	#DIV/0!
Capital Outlay - System	60-7815-7125				-	-				**-**	
Transfer to Capital Project	60-7815-9999				-	-				**-**	
Miscellaneous	60-7815-9000	**16,649**			-	-				**-**	
TOTALS		**231,391**	**254,790**	162,575	78,069	240,644	257,002	257,950	-	3,160	1%

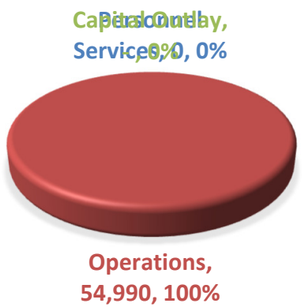
2021-2022 BUDGET ESTIMATE - EXPENDITURES

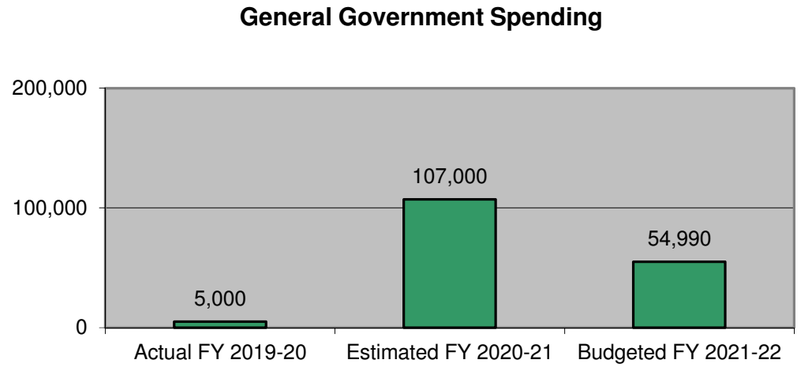
CODE: FUND: **Water & Sewer** DEPARTMENT: **Water&Sewer Line Maintenance**

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Water Maintenance	7820										
Salaries and Wages	60-7820-1210	**26,287**	32,040	19,041	11,901	**30,942**	32,942	32,940		900	3%
OT Expense	60-7820-1220	**180**	370	696	435	**1,131**	390	390		20	5%
FICA	60-7820-1810	**3,347**	2,520	1,523	952	**2,475**	2,605	2,610		90	4%
Retirement	60-7820-1820	**-**	3,300	1,873	1,171	**3,044**	3,417	3,820		520	16%
401k	60-7820-1825	**2,203**	1,610	1,006	629	**1,634**	1,670	1,670		60	4%
Health Insurance	60-7820-1850	**2,704**	6,330	4,077	2,912	**6,989**	6,337	6,340		10	0%
Temporary Labor	60-7820-1910	**14**	24,180	-	12,000	**12,000**	-	-		(24,180)	-100%
Professional Services	60-7820-1920	**3,000**	-	11,226	-	**11,226**				-	#DIV/0!
Contracted Services	60-7820-1980	**3,823**	44,100	3,489	10,000	**13,489**	53,317	54,020		9,920	22%
Tank Maintenance	60-7820-1990	**48,326**	48,330	48,326	-	**48,326**	48,330	48,330		-	0%
Equipment Rental	60-7820-2100	**2,618**	4,200	410	500	**910**	2,500	2,500		(1,700)	-40%
Uniforms	60-7820-2110	**917**	1,430	820	150	**970**	1,430	1,430		-	0%
Motor Fuels	60-7820-2510	**3,529**	3,000	2,199	500	**2,699**	3,000	3,000		-	0%
Supplies & Materials	60-7820-2600	**11,293**	10,000	15,639	500	**16,139**	12,500	12,500		2,500	25%
Vehicle Supplies	60-7820-2640	**334**	750	-	-	**-**				(750)	-100%
Travel/Training	60-7820-3110	**374**	1,000	1,650	100	**1,750**	1,000	1,000		-	0%
Telephone	60-7820-3210	**1,658**	660	681	600	**1,281**	655	660		-	0%
M&R-Buildings/Grounds	60-7820-3510	**2,564**	750	216	-	**216**	500	500		(250)	-33%
M&R-Vehicle	60-7820-3530	**922**	750	162	-	**162**	500	500		(250)	-33%
M&R-Equipment	60-7820-3540	**5,910**	8,000	1,588	-	**1,588**	2,500	2,500		(5,500)	-69%
M&R-System	60-7820-3545	**29,508**	30,000	33,930	-	**33,930**	30,000	15,580		(14,420)	-48%
Insurance	60-7820-4510	**4,806**	5,140	5,140	-	**5,140**	5,142	5,140		-	0%
Licenses/Permits	60-7820-4920	**1,410**	2,000	100	-	**100**	2,000	2,000		-	0%
Capital Outlay - Vehicles	60-7820-7110	**-**	-		-	**-**				-	#DIV/0!
Capital Outlay - Equipment	60-7820-7115	**6,623**	2,000	-	-	**-**	-	126,000		124,000	6200%
Capital Outlay - System	60-7820-7125	**-**	30,875		98,000	**98,000**	-	157,290		126,415	409%
Miscellaneous	60-7820-9000	**8,313**	500	41	-	**41**	-			(500)	
Transfer to Capital Project	60-7820-9999	**385,025**				**-**	-			-	
TOTALS		**555,686**	**263,835**	153,833	140,349	**294,182**	210,738	480,720	-	216,885	82%

Capital Reserve Expenditure Summary

Town of Pilot Mountain, NC -- FY 2019-2020





Category	Actual FY 2017-18	Estimated FY 2018-19	Budgeted FY 2019-20
Personnel Services	0	0	0
Operations	0	0	54,990
Capital Outlay	5,000	107,000	-
TOTAL	5,000	107,000	54,990

Summary of Activities:

The Capital Reserve Fund is used to account for the infrastructure investment fee paid by water and sewer customers. This money is dedicated to be used for future capital projects.

Accomplishments from Previous Year

2021-2022 BUDGET ESTIMATE - EXPENDITURES

Capital Reserve

OBJECT OF EXPENDITURE	NUMBER	2019-2020 ACTUAL	CURRENT YEAR BUDGETED AMOUNT	CURRENT YEAR ACTUAL 30-Apr	CURRENT YEAR ESTIMATED May/June	CURRENT YEAR ESTIMATED ENTIRE YEAR	BUDGET YEAR 21-22 REQUESTED	BUDGET YEAR 21-22 RECOMMENDED	BUDGET YEAR 21-22 APPROVED	Year to Year Budget $$ Change	Year to Year Budget % Change
Capital Reserve											
Transfer to Water/Sewer Fund	95-7000-9995	**-**				**-**	-	-	-	-	
Transfer to Capital Project Fund	95-7000-9996	**5,000**	-	-		**-**	54,990	54,990	54,990	54,990	
Contribution to Capital Reserve	95-7000-9999	**-**	54,990		107,000	**107,000**	-	-	-	(54,990)	
TOTALS		**5,000**	54,990	-	107,000	107,000	54,990	54,990	54,990	-	0%

Pilot Mountain Town Hall
124 West Main St.
Pilot Mountain, NC 27041

(Phone) – 336.368.2247
www.pilotmountainnc.org

MEMORANDUM

TO:	**Mayor and Board of Commissioners**
FROM:	**Michael Boaz, Town Manager/Finance Officer**
DATE:	**April 8, 2021**
RE:	**April 2021 Manager's Report**

- I want to remind everyone that we will have a meeting on April 22 to start our FY 2022 budget discussions. We likely will tackle the General Fund at this meeting and save the Water/Sewer fund for the 2nd meeting in May.
- I have received a number of applications for the PW Director's job. I have asked several people to help me review these applications and to sit on the interview panel. I hope to have this process complete in advance of our next meeting in May.
- As you all know, we will not be having any events in April or May. We are still waiting to see what the new restrictions will be when the current executive order expires at the end of April. That will guide our decisions on what to do about July. I know that there has been a lot of public comment that we are discouraging people from coming downtown and shopping at our businesses. Nothing can be further from the truth. We want folks to come downtown and patronize our businesses and restaurants. Unfortunately, we just cannot have ANY events right now. The staff and I look forward to the time when the restrictions are lifted and we can get back to our normal events. We still encourage people to frequent our downtown businesses and restaurants but to do so while following the 3 W's. The quickest way to get back to normal is the follow the 3 W's and to get your shot when it is your turn.

PROJECT UPDATES

1. Depot Street Stream Restoration Project: All easements have been collected and design/build is underway. We have been granted an additional extension.
2. Main Street National Register District: These applications have been submitted to the State Historic Preservation Office..
3. Street Paving Project: We are preparing to submit the application to the LGC for approval.
4. Sunset Sewer Sub-Basin Project: The project is under construction with completion expected in May.
5. Water Treatment Upgrade: We are still working on easements. We have asked for additional funding from the State which we expect to be approved at the May 2021 LGC meeting.
6. Streetscape Project: WR continues to work with Duke Energy on Plan B.
7. WWTP & Pump Station Project: Design is underway. Final designs will be submitted at the end of April. We should be able to bid this project in the summer.

TOWN OF PILOT MOUNTAIN

Monthly Financial Dashboard

FISCAL YEAR ENDING June 30, 2021

Reporting Period: March 1- March 31 2021

OUR CASH AND INVESTMENTS

Balances on March 31 2021, in whole dollars

CASH & INVESTMENTS BY FUND

GENERAL FUND

	Mach 2020	March 2021
Central Depository	$ 609,678	$ 56,386
NCCMT	(669)	96,378
NCCMT-Powell Bill	710	711
NCCMT-Term Account	5,514	-
Police Drug Forfeiture	2,196	2,196
Centura Bank CD	25,031	25,031
Fiduciary Funds	65,301	17,162
TOTAL GENERAL FUND	**$ 707,760**	**$ 197,864**

OTHER FUNDS

	March 2020	March 2021
Water & Sewer Fund	$ 10,817	$ 30,951
NCCMT-Water/Sewer	$ 4,313	$ 5,557
Water & Sewer AIA	$ (29,263)	$ (18,226)
Interconnection CP	$ 7,000	$ -
WWTP Upgrade	$ (16,650)	$ (49,511)
Sunset/Simmons Water	N/A	($31,120)
Water Treatment Upgrade	($282,530)	($46,859)
Streetscape Project	$5,104	($1,474)
Sunset Sewer Project	($250,969)	$214,219
Street Resurfacing	$6,019	$6,019
Capital Reserve	$ 46,388	$ 100,935
TOTAL OTHER FUNDS	**$ (499,770)**	**$ 210,490**

TOTAL CASH & INVESTMENTS TOWN-WIDE

	March 2020	March 2021
ALL FUNDS	**$ 207,990**	**$ 408,354**

OUR CASH FLOWS…

			Comparison of FYTD %	
GENERAL FUND REVENUES & EXPENDITURES			**Prior FYTD %**	**Current FYTD %**
	Fiscal Year Budget		**$ 1,892,090**	**$ 1,754,560**
	Revenues Fiscal Year to Date		79.00%	82.00%
	Expenses Fiscal Year to Date		74.56%	74.14%
WATER & SEWER ENTERPRISE FUND				
	Fiscal Year Budget		**$ 906,480**	**$ 986,135**
	Revenues Fiscal Year to Date		73.93%	71.42%
	Expenses Fiscal Year to Date		75.29%	75.93%
WWTP & PUMP STATION REHAB PROJECT				
	Project Budget		**N/A**	**$ 1,374,500**
	Revenues Project to Date	$ 52,606	N/A	3.83%
	Expenses Project to Date	$ 91,381	1.21%	6.65%
Water Treatment Upgrade Project				
	Project Budget		**$ 3,978,000**	**$ 3,978,000**
	Revenues Project to Date	$ 306,530	0.00%	7.71%
	Expenses Project to Date	$ 346,959	7.28%	8.72%
Sunset Sewer Rehabilitation Project				
	Project Budget		$ 2,573,038	**$ 2,573,038**
	Revenues Project to Date	$ 1,033,196	1.72%	40.15%
	Expenses Project to Date	$ 1,007,667	11.67%	39.16%
WATER & SEWER AIA PROJECT			**NA**	**$ 305,000**
	Project Budget			
	Revenues Project to Date	$ 238,871	23%	78%
	Expenses Project to Date	$ 236,274	33%	77%

SPECIFIC REVENUE COLLECTIONS AT A GLANCE…

		Comparison of FY %	
		Prior FY %	Current FY %
AD VALOREM PROPERTY TAX			
Fiscal Year Budget		**$ 847,090**	**$ 867,500**
Revenues this Month	$ 12,115	3.65%	1.40%
Revenues FYTD	$ 860,358	98.01%	99.18%
SALES & USE TAX			
Fiscal Year Budget		**$ 469,790**	**$ 448,844**
Revenues this Month	$ 52,264	9.65%	11.64%
Revenues FYTD	$ 399,333	79.43%	88.97%
UTILITY FRANCHISE TAX			
Fiscal Year Budget		**$ 106,020**	**$ 118,140**
Revenues this Month	$ 24,810	26.11%	21.00%
Revenues FYTD	$ 76,433	77.64%	64.70%
REFUSE COLLECTION FEES			
Fiscal Year Budget		**$ 69,840**	**$ 73,010**
Revenues this Month	$ 6,688	9.47%	9.16%
Revenues FYTD	$ 56,703	80.06%	77.66%
SALES & SERVICES			
Fiscal Year Budget		**$ 23,500**	**$ 81,700**
Revenues this Month	$ 4,837	2.87%	2.18%
Revenues FYTD	$ 22,149	58.66%	51.86%
WATER & SEWER ENTERPRISE FUND REVENUES			
Fiscal Year Budget		**$ 906,480**	**$ 986,135**
Revenues this Month	$ 76,275	7.21%	8.46%
Revenues FYTD	$ 704,303	73.93%	71.42%

	Comparison of Monthly Expenses		
GENERAL FUND DEPARTMENTS	**Fiscal Year 2021 Budget**	**YTD Expenses Prior FY**	**YTD Expenses Current FY**
Governing Body	$ 69,400	$ 174,814	$ 90,998
Administration	275,160	232,567	229,729
Community & Economic D	41,330	38,964	42,477
Downtown Revitilization	107,550	106,677	64,764
Police Dept	960,258	608,863	624,062
Street Dept	95,230	87,578	73,183
Powell Bill	43,420	4,786	38,127
Sanitation	224,580	176,099	172,922
Pilot Center	20,340	14,984	24,001
Library	40,340	7,658	3,661
Debt Service	65,330	47,137	76,570
Non Departmental	-	5,548	-
	$ 1,942,938	$ 1,505,674	$ 1,440,494
Fiscal Year Budget	**$ 1,811,040**	**$ 1,942,938**	
YTD % of Annual Budget Expended	83.14%	74.14%	
WATER & SEWER ENTERPRISE FUND			
General	$ 167,190	$ 103,821	$ 111,705
Water/Sewer Administration	134,790	105,073	99,734
Production	165,530	152,039	162,356
WWTP	254,790	157,557	184,458
Line Maintenance	263,835	164,014	190,489
	$ 986,135	$ 682,503	$ 748,742
Fiscal Year Budget	**$ 906,480**	**$ 986,135**	
YTD% of Annual Budget Expended	75.29%	75.93%	

MONTHLY STATUS REPORT OF
OPERATION FOR THE PILOT MOUNTAIN
WASTEWATER TREATMENT PLANT

MONTH: February **YEAR: 2021**

OPERATIONS:

MILLION GALLONS OF WATER TREATED	**6.188**	**PERMIT LIMIT MGD**	**.500**
AVERAGE DAILY VOLUME TREATED	**.221**		
TOTAL RAINFALL INCHES	**6.10**		

CHEMICALS USED:

CHLORINE/BLEACH	**90 Gallons**
POLYMER	**0 Gallons**

CHEMICAL ANALYSIS:

Parameter	Permit Limits	Monthly Results
BOD	**30 max. avg. monthly**	**5.67**
TSS	**30 max. avg. monthly**	**10.7**
D.O.	**5 minimum avg. daily eff.**	**8.04**
Fecal Coliform	**200 max. avg. monthly**	**<1**
Ammonia-Nitrogen	**28.6 max. avg. monthly**	**7.64**

We were in compliance with all permit requirements.

Pilot Mountain Police Department
Monthly Report for March 2021

Accidents

3/24/2021 644 S Key St
3/26/2021 818 S Key St
3/29/2021 801 W Main St
3/30/2021 731 S Key St
722 E Main St

	TOTAL	AMOUNT	RECOVERED
Police Service	190		
Wrecks Investigated	4	$ 3,550.00	
Assaults	0		
Larcenies	2	$ 110.00	
Disturbances/Domestic	8		
Burglar Alarms	9		
Breaking & Entering	0		
MIP & Property Damage	1	$ 1,500.00	
Traffic Citations	24		
Intoxicated Drivers	1		
Intoxicated Pedestrians	0		
Forgery/Fraud	0		
Armed Robbery	0		
Drug Charges	7		
Other Crimes	4		
Total Arrests	3		
Totals:	**252**	**$ 5,160.00**	**$ -**

OTHER:

3/1/2021 Served WFA
3/6/2021 Poss of Methamphetamine
Poss of Drug Paraphernalia
3/15/2021 Poss of Heroin
Poss of Drug Paraphernalia
Served OFA
3/21/2021 Poss of Marijuana
3/24/2021 Served OFA
3/25/2021 Poss of Schedule II
Poss of Drug Paraphernalia
Poss of Stolen Property

NOTES:

3/6/2021 Officers attended In-Service Training for Rapid Deployment & Firearms (classroom)
3/17/2021 Start of "St Patrick's Day" Booze it or Loose It Campaign
Sgt Chrismon attended Intoxilyzer Re-certification class
3/21/2021 NCGHSP Check Point
3/23/2021 Officers attended Firearms Qualification
3/25/2021 Chief Jackson taught BLET