



TOWN OF WARRENTON

Department of
Community Development

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MEMORANDUM

TO: Christopher E. Martino, Town Manager

FROM: Steven Friend, Assistant Director of Utilities
Frank Cassidy, Director of Public Works/Public Utilities
Rob Walton, Director of Community Development

DATE: August 31, 2022

SUBJECT: Water and Sewage Capacity

Introduction: The Department of Public Works/Public Utilities and Department of Community Development have been working together closely with regards to land development, not only within the Town, but also within the Warrenton Service District boundaries. We have been assessing past reports, current operations, and proposals for development. Our goal is straight forward- to provide every opportunity for positive and sustainable economic development. To accomplish this, we must make sure we bring into the conversation every outlying concern. This serves to make the conversation holistic, reasonable, and realistic. The purpose of this memo is to provide information regarding utilities and development.

Background: The last few years have found us looking at several new and previously discussed projects that were “on hold” for various reasons. These include several projects within Town limits, projects outside of Town limits, and the possibility for BLA. Providing utility service to all prospective customers is part of this conversation.

Through the years, the Town has engaged consultants to provide studies regarding the sewer and water capacities. The most recent study was in 2015. As a product of that study, the Town has been taking steps to address limitations as we move forward. These steps include:

- Working with an engineering firm to develop a long-range plan to make improvements to the water and wastewater treatment plants. This is designed to replace old and aging equipment and to increase capacity.
- The Town has been relining pipes and working on maintenance of water and sewer lines to limit the I&I effects at the WWTP.
- We have been incorporating the reports into our CIP and budgeting to bring the proposed improvements to completion.

Looking at the 2015 study, it appears we are on track with the study's estimated outlooks. The capacity estimates in the study line up with the concerns we are having today. In short, we are at the high-capacity levels outlined in the report. With this, we are looking ahead at insuring we accurately take the ability of providing the Town utility services to all the proposed increases for service.

The projects located outside the Town limits will sometimes require an update to the Tri-Party Agreement between the Town, County, and Fauquier County Water and Sanitation Authority (WSA). In preparing ARPA expenditure requests, several improvements are needed at the sewage treatment plant that raises the questions, "how much capacity exists and how much capacity is reserved for approved/pipeline projects?" Our current operating limits are based on two factors:

1. The existing deed for the property for the WWTP- the deed limits or per day capacity to 2.5mgd.
2. The existing permit from the State, which has just been renewed for another five years, limits our capacity to 2.5mgd.
3. The condition of the plant (which will be discussed later in this memo).

Based on the recommendations from the 2015 capacity assessment and the proposed improvement schedule from our consultants, the Town is working to increase the capacity to 3.0 mgd. to date we have installed and have operating a MBBR, as mentioned above, we have relined several pipes throughout the Town and we continue to do so, and we are moving forward with the other recommended improvements. This will also require the Town increase the DEQ permit to allow treatment of 3.0 mgd as compared to the currently permitted 2.5 mgd. To increase the current treatment levels, the

Town will need to come to an agreement with Mr. Van Roijen prior to an application to DEQ for the increase. Below is an analysis of current treatment levels as well as a breakdown of land development projects that are either approved or under consideration.

Current Sewage Treatment:

The Wastewater Treatment Plant (WWTP) is currently operating with outdated and aging equipment other than the newly installed MBBR. We have submitted CIP projects for the last three years to capture the remaining necessary upgrades. These upgrades have also been discussed during the most recent utility fee rate study and presentation and the opportunities to use ARPA funds for these projects. The challenge has been navigating limited budget resources with the high costs of these projects. One attempt for this has been to postpone these projects. For the last two years we have not had any major upgrade projects funded in our CIP; and our current CIP does not wither. The projects are spread out over the next five to ten years.

The challenge to date has been the day-to-day operations at the WWTP. Over the last year alone we have had three emergency operational setbacks:

- The head works ceased functioning- this resulted in emergency disposal of raw sewage and unanticipated repairs.
- Two MBBR break downs- we have had all three motors/blowers cease over two separate times. The last event included two motors going down at the same time which required the Town rent a portable motor and generator and work through the repairs.
- The secondary clarifier ceased working- this is currently still an issue as it has not been repaired at the time of this memo. This is waiting for parts and repairs and as we wait, we must haul sludge to Culpeper three times a week.

The above are major issues. We continue to work with many other smaller breakdowns daily. The overall operation of the plant to sustain current function is a testimony to the staff. They continually find ways to work around the aging equipment to keep it working.

Current reports indicate that the sewage treatment plant processes approximately 1.8 mgd to 2.0 mgd on average. During rain events, this level

risers to approximately 4.0 mgd, or higher, due to inflow and infiltration (I&I). The current DEQ permit allows the Town to treat 2.5 mgd of sewage effluent; however, the treatment should be limited to ninety percent (95%) of the 2.375 mgd cap. This allows for an expected treatment capacity of 2.375 mgd.

Current Water Treatment:

The Water Treatment Plant (WTP) is currently functioning at 40% capacity. The WTP and wells are producing 1.6 mgd on average. All in all, the water plant is operating well and can handle additional accounts with limited stress on the system. The main concerns for additional capacity are:

- The time it would take to produce the required water- in short, the plant operation hours may need to be extended. This would require additional staffing depending on the amount of additional time required to safely produce 2.3 mgd. The WTP operates at 14 hours per day allowing the production of 1.6 mgd to keep up with demand.
- The amount of available water in the reservoir and wells- this is impacted by environmental conditions; however, it may require increasing the capacity of the reservoir and this can be expensive. Also, we may have to engage in dam upgrades in the near future.

Land Development Projects:

Due to the proximity of current treatment levels, staff has created the tables below of yet to be built projects along with their anticipated sewage generation. For estimation purposes, residential uses create 270 gpd of sewage and businesses would generate approximately 630 gallons per acre.

Approved Projects within Town Limits

<u>Name</u>	<u>Use</u>	<u># Units</u>	<u>Acreage</u>	<u>Sewer gal/day</u>	<u>Status</u>
Warrenton Crossing	Single Family Detached	135	46.68	36,450	Site Plan Approved
Alexandria Knolls	Single Family Detached	8	2.85	2,160	Approved with Conditions
Cobb Hill	Single Family Detached	29	9	7,830	Subdivided, SDP Expired

Oak Street	Single Family Detached	6	2.71	1,620	SDP Approved
Washington/ Green Street	Single Family Detached	6	0.44	1,620	Approved/ Not Built
Lee Street Subdivision	Single Family Detached	2	1.26	540	Approved with Conditions
Durham Hill Lane	Single Family Detached	4		1,080	Under Construction
TOTALS		190	62.94	51,300 gpd	

Partially Approved/In Process Projects within Town Limits

<u>Name</u>	<u>Use</u>	<u># Units</u>	<u>Acreage</u>	<u>Sewer gal/day</u>	<u>Status</u>
Walker Drive PUD	Condos Apartments	40 116	31.38	42,120	Rezoning Approved
Winchester Chase Phase 2	Single Family Detached	36	10.45	9,720	SDP In Process
Waterloo Junction	Townhouses Apartments Commercial	47 6 11,200 sqft	4.8	14,310	Rezoning/ SUP In Process
Warrenton Village Mixed Use	Apartments/ Multifamily	436	29.05	117,720	SUP In Process
Oak View Bank	Commercial		1.23	774	SUP In Process
Data Center	Industrial		41.70	1,600	SUP In Process
197-211 Broadview	Commercial		1.13	711	SDP In Process
Strickland Oil	Commercial		0.55	346	SDP In Process
Piedmont Urgent Care	Commercial		0.68	428	SDP In Process
TOTALS		677	120.97	187,729 gpd	

Vacant Parcels within Town Limits

<u>Name</u>	<u>Zoning</u>	<u>Potential # Units</u>	<u>Acreage</u>	<u>Sewer gal/day</u>	<u>Status</u>
St. Leonard's Farm	R-10	236	54.19	63,720	Vacant
Spring Lane	RT	20 TH's	2.9	5,400	Vacant
Academy Hill Lot	R-6	17 SFD	5.3	4,590	Vacant
Warrenton Baptist Parcel	R-10	52 SFD	20.85 (8.75 FP)	14,040	Vacant
Industrial Next to Poet's Walk	I	700 gpa	21.7	13,671	Vacant
Oak Springs Dr./Blackwell Rd.	RT	14 TH's	2.0	3,780	Vacant
Benner Property	R-10	26 SFD	6.08	7,020	Vacant
Cross Fit	C		0.7	441	Vacant
Industrial Properties	I		12.92	8,139	Vacant
3 Blackwell Park Lane Parcels	C		3.57	2,249	Vacant
TOTALS		365	130.21	123,050 gpd	

*****Sewage generation calculated at 362,079 gpd. Does not include Arrington, BLA, nor Tri-Party Agreement properties.**

Service District Projects Outside of Town Limits

<u>Name</u>	<u>Use</u>	<u># Units</u>	<u>Acreage</u>	<u>Sewer gal/day</u>	<u>Status</u>
Arrington Option A	Single Family Detached	217	439.73	58,590	Rezoning Approved
Arrington Option B	Hotel Townhouse Single Family Detached	15 Beds 27 288	206.43	89,100	Rezoning Amendment In Process
Arrington Option C	Hotel Townhouse Single Family Detached	15 Beds 63 314	206.43	105,840	Rezoning Amendment In Process
TOTALS		217-392	206.43- 468.61	58,590 - 105,840	

Moving Forward:

Using the chart above regarding the projects in the pipeline, and standard calculations for capacity, we are concerned the improvements at the WWTP will not be able to keep pace with the development. This is not to say we cannot provide the services, just we need to make sure all parties understand the limitations and the scheduling issues of the projects. Our team is working to ensure projects move forward and coincide with the capacities of our plants.

To get a better picture of this, we are engaging with the consultant to conduct and update the 2015 Sewer and Water Capacity study. Once complete this will help provide an up-to-date assessment for our services.

The tables above represent projects that are either approved, moving through the land development process, and vacant properties with development potential within Town limits. The numbers do not include parcels included in the BLA, those within the Service District Boundary, nor those already included in the Tri-Party Agreement. The above estimates anticipate a total of **362,079 gpd** of new sewage flows which puts the sewage treatment plant at the 95% capacity based on the 2.5 mgd State permit.

Conclusion:

The purpose of the memo is to provide insight as to the current and future demands based on existing conditions and projects within the Town limits. We feel it important to provide this information as it relates to the Town moving forward and providing adequate services to Town residents, customers, and businesses. We find this information valuable in providing a holistic view in moving forward with land development projects. The memo in no way implies that additional economic development is not possible, but rather, the Town should be cautious with extending utilities outside of Town limits. The Town needs to continue with the upgrades to the WWTP to obtain the 3.0 mgd as outlined in the CIP while working with the deed restriction and State permitting process ensuring the schedule of these upgrades are in line with future development.

Attachment: 2015 Sewer and Water Capacity Study