

## Rochester, Jacqueline

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**Subject:** FW: Water Pollution Control Authority - 3-14-24 WPCA meeting  
**Attachments:** WPCA Letter 2024-02-27.pdf

**From:** Craig J. Flaherty <[C.Flaherty@rednissmead.com](mailto:C.Flaherty@rednissmead.com)>

**Sent:** Tuesday, February 27, 2024 4:32 PM

**To:** Boucher, Toni <[Toni.Boucher@WILTONCT.ORG](mailto:Toni.Boucher@WILTONCT.ORG)>; Rochester, Jacqueline <[jacqueline.rochester@WILTONCT.ORG](mailto:jacqueline.rochester@WILTONCT.ORG)>; Smeriglio, Frank <[Frank.Smeriglio@WILTONCT.ORG](mailto:Frank.Smeriglio@WILTONCT.ORG)>

**Cc:** Joseph Hammer <[jhammer@mrglaw.com](mailto:jhammer@mrglaw.com)>

**Subject:** Water Pollution Control Authority - Proposed Policy Amendment

Ms. Boucher & Mr. Smeriglio,

I have attached to this email correspondence provided to assist the Wilton WPCA in writing language to estimate average annual flow rates for residential developments as drafted in Appendix V, Item 5 of the proposed additions to the Wilton WPCA Rules and Regulations. The letter includes the results of our research to understand the number of people, on average, likely to live in various apartment types.

As always, I am available for your questions.

Best,

**CRAIG J. FLAHERTY, P.E.** 

PRESIDENT & SENIOR ENGINEER

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February 27, 2024

Toni Boucher, Chair  
Water Pollution Control Authority  
Town Hall  
238 Danbury Road  
Wilton, CT 06897

**RE: Proposed Amendment to Wilton WPCA Regulations**

Dear Ms. Boucher and Members of the Authority,

To assist the Wilton WPCA in writing language to estimate average annual flow rates for residential developments as drafted in Appendix V, Item 5 of proposed additions to the Wilton WPCA Rules and Regulations, we offer the following information.

### ***Residents per Apartment Type***

As mentioned at the WPCA hearing on February 14, 2024, Redniss & Mead has collected occupancy data for 1,987 multi-family housing units across 17 properties in 10 different communities. Using this data, the average number of residents per apartment type was calculated (Table 4, attached). The results show that an average of 1.3 people reside in studio apartments, 1.47 people reside in one-bedroom apartments, 2.12 people reside in two-bedroom apartments, and 2.94 people reside in three-bedroom apartments.

### ***Water Meter Data Is Accurate***

As for how to estimate average annual water use, we continue to assert that the most accurate way to determine this is to use the metered flow from similar, occupied apartment buildings over the course of an entire year. This takes the guess work out of the process.

### ***Average Annual Flow is Unique Language***

At the February 14th meeting, sample calculations from area towns that have their own treatment plants were presented as examples of how flow allocation was monitored relative to treatment plant capacity. Small treatment plants are generally sized based on a daily design flow, or how much effluent the plant can treat **in one day**. It is not sized based on average annual flow. The parameter that Wilton is seeking to measure flows against is unique to Wilton and the language in its paper contract with Norwalk. It is not related to the physical capacity of the receiving system or the daily design capacity of the treatment plant in Norwalk. The language in the contract is average annual flow.

### ***Factor of Safety***

The town engineer expressed concern about using 55 gallons per day per bedroom. This is the mean, or 50th-percentile, number from the fifteen-building Water Use Study (November 3, 2023). Perhaps a factor-of-safety will provide additional comfort, in which case 65 gallons per day per bedroom could be

used. This is a 93rd-percentile flow rate as only one building in the water use study had a higher per bedroom flow rate on an average annual basis. As an example of the impact of using different average annual flow rates, this and other estimated flow options are presented in Table 2D, attached, based on the number of apartments in 131 Danbury Road.

**Estimating not Limiting**

The whole effort here is to feel comfortable benchmarking collective probable flow rates from proposed developments, in aggregate, against the term average annual daily flow in Wilton’s contract with Norwalk. The estimated flow rates are not suggested as a cap or limit on any one individual property, nor should they be.

**Credit for Planned I & I Mitigation**

In a wet year, like 2018, when 60 inches of rain fell, the flow in Wilton’s sewer was 610,000 average annual gallons per day. In a dry year, like 2015, when 35 inches of rain fell, the flow in Wilton’s sewer was 23% less at 470,000 average annual gallons per day (see Wright-Pierce I&I Annual Average Flows Chart). This clearly demonstrates that eliminating inflow and infiltration of clean water driven by rainfall and high groundwater levels is likely to meaningfully reduce the average annual flow in the sewer system. It is highly likely that this has contributed to the recent increase in the monthly meter data as there was a 58% surplus of rainfall in the seven-month period from July of 2023 to January of 2024 (15± inches over normal, summary attached). Some reasonable and conservative credit for I & I mitigation should be applied to the future flow prediction. Even a modest flow reduction of 5% is greater than the flow generated by a project like 131 Danbury Road. Such I & I mitigation recommendations are being developed by Wright-Pierce now, with a plan to physically implement those recommendations in 2025, well ahead of when the first dwelling units would be occupied in 2027. The Wilton WPCA has the funds set aside to perform this work.

**Request an Increase from Norwalk**

The Wilton WPCA has a simple remedy to address any future concern regarding the flow limit in the paper contract, and that is to request an increase from Norwalk which, in turn, will help Wilton continue to realize the goals and priorities outlined in the Plan of Conservation and Development. Compared to the size and capacity of Norwalk’s treatment plant (18 million gpd) and Norwalk’s own plans to mitigate I & I and improve operations, the contract limit adjustment for Wilton is likely to be modest.

Sincerely,



Craig J. Flaherty, P.E.

cc: Frank Smeriglio, Town Engineer

**TABLE 4: AVERAGE NUMBER OF RESIDENTS PER APARTMENT UNIT TYPE**

*Prepared February 16, 2024*

Property	Studio		One Bedroom		Two Bedroom		Three Bedroom		Source
	Apartments	Residents	Apartments	Residents	Apartments	Residents	Apartments	Residents	
1 19 Day St, Norwalk, CT	21	25	19	24	15	30	0	0	Spinnaker
2 230 East Ave, Norwalk, CT	2	4	32	50	6	12	0	0	Spinnaker
3 215 Alfred St, Bridgeport	32	48	115	181	65	134	0	0	Spinnaker
4 21 Ann St, Norwalk, CT	11	13	55	75	12	21	0	0	Spinnaker
5 230 East Avenue, Norwalk, CT	25	30	74	110	35	83	0	0	Spinnaker
6 1115 Main St, Bridgeport, CT	25	30	31	38	13	25	0	0	Spinnaker
7 1 N Water St, Norwalk, CT	15	20	60	89	21	34	0	0	Spinnaker
8 20 Park St, Hartford, CT	13	14	68	102	32	60	0	0	Spinnaker
9 1 Chestnut St, Norwalk, CT	10	13	6	8	0	0	0	0	Spinnaker
10 11 Chestnut St, Norwalk, CT	25	36	45	80	19	36	1	2	Spinnaker
11 25 River Rd, Wilton, CT	0	0	0	0	70	147	32	90	Avalon
12 100 Lakeview Ave, New Canaan, CT	0	0	16	24	64	141	24	73	Avalon
13 137 Hollow Tree Ridge Rd, Darien, CT	0	0	58	92	60	144	24	74	Avalon
14 154 Avenue E, Bayonne, NJ	10	12	50	61	25	51	0	0	AMS
15 377 Summerhill Rd, East Brunswick, NJ	0	0	41	56	50	106	5	14	AMS
16 105 Corporate Park Dr, West Harrison, NY	23	30	198	283	171	370	0	0	Toll Brothers
17 203 Legend Dr, Sleepy Hollow, NY	0	0	74	113	89	188	0	0	Toll Brothers
<b>TOTAL</b>	<b>212</b>	<b>275</b>	<b>942</b>	<b>1,386</b>	<b>747</b>	<b>1,582</b>	<b>86</b>	<b>253</b>	<b>1,987</b>
<b>AVERAGE RESIDENTS PER APARTMENT TYPE</b>	<b>1.30</b>		<b>1.47</b>		<b>2.12</b>		<b>2.94</b>		

**TABLE 2D: AVERAGE ANNUAL FLOW ESTIMATES FOR 131 DANBURY ROAD**

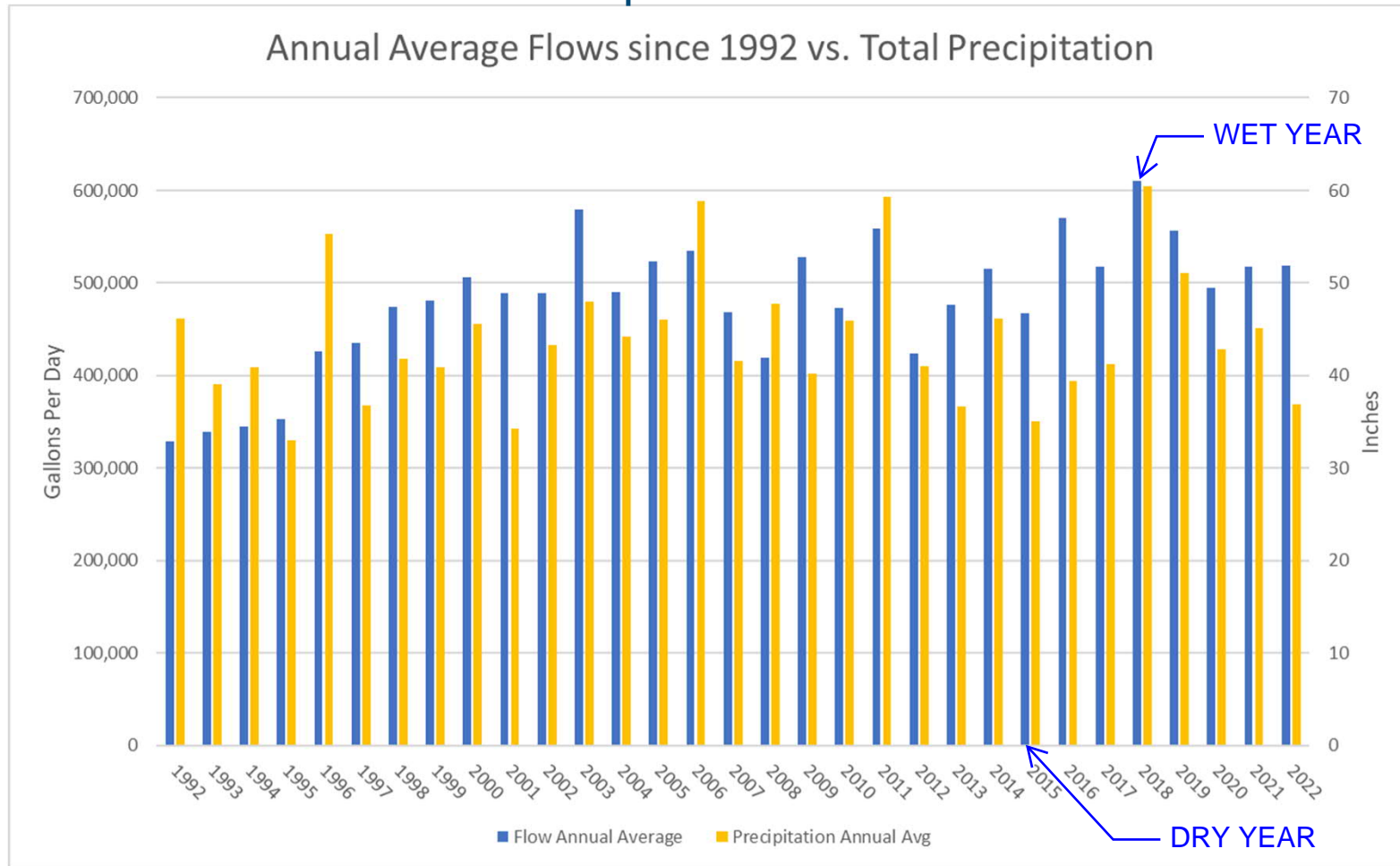
*version updated February 16, 2024*

**MULTIPLE SCENARIOS PRESENTED**

	<b>METHOD OF CALCULATING AVERAGE ANNUAL FLOW</b>	<b>Total Apartments</b>	<b>One Bedroom Apartments</b>	<b>Two Bedroom Apartments</b>	<b>Three Bedroom Apartments</b>	<b>Total Bedrooms</b>	<b>Projected Population</b>	<b>Average Annual Flow Estimate (gpd)</b>	<b>Factor of Safety Compared to Metered Data</b>
1	55 gpd per bedroom (Flaherty, 11/3/23) per water meter records	208	95	105	8	329		18,095	1.00
2	Average of people per bedroom (Smeriglio, 2/14/24) 65 gpd per person Wright-Pierce		1.5	3.0	4.0		490	31,818	1.76
3	Average of people per bedroom (Flaherty, 2/16/24) 65 gpd per person Wright-Pierce		1.47	2.12	2.94		386	25,075	1.39
4	65 gpd per bedroom, 93rd-percentile Factor of Safety per water meter records	208	95	105	8	329		21,385	1.18



# Annual Wastewater and Precipitation Totals



**Bridgeport Rainfall (NOAA NWS KBDR)***as of February 16, 2024*

<b>Month</b>	<b>Normal (inches)</b>	<b>Actual (inches)</b>
July	3.32	7.68
August	3.98	3.92
September	3.96	8.28
October	3.84	2.84
November	3.11	3.07
December	3.98	8.35
January	3.18	6.06
Total	25.37	40.2
Inches Above Normal		14.83
% Above Normal		58%