

# Planning Board Meeting

Lodging Moratorium  
Public Works Presentation

October 8, 2025

Public Works Director, Bethany Leavitt

# Outline

- Meeting Purpose and Objectives (5 minutes) - Planning
- Public Works Overview (5 minutes) - Bethany
- Water and Wastewater Capacity (30 to 45 minutes) - Bethany
- Question and Answer Discussion (30 minutes) - All
- Wrap Up (5 minutes) – Planning and Bethany

# Meeting Purpose and Objectives

- To address public concerns over the capacity of the public water and sewer systems as it relates to the lodging moratorium
- Moratorium text:
  - “WHEREAS, the Town of Bar Harbor is experiencing ongoing pressure on public facilities and infrastructure due to an increase in Certain Transient Accommodations; and...”
  - “WHEREAS, residents of the Town of Bar Harbor have expressed concerns that an increase in Certain Transient Accommodations will put undue strain on the water, sewer, and stormwater systems; and...”

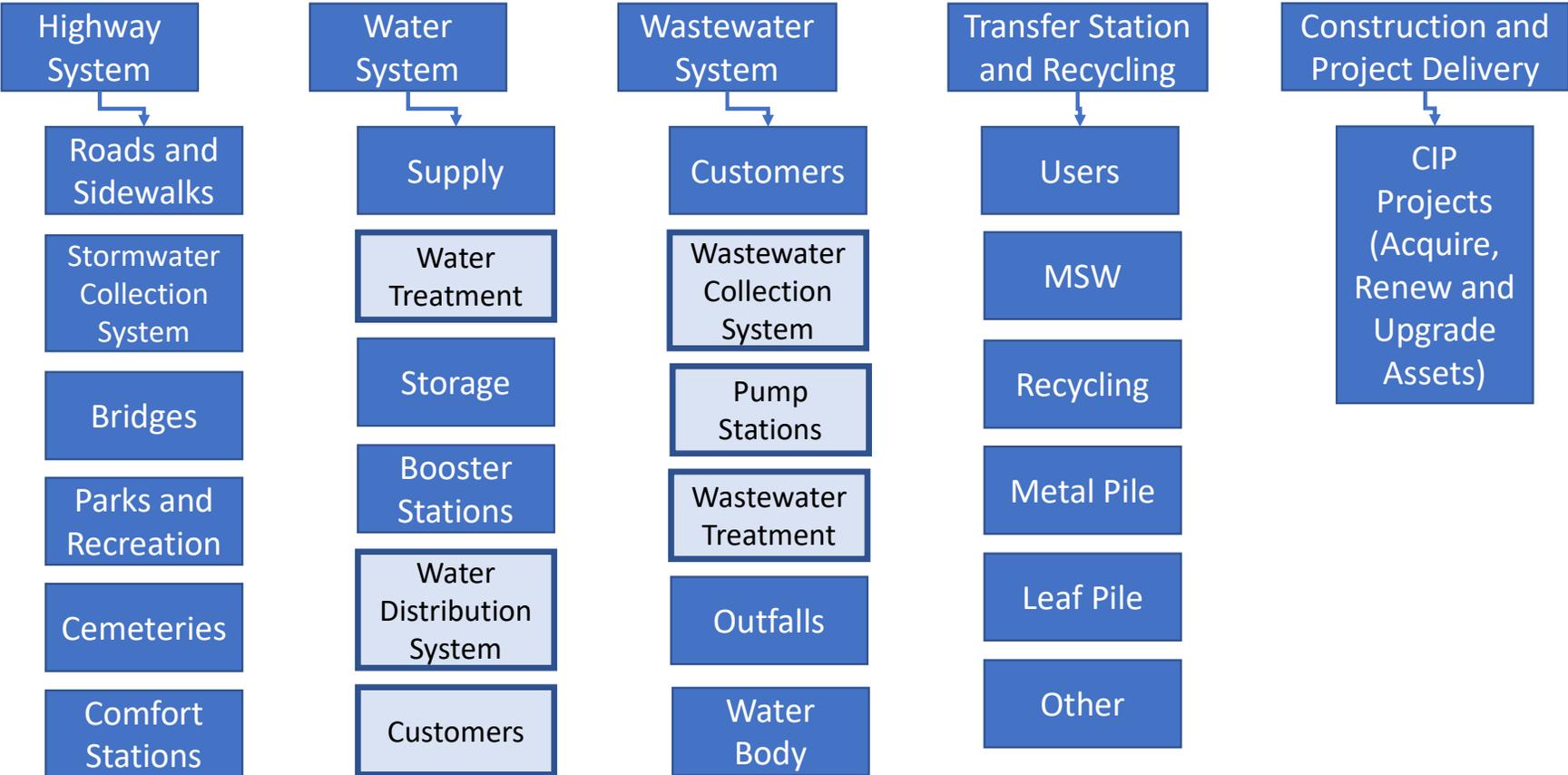
# Public Works Overview – Mission

- To provide quality of life services to the Town of Bar Harbor
- To maintain and improve the public infrastructure, equipment and spaces within the Town of Bar Harbor, such as parks, roads, sidewalks, pipes, buildings, fleet, etc.
- To manage the public ROW such that it allows for safe passage of pedestrians, bicyclists and vehicles, which necessarily includes the road and sidewalk network as well as stormwater system
- To deliver safe drinking water and fire suppression
- To collect and treat wastewater generated by the Town
- To reduce Combined Sewer Overflows discharging to Frenchman’s Bay and Eddie Brook
- To deliver municipal waste management and disposal services in keeping with community values
- To collect material for recycling
- To seek revenue sources outside of tax payer and rate payer funds

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# Public Works Overview - Organization



# Water System Overview

## Capacity discussion assumes:

- Non-emergency scenario
- No catastrophic failures in the treatment or distribution systems
- No active fires

# Water Treatment Capacity

# Water System Overview - Schematic

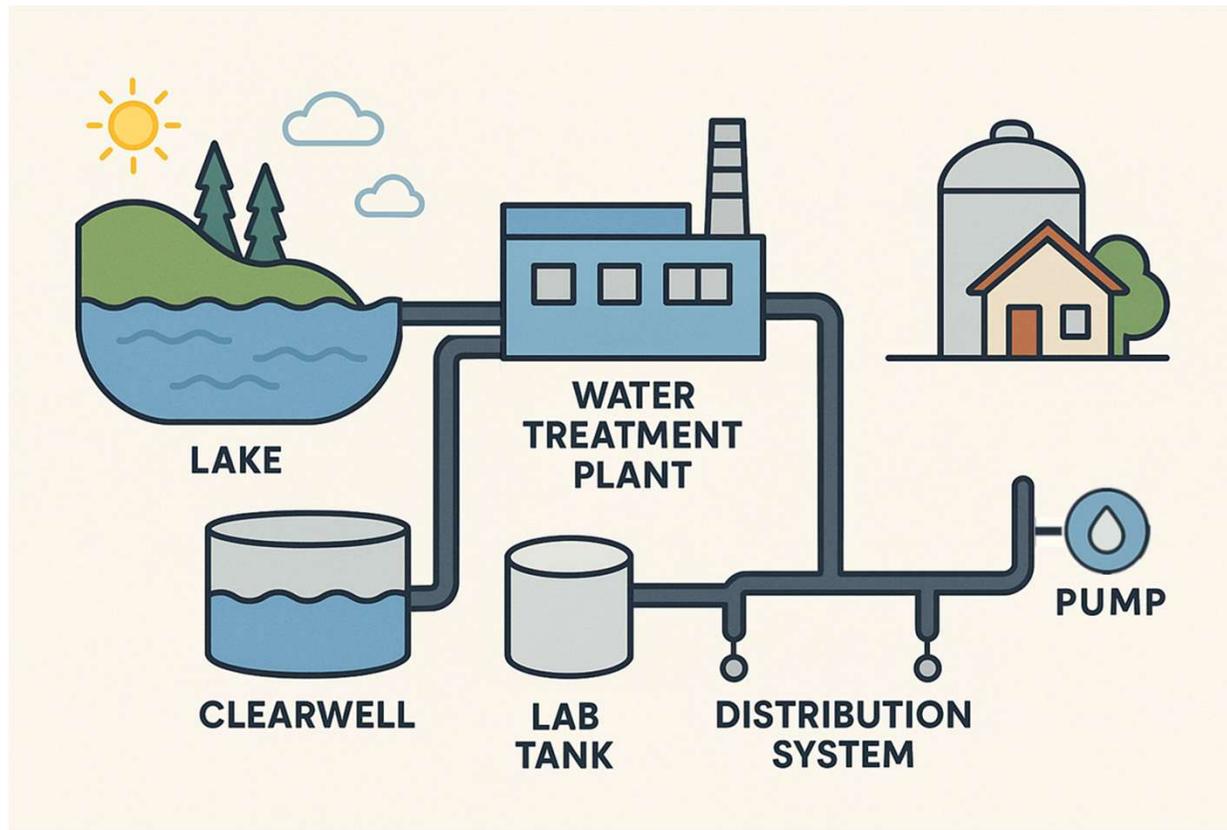


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# Water Treatment Limitations

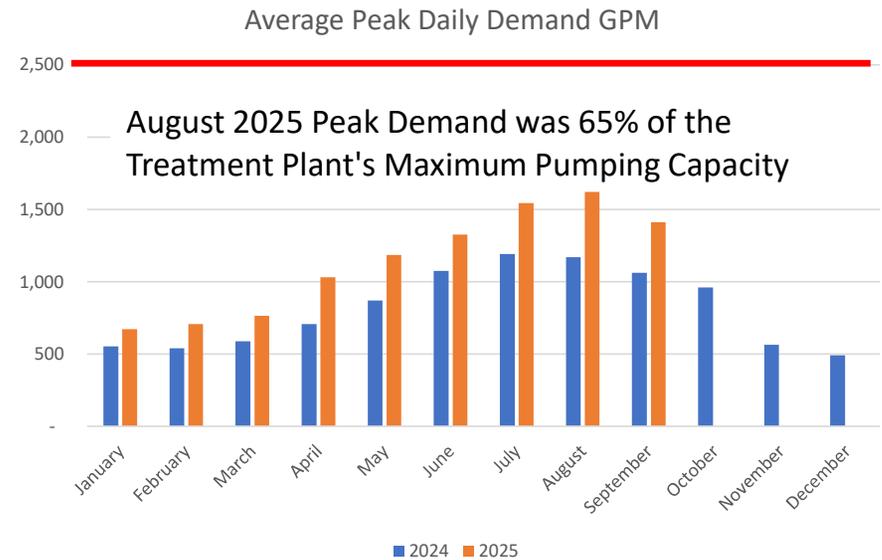
- Physical
  - 2,500 gallons per minute, which is a theoretical max flow of 3.6 million gallons per day or 111.6 million gallons per month
  - We don't want to operate at 2,500 gallons per minute all the time
- Limited by:
  - Maximum flow of ultraviolet disinfection unit
  - Time needed for disinfection in the clear well
  - Filtration Waiver is tied to current maximum treatment output (2500 gpm); however, waiver could be maintained with investment in new treatment upgrades.



Image generated with ChatGPT

# Water Demands – Average Peak Daily

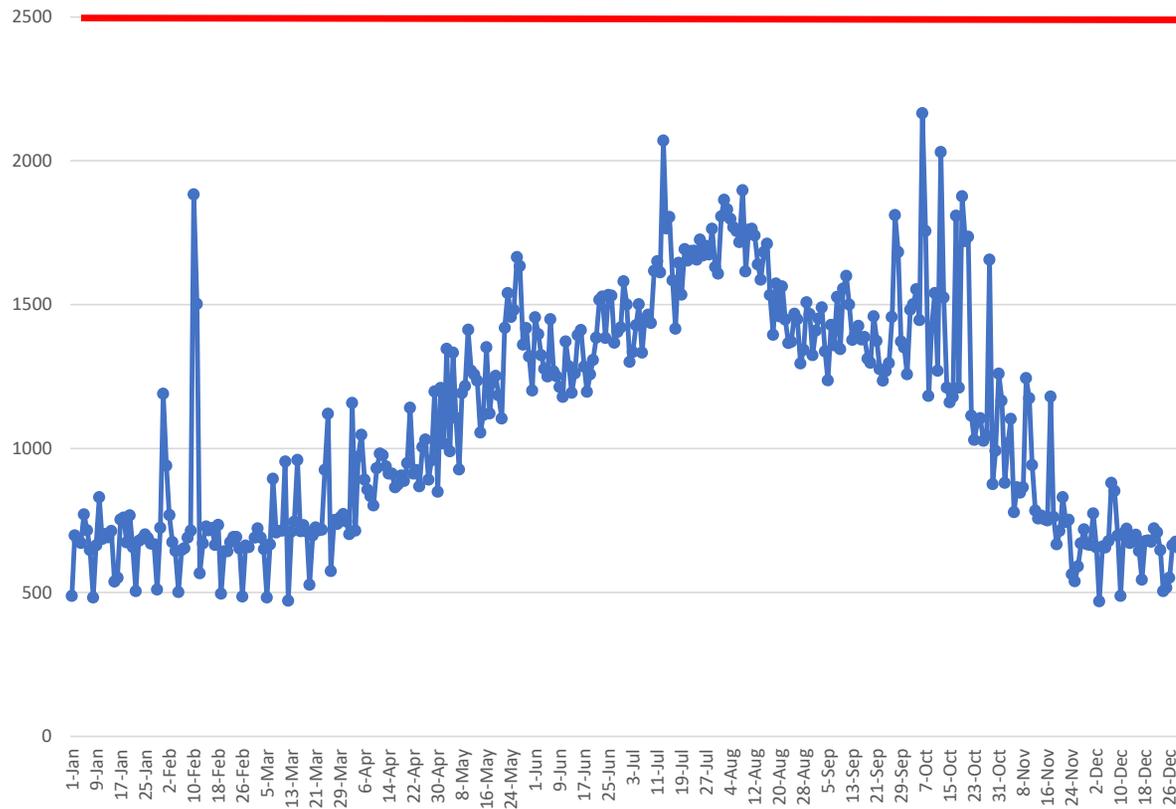
Average Peak Daily Demand, GPM				
Month	2022	2023	2024	2025
January	683	664	554	671
February	741	741	539	707
March	733	678	589	764
April	930	990	707	1031
May	1272	1129	870	1185
June	1356	1282	1075	1326
July	1600	1380	1191	1544
August	1597	1358	1169	1620
September	1414	1327	1061	1411
October	1395	1193	962	
November	826	909	563	
December	669	641	491	



Data source is SCADA

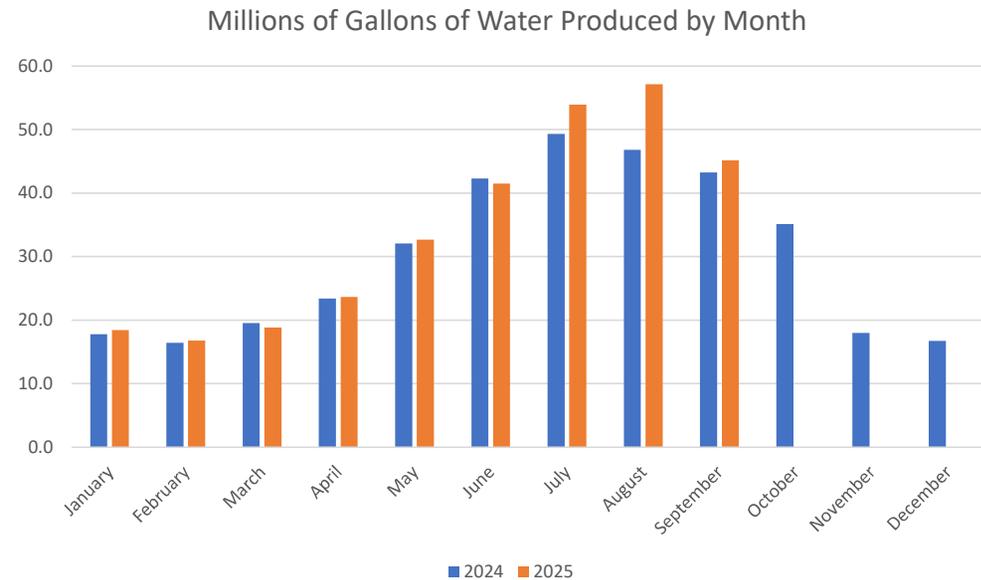
# Water Demands – Peak Daily

2022 Peak Daily Demand GPM



# Water Production by Month

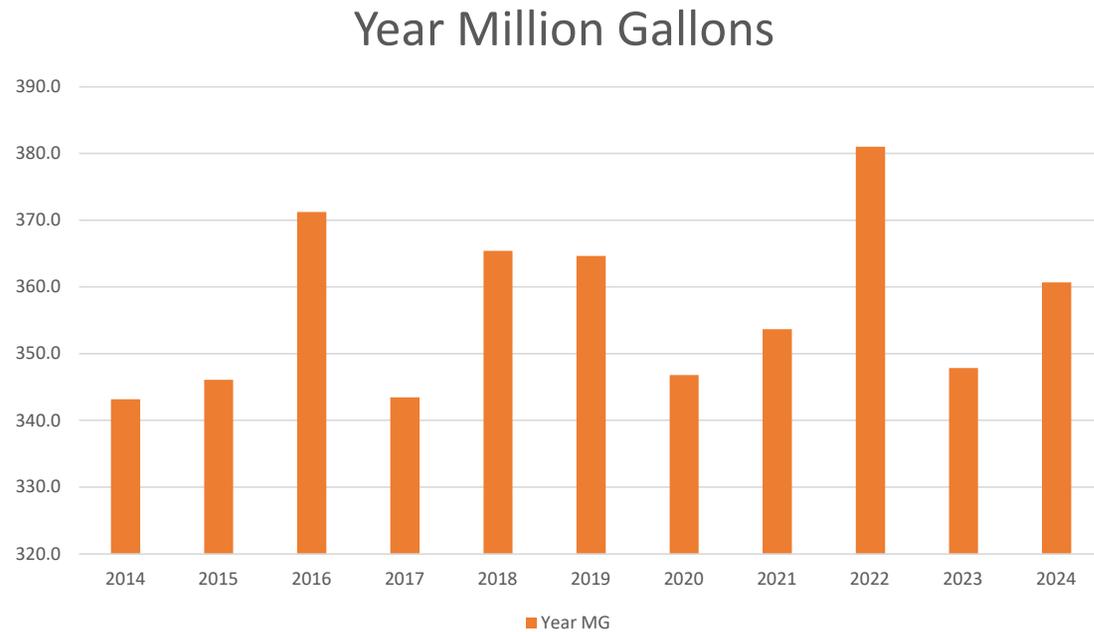
	2024	2025
January	17.8	18.4
February	16.4	16.8
March	19.5	18.8
April	23.4	23.6
May	32.1	32.7
June	42.3	41.5
July	49.3	53.9
<b>August</b>	<b>46.8</b>	<b>57.1</b>
September	43.3	45.2
October	35.1	0
November	18.0	0
December	16.7	0
<b>Total</b>	<b>360.6</b>	<b>308.1</b>



Data source is SCADA

# Water Produced by Year

Year	Million Gallons
2014	343.2
2015	346.1
2016	371.2
2017	343.4
2018	365.4
2019	364.6
2020	346.8
2021	353.7
2022	381.0
2023	347.9
2024	360.7



2025 totals are expected to equal those from 2022

Data source is SCADA

# Water Distribution System Capacity

# Water Distribution System

- Water Mains
- Hydrants

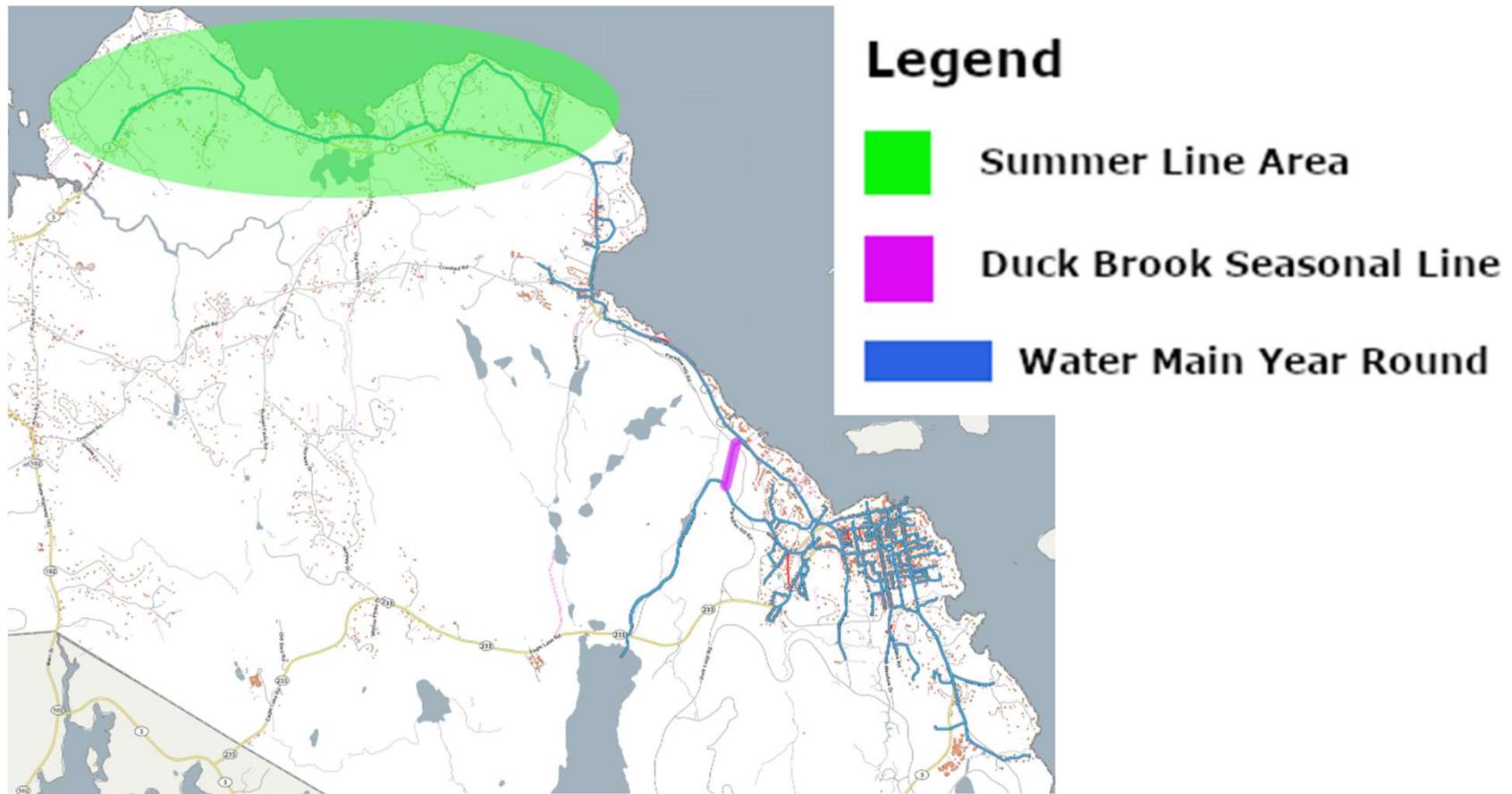


# Water Distribution System Limitations

- Physical
  - Pipe Diameter
    - Larger diameter, greater water supplied, higher gpm delivered to customers
  - Pipe Material / Condition
    - Regardless of diameter, heavily tuberculated pipes restrict the theoretical volume of flow delivered to customers; hence we at least annually flush water mains
    - Poor condition pipes may fail and therefore, not provide water when needed.
  - Pipe Elevation in relation to Overall System Pressure (Intake Elevation)
    - When the distribution system pipe elevation is at or near the Intake elevation, there is less pressure in the pipe; lower pressure provides less flow
    - When the distribution system pipe elevation is below the Intake elevation, there is greater pressure in the pipe; greater pressure provides more flow
  - Fire Flows
    - Pipe diameter and condition plays a role in available fire flow volumes
    - Location on a looped water main versus a dead end determines fire flow capability
    - Elevation also plays a role

Image generated with ChatGPT

# Water Main / Service Area Map



# Pipe Material / Condition / Age / Seasonal

- Water System Master Plan recommends pipes for replacement based on material and condition
- Old water mains – some date back to 1800s and may or may not be in good condition
- Older areas include
  - Livingston,
  - parts of Route 3/Main Street,
  - Eagle Lake Road,
  - State HWY3,
  - Mount Desert Street,
  - Cottage Street
- Summer line on route 3 is operational from May 1 – October 25

Date Source: Water System Master Plan

# Water System Pipe Inventory Tables

- See Water System Master Plan, Table 18

TABLE 18: OVERALL PIPE INVENTORY

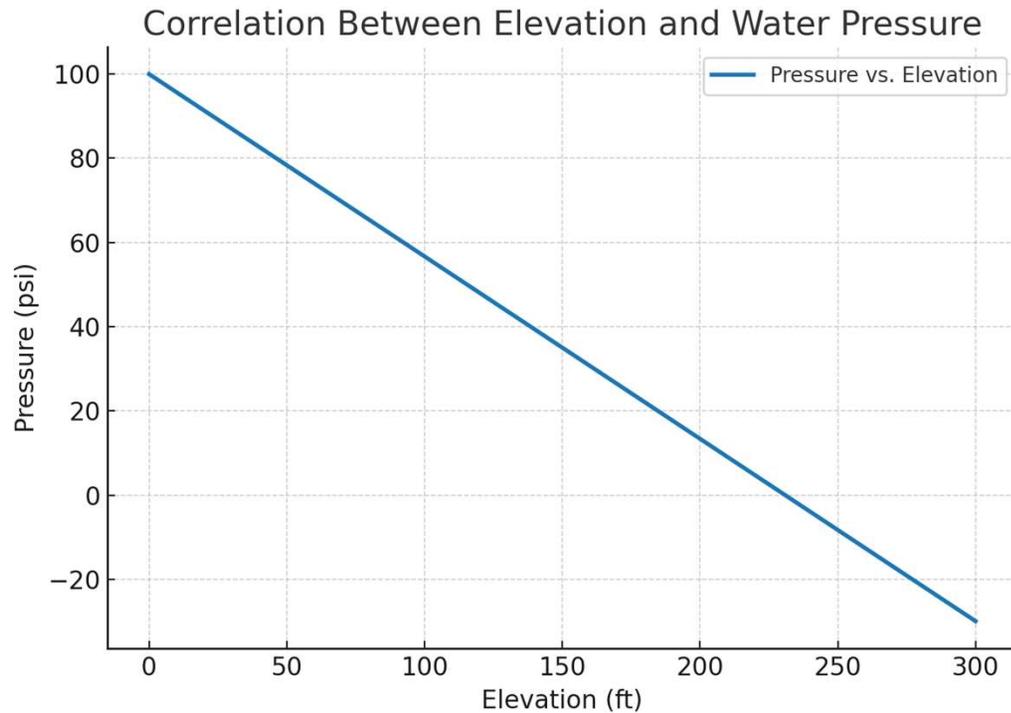
Material	Diameter (in)	Line Type	Annual/ Seasonal	Year of Installation	Length (LF)		
					Based on Year	Based on Diameter	Material Total
Cast Iron	4	Distribution	Annual	1970	357	701	77,842
				1897	344		
	6	Distribution	Annual	1957 - 1970	2,688	30,143	
				1920	15,329		
				1893 - 1897	12,126		
	8	Distribution	Annual	1970	3,595	8,189	
				1920	1,668		
				1893 - 1897	2,926		
	10	Distribution	Annual	1974	1,724	13,920	
				1920	5,375		
Transmission - Jackson Laboratory Tank		Annual	1968	1,352			
12	Distribution	Annual	1970	284	3,929		
	Transmission	Seasonal	1897	3,569			
14	Transmission - Duck Brook	Annual	1884	76			
16	Distribution	Annual	1897	2,457	2,457		
	Transmission - Duck Brook	Annual	1920	2,136	7,538		
20	Transmission - Duck Brook	Annual	1887	5,402			
24	Transmission - Duck Brook	Annual	1920	10,052	10,052		
Lined Cast Iron	8	Distribution	Annual	1893 - 1897	563	12,010	15,327
				1920	1,248		
	1970	7,374					
10	Distribution	Annual	1968	2,658	4,534		
			1920	1,876			
3	Distribution	Annual	1920	2,054	3,317		
			1970	1,263			

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- See Water System Master Plan, Table 18

Material	Diameter (in)	Line Type	Annual/ Seasonal	Year of Installation	Length (LF)		
					Based on Year	Based on Diameter	Material Total
Ductile Iron	4	Distribution	Annual	Unknown	430	474	20,892
		Distribution	Seasonal	2017	44		
	6	Distribution	Annual	1970	3,533	6,394	
				1984	1,034		
				1996 - 2008	1,827		
	8	Distribution	Annual	1975	1,454	8,597	
				1997	577		
				2017	6,566		
	10	Distribution	Annual	1988	1,098	1,098	
	12	Distribution	Annual	2008 - 2017	1,046	1,318	
Transmission - Duck Brook				Seasonal	2017		272
Distribution				Annual	2017		1,877
Transmission - Inlet Concrete Tank				Annual	2001		517
16	Transmission - Outlet Concrete Tank	Annual	2001	617	3,011		
			2001	617			
HDPE (SDR 11)	2	Distribution	Annual	Unknown	765	2,514	48,682
				2011	114		
	3	Distribution	Seasonal	Unknown	1,635	22,671	
				2000s	5,662		
	4	Distribution	Annual	Unknown	3,074	13,926	
				2000s	13,935		
				Unknown	619		
				2000s	5,021		
	6	Distribution	Seasonal	Unknown	8,286	8,286	
	8	Distribution	Annual	2000s	3,825	3,825	
10	Distribution	Annual	2000s	2,308	2,308		
12	Distribution	Annual	2015	1,370	1,370		
24	Transmission - Duck Brook	Seasonal	1997 - 2007	1,784	1,784		
			Annual	1998	284	284	
Transite	10	Distribution	Annual	1957	1,438	1,438	1,438
SDR35 Plastic	3	Distribution	Annual	Unknown	1,054	1,054	1,054
160# Plastic	1	Distribution	Seasonal	Unknown	1,441	2,945	2,945
	2			Unknown	1,504		
CTS Plastic	2	Distribution	Annual	Unknown	147	147	147
Total							189,529

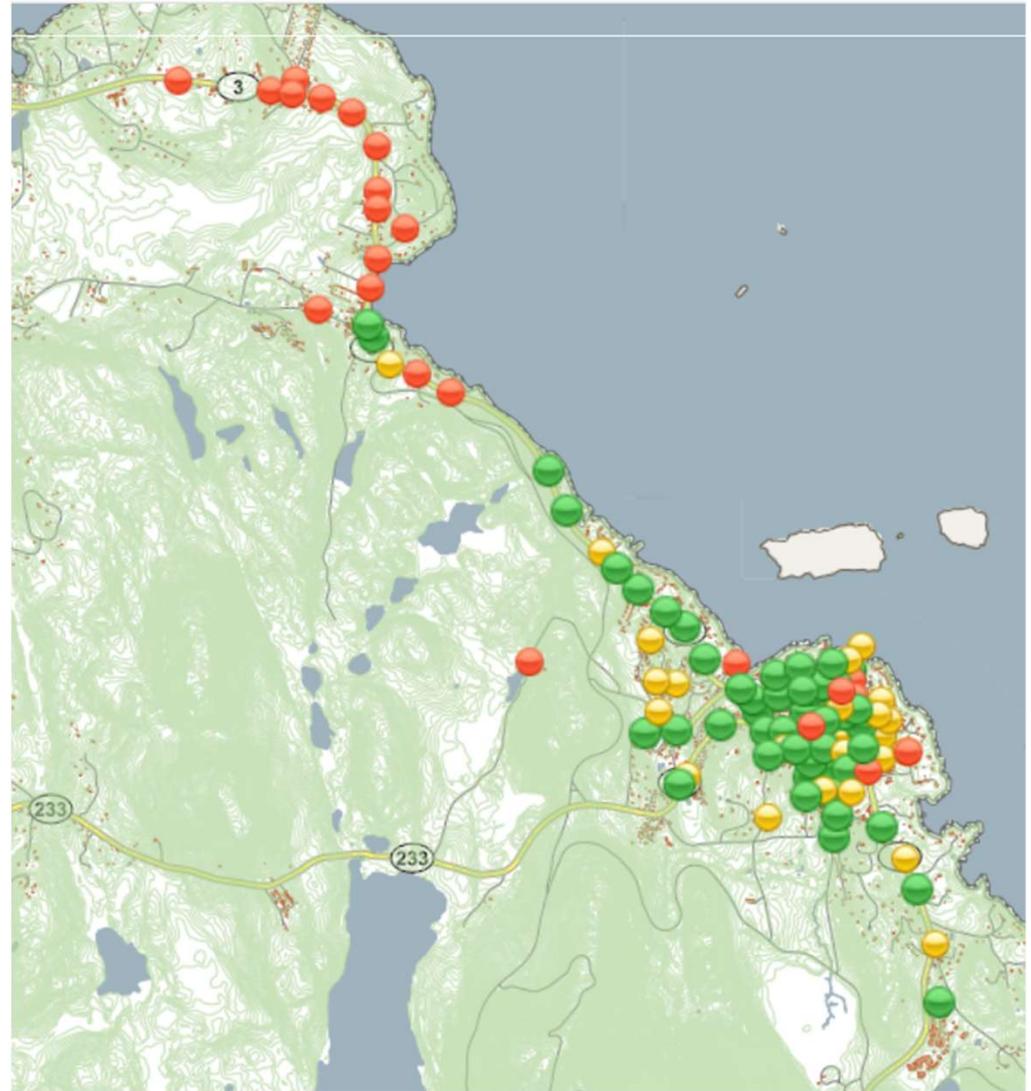
# Water Main - Elevation and Pressure Relationship



Location	Elevation ft
Eagle Lake Intake	277
Hamilton Hill	240
Jackson Lab tank base	235
Treatment plant hydrant nozzle	223
Ireson Hill tank in 2027	210
Transfer Station	100
Connor's Emerson	85
YMCA	30

Note – chart is representative and does not depict pressures in our distribution system

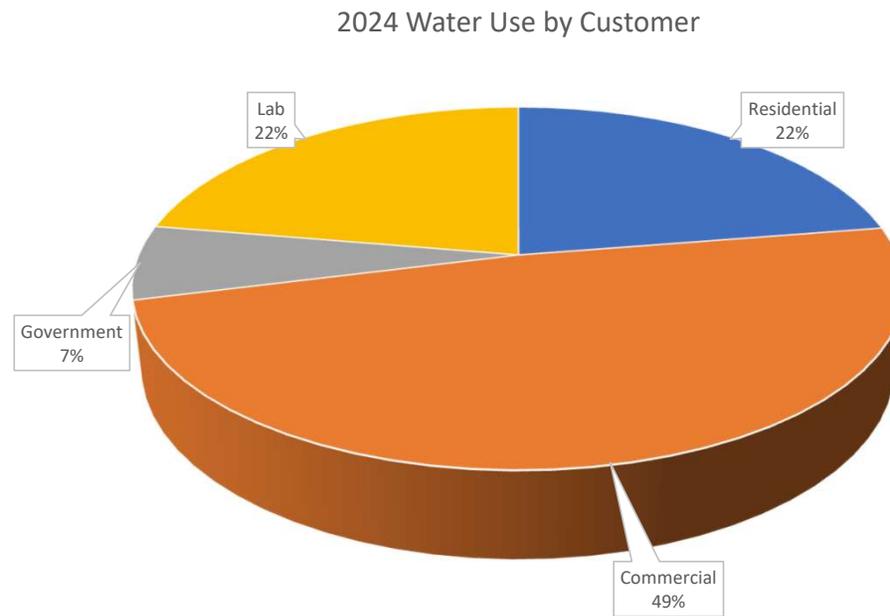
# Hydrant – Capacity



# Water Customers

# Comparison of Water Use by Customer

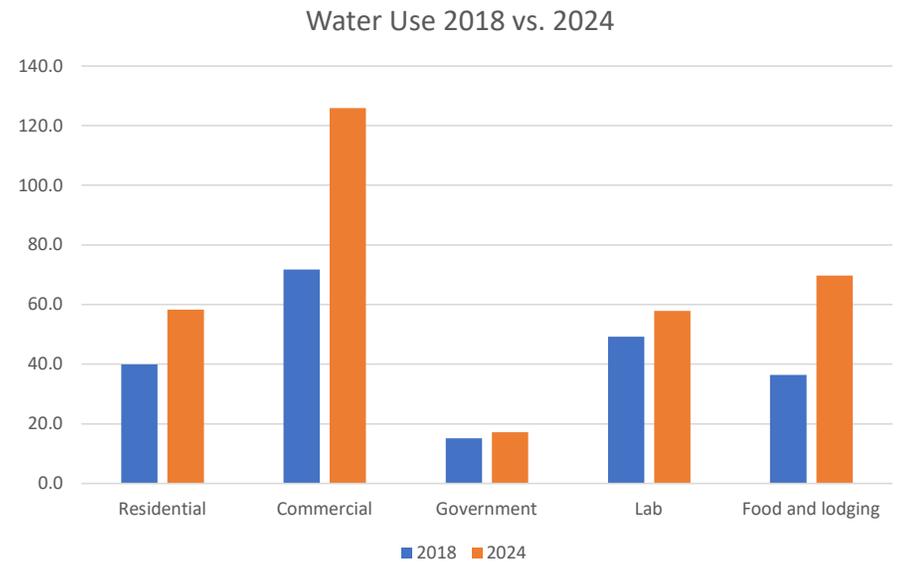
Customer Type	Million Gallons (MG)	Percent
Residential	58.3	22%
Commercial	125.9	49%
Government	17.2	7%
Lab	57.9	22%
Total	259.2	100%
	0.0	
Food and lodging	69.7	27%



Data source for this page and next three pages is MUNIS. Customer segments are identified based on their sewer charge code.

# Comparison of Water Customer Demands

	Million Gallons				Percent of Total Increase
	2018	2024	Increase	Increase	
Residential	39.9	58.3	18.4	46%	22%
Commercial	71.8	125.9	54.1	75%	65%
Government	15.2	17.2	2.1	14%	2%
Lab	49.2	57.9	8.7	18%	10%
<b>Total</b>	<b>176.0</b>	<b>259.2</b>	<b>83.2</b>	<b>47%</b>	<b>100%</b>
<b>Food and lodging</b>	<b>36.4</b>	<b>69.7</b>	<b>33.3</b>	<b>91%</b>	<b>40%</b>



# Representative 2024 Water Use

Customer Type	Water Consumed in 2024 (gallons)
Retail	23,220
Single family residence	49,903
Multifamily	105,805
Employee Housing	930,180
YMCA	968,899
Lodging	1,903,987
Lodging with restaurant	3,281,105

Water use data is for a single account representative of the building type. Aside from the YMCA, the actual location is not disclosed.

# Considerations for Adding New Customers

- Is there adequate fire flow and pressure at this location?
- What is the size and condition of the water main?
- Current pressure or capacity limitations this area?

We make decisions based on institutional knowledge, known problematic areas and the advice of the hydraulic model

# Water System Capacity Summary

## **Water Treatment**

- Currently we have adequate capacity to serve existing customers with room for additional demands
- We have additional capacity in the non-summer months
- 2500 gpm versus 1620 gpm in August 2025
- When we get there, it will be expensive to upgrade the Plant to increase capacity or add treatment systems to maintain filtration waiver

## **Water Distribution System**

- Currently, the downtown area is the most readily accessible area for new customers or conversions of existing use; however, these still need to be considered on a case-by-case basis with the current TRT process adequately facilitating that analysis.
- We utilize hydraulic model as needed to support analysis.
- Until the Up Island Water Storage Tank is on-line, addition of new customers is limited; even after the new storage on-line because the main is seasonal.

# Wastewater (aka Sewer) System Overview

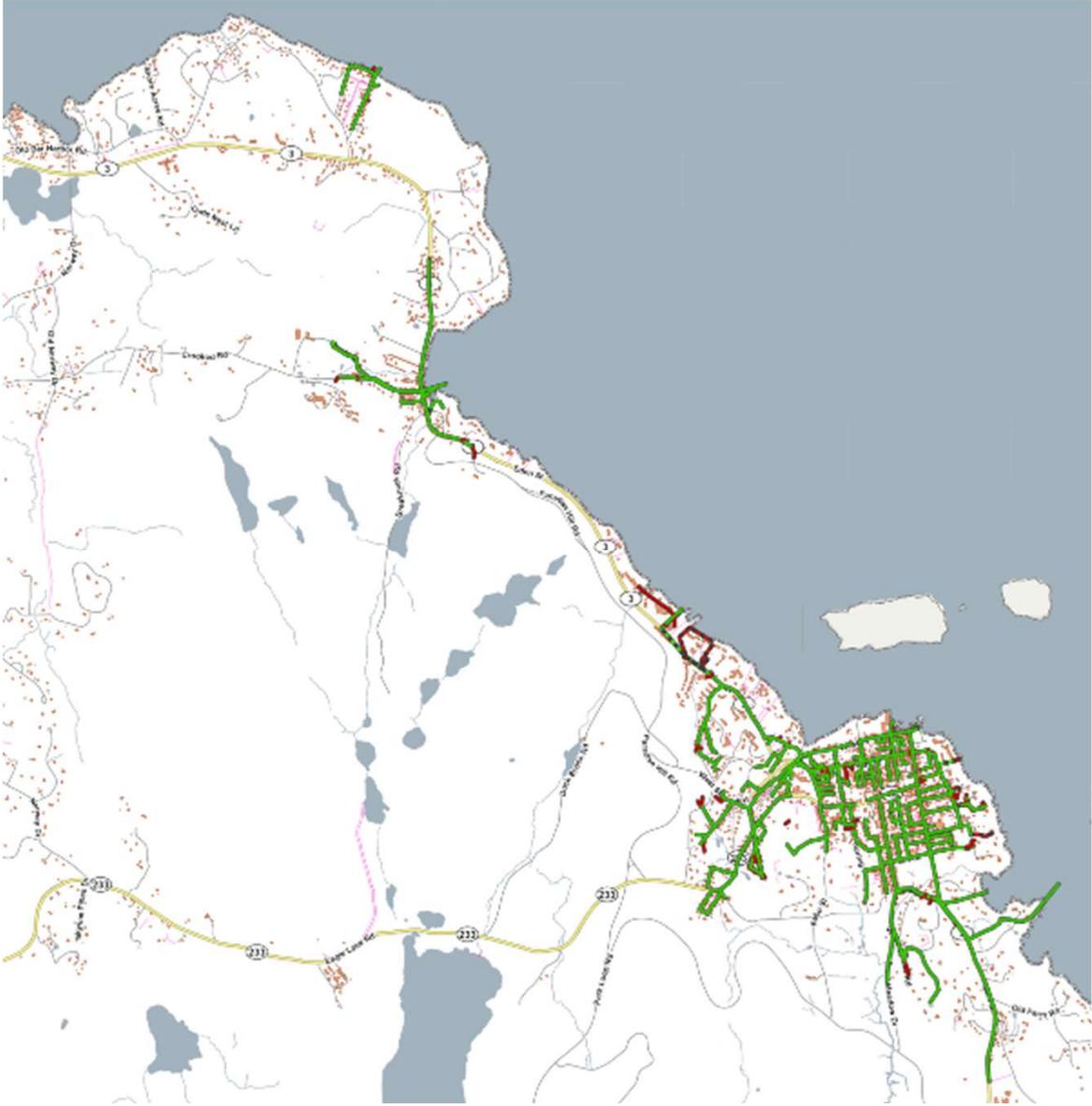
## Capacity discussion assumes:

- Non-emergency scenario
- No catastrophic failures in the treatment or collection systems
- No 100 year plus storm events coupled with snow melt

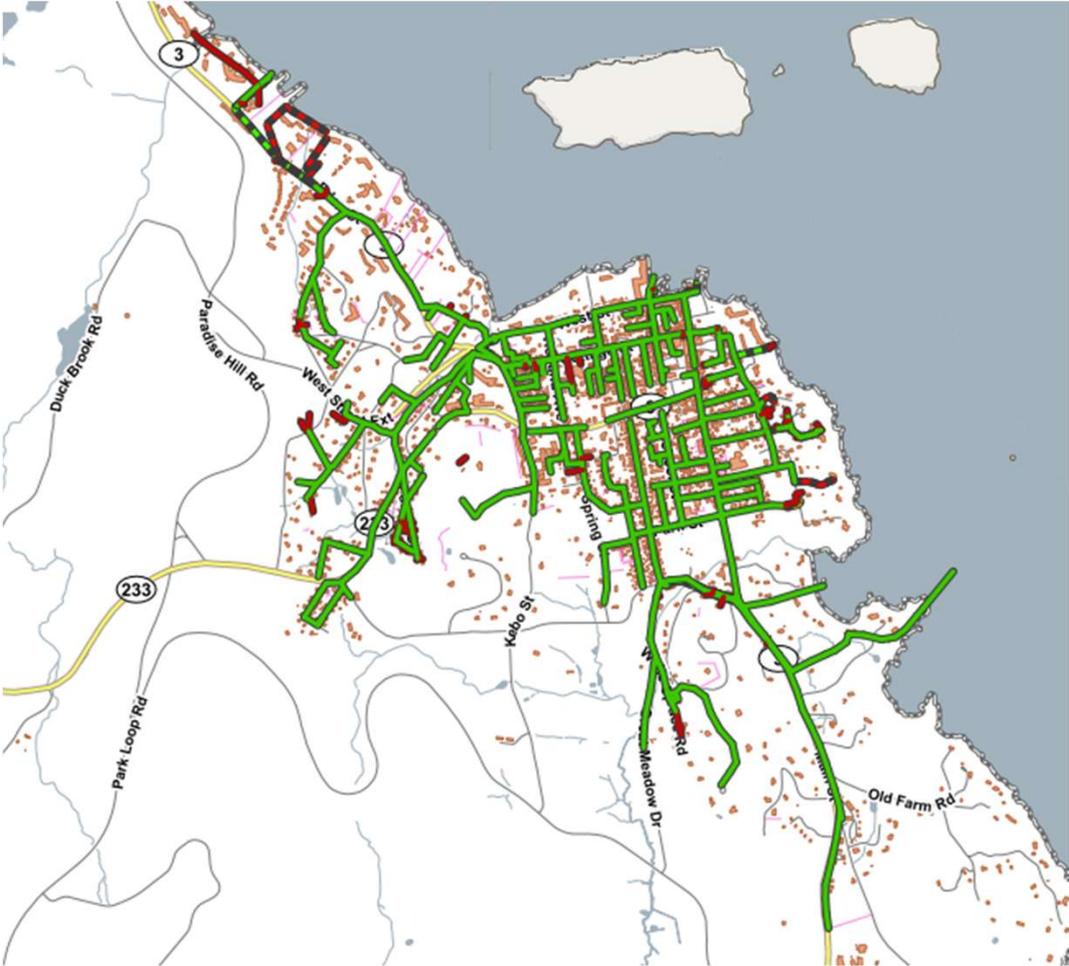
# Wastewater Service Areas

- Downtown
- Hulls Cove
- Degregoire Park

Town Wide  
Wastewater  
Service Areas

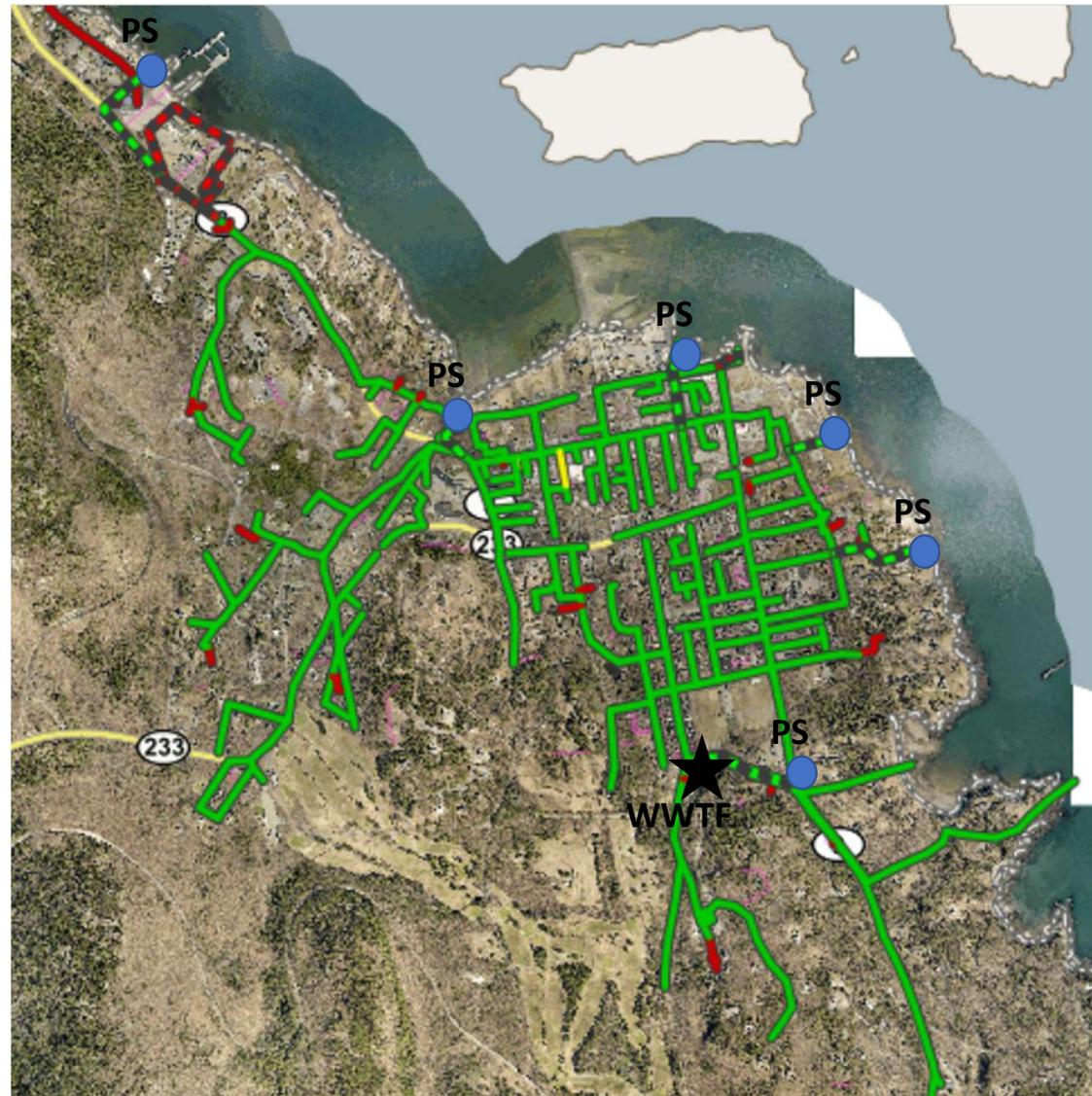


# Downtown



# Downtown Sewer System

- Collection System
  - 12.9 Miles of Sewer Mains (<18 inches dia.)
  - 1.6 Miles of Trunk Line ( $\geq$ 18 inches dia.)
  - 6,840 LF of force main
- Pumping Systems
  - Ferry Terminal PS
  - West Street PS
  - Rodick Street PS
  - Town Pier PS
  - Albert Meadow PS
  - Hancock Street PS
  - Main Street PS
- Main WWTF – 5.9mgd
- Outfall - 4,800 LF of 24-inch outfall
- CSO - 1,520 LF of 12 to 24-inch diameter CSO pipes:
  - West Street – Eddie Brook
  - Rodick Street – Frenchman Bay
  - Lower Main Street – Frenchman Bay



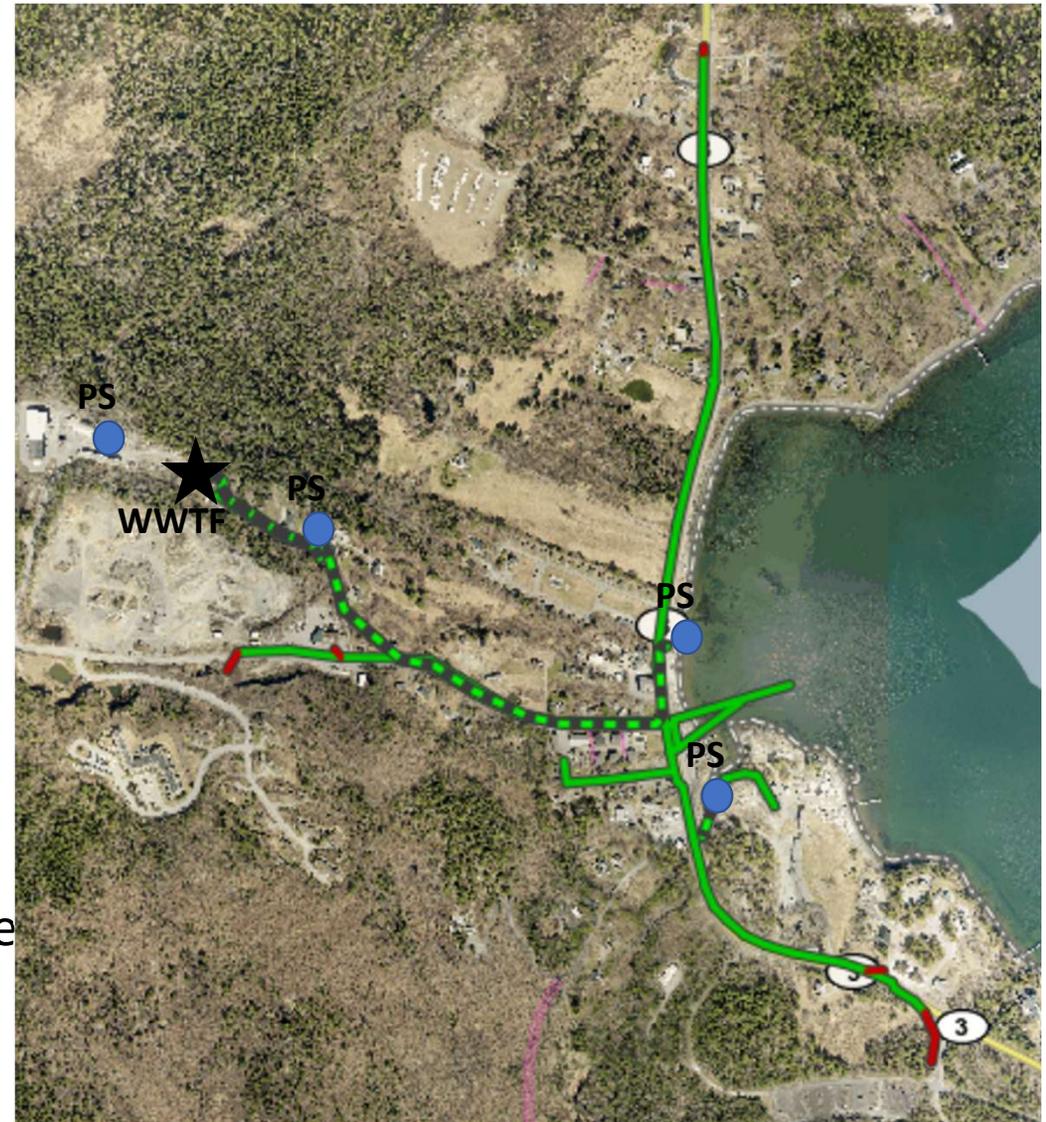
# Hulls Cove

The Hulls Cove coverage endpoints are 127 HWY3, Birch Bay Retirement Village, and the Visitors Center Road on HWY3 (near Bogue Chitto)



# Hulls Cove Sewer System

- Collection System
  - 8,595 LF of Sewer Mains
  - 3,000 LF of 6-inch force main
- Pumping Systems
  - Ocean Avenue PS
  - Wilcomb Lane PS
  - Public Works PS
  - Hulls Cove PS
- Hulls Cove WWTF – 0.15mgd
- Outfall - 3,300 LF of 8-inch outfall
- CSO - 420 LF 8-inch diameter CSO pipe
  - Hulls Cove – Frenchman Bay



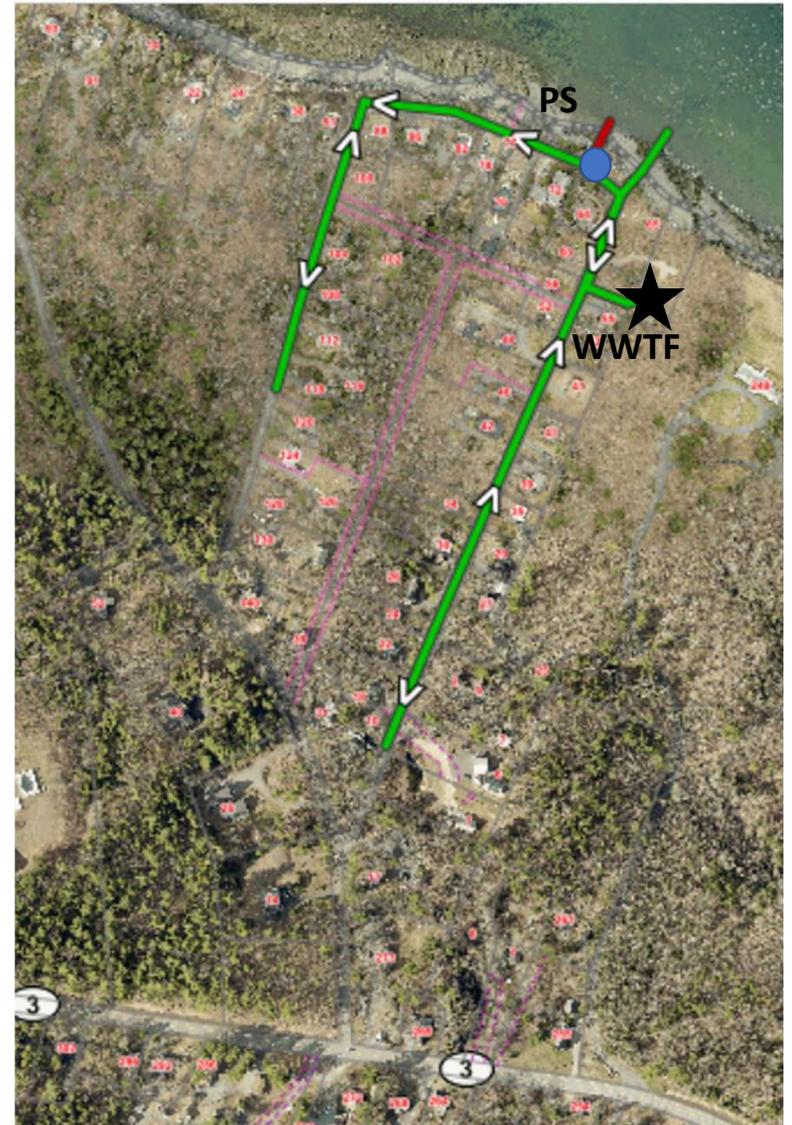
# Degregoire Park

Serves a small number of customers (32 active accounts)



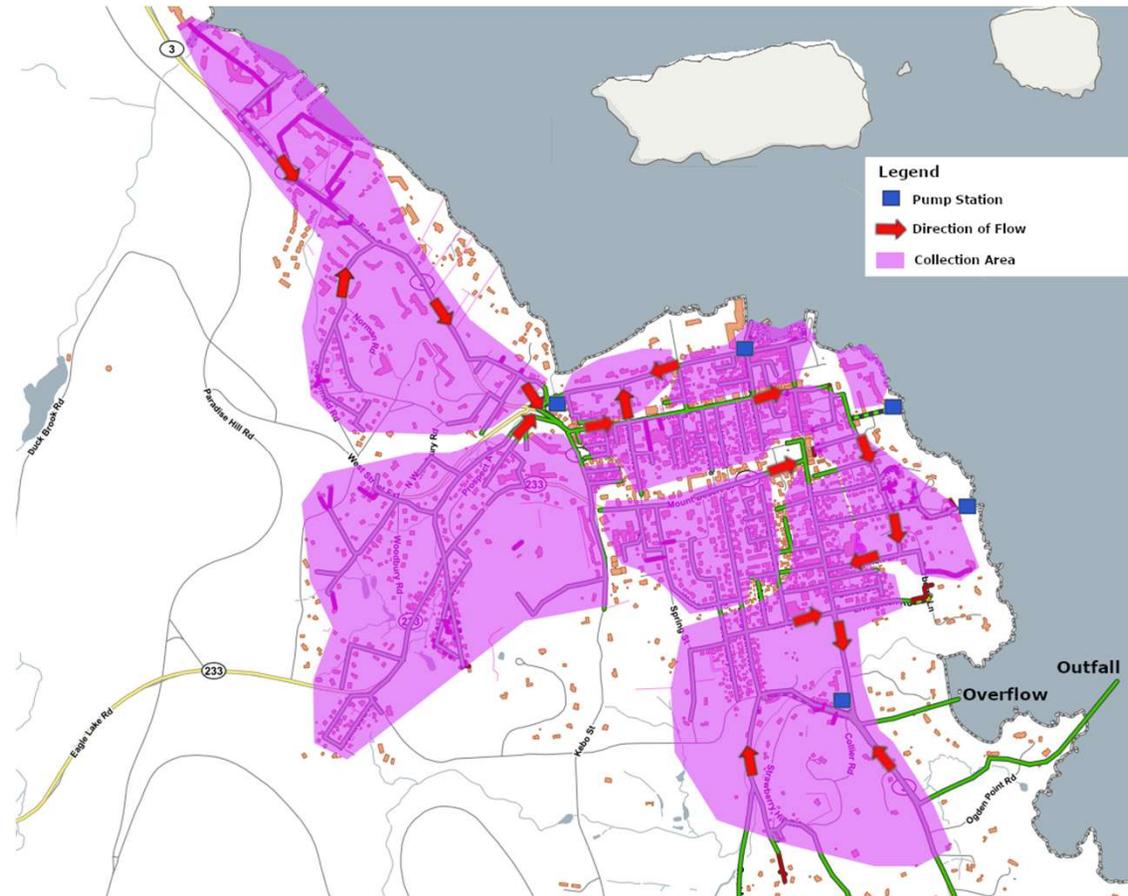
# Degregoire Park Sewer System

- Collection System
  - 2,800 LF of Sewer Mains
  - 480 LF of 6-inch force main
- Pumping System
  - Degregoire Park Pump Station
- Degregoire Park WWTF – 0.015mgd
- Outfall
  - 600 LF of 8-inch outfall
- CSO - None

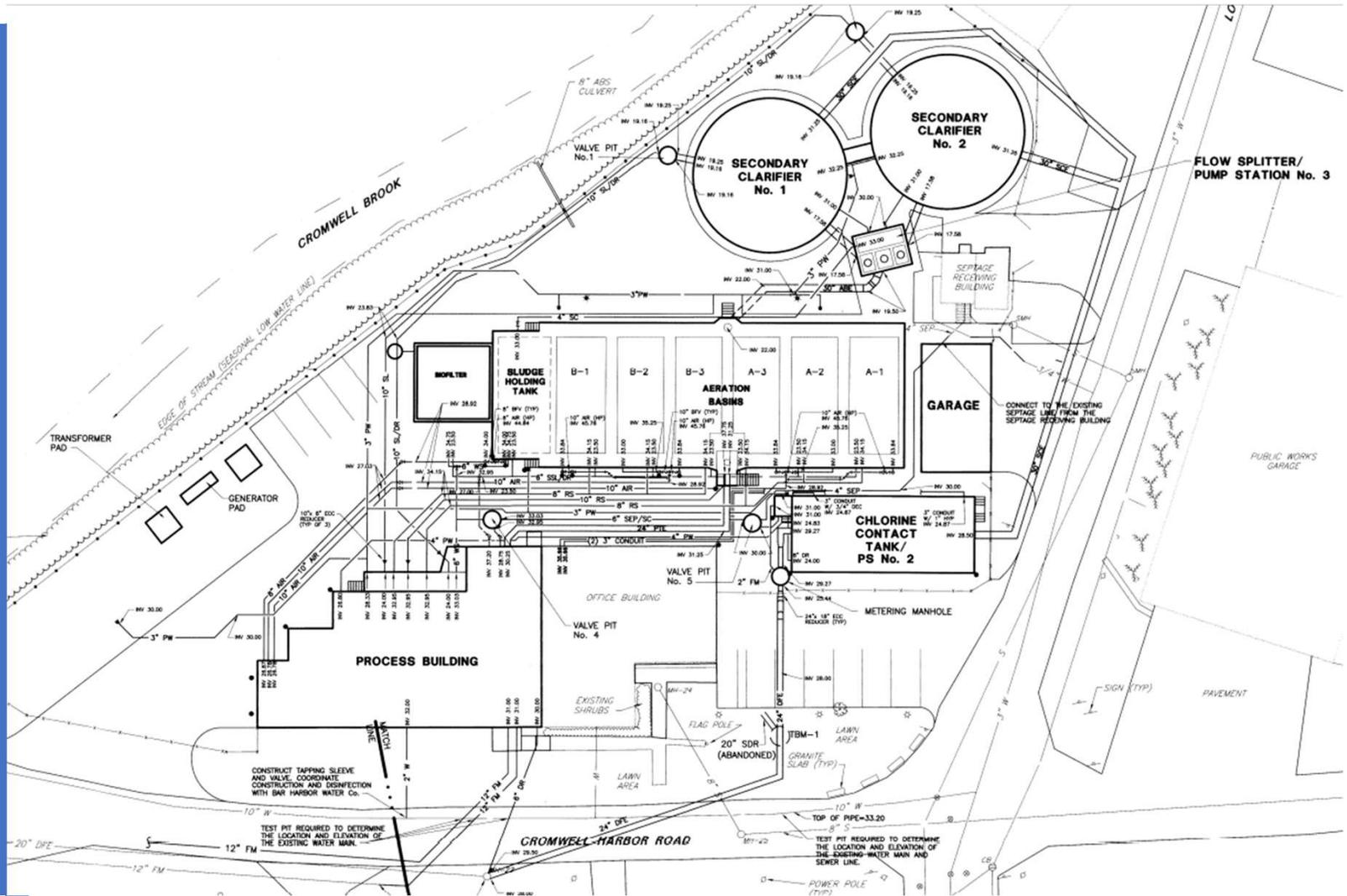


# Wastewater Treatment Capacity

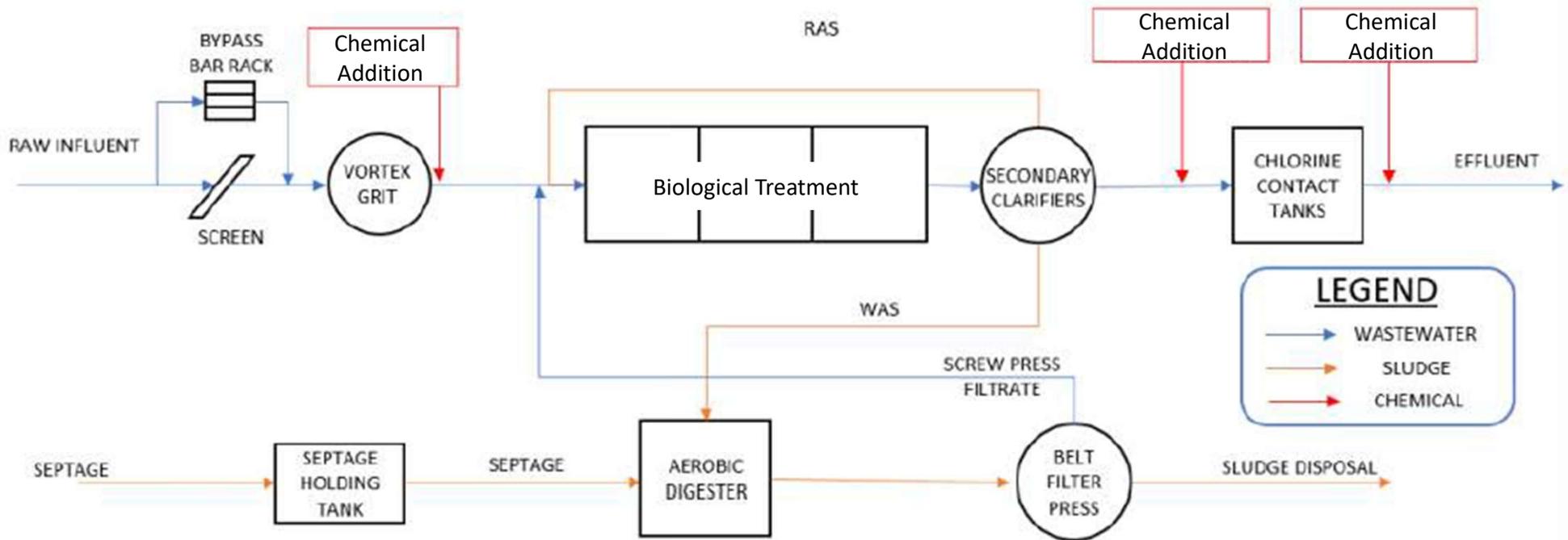
# How Downtown Sewer Moves to the Main Wastewater Treatment Plant



# Main WWTF – 1997 Upgrades



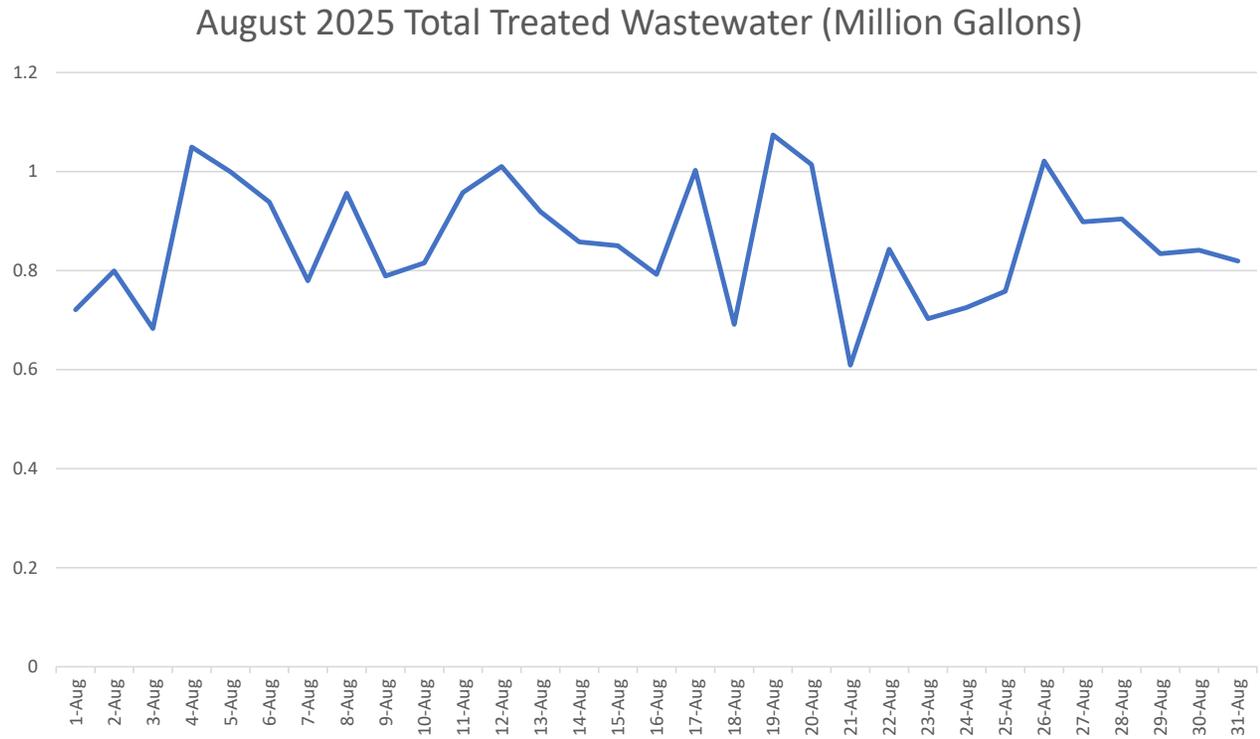
# Wastewater Treatment Schematic



# Capacity – Main Wastewater Treatment Plant

- Monthly average limit is 2.0 million gallons per day effluent (permit)
  - August 2025 current flows are 1.1 MGD during dry weather.
- Average peak daily flow < 5.9 million gallons – maximum
  - No where near this maximum EXCEPT during wet weather events
- Currently working on a Facilities Plan to increase hydraulic capacity of the facility to reduce the number and volume of wet weather CSOs
- Currently Assessing collection system for potential I/I removal projects

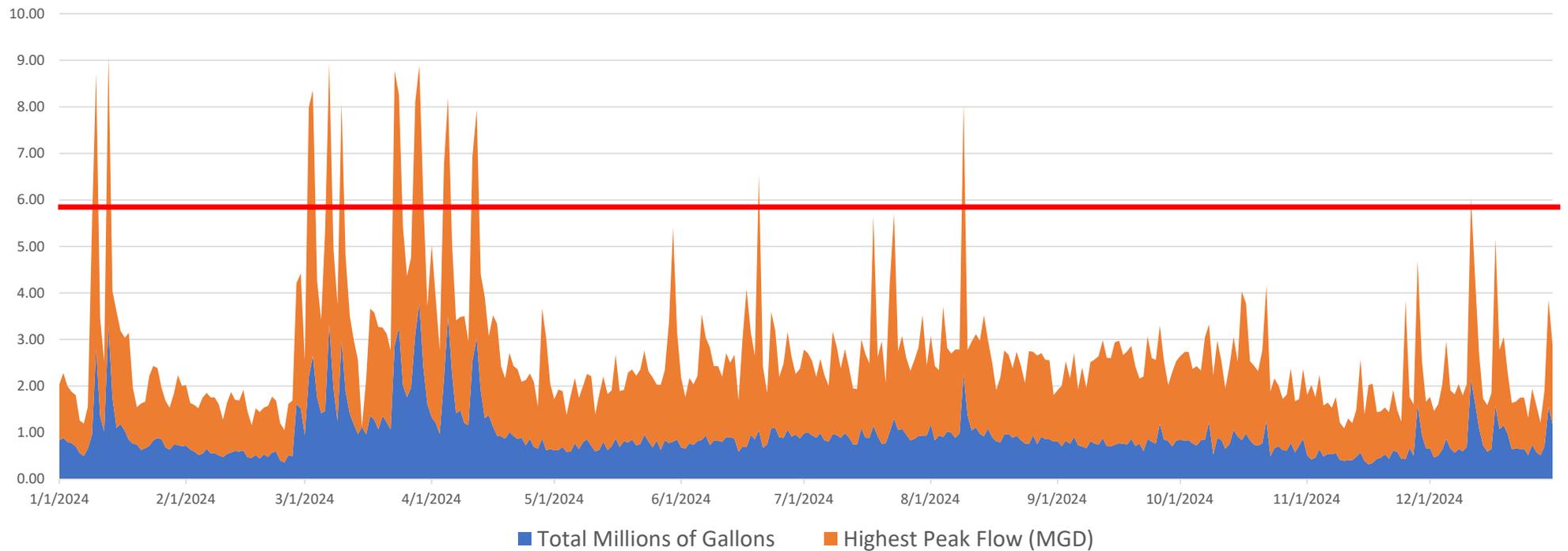
# Main Wastewater Treatment Plant Flows



August 2025 flow was 55% of the Wastewater Treatment Plant's Permitted Capacity for Average Daily Flow

# Main Wastewater Treatment Plant Flows

## 2024 Yearly Flow Chart (Million Gallons)



# Capacity

**Hulls Cove** – Removal of I/I will provide some additional capacity for future growth

- Treatment System – 0.15 MGD average daily flow (no peak daily flow limit)
- Collection System
  - Infrastructure upgrades are needed based on pipe condition and removal of I/I

**Degregoire Park** – Removal of I/I will provide a small amount of capacity for future growth

- Treatment System - 0.015 MGD
- Collection System
  - Sanitary Sewer System (non CSO)
  - Infrastructure is in decent shape but there is some pipes that need replacement to remove I/I

# Wastewater Collection System Capacity

# Wastewater Collection System

- Pump Stations
- Sewer Mains

# Age Related Pump Station Replacement Schedule

- Downtown – CSO System
  - Ferry Terminal – Due 2041
  - West Street\* – Overdue 2021; currently out to bid
  - Rodick Street\* – Overdue 2022
  - Town Pier – Due 2048
  - Albert Meadow – Due 2045
  - Hancock Street – Overdue 2022; currently in design
  - Main Street\* – Overdue 2023; Increase Capacity to reduce or eliminate CSOs
- Hulls Cove – CSO System
  - Ocean Avenue – Due 2048
  - Hulls Cove\* – Overdue 2023
  - Whitcomb Lane – Due 2035
  - Public Works – Due 2043
- Degregoire Park – Sanitary Sewer Only System
  - Degregoire Park – Overdue 2024

\* Pump Stations with Permitted CSOs

# Combined Sewer Overflows (CSOs)

## Downtown System

- West Street CSO
  - West Street, Outfall #007
  - Eddie Brook (Class B water quality classification)
- Rodick Street CSO
  - Rodick Street, Outfall #006
  - Frenchman Bay (Class SB water quality classification)
- Lower Main Street CSO
  - Main Street, Outfall #004
  - Frenchman Bay (Class SB water quality classification)

## Hulls Cove System

- Hulls Cove CSO
  - Route 3, Outfall #008
  - Frenchman Bay (Class SB water quality classification)

# CSOs

- How does permitted CSOs influence our capacity analysis
  - We focus on dry weather flows when assessing whether there is capacity
  - We evaluate recent CCTV videos for pipe and MH condition assessment
  - We use in-system flow meter data to evaluate whether there is “room” in the pipe to add additional flow
  - 10 state standards suggests that pipes should be less than 80% full to allow for some I/I to be carried in the pipes without causing a back-up.
  - In the collection system, we look for I/I removal projects that can be implemented in excess of proposed flow from new customers/connections or conversions.
- Implementing current 5 Year Plan and will be identifying projects for the next 5 year in 2026

# Future Considerations

- Connect Degregoire Park Service Area to Hulls Cove and convert Degregoire WWTF into a pump station. Would need to upgrade / expand Hulls Cove PS and WWTF.
- Main Street PS and Main Wastewater Treatment Facility
  - Multiple Phases of Project
  - Expands wet weather capacity to reduce CSOs
  - Requires significant investment to rebuild and expand facilities
  - Implementation and Construction Impacts to community
- West Street dry weather pump station – out to bid
- West Street wet weather storage and pump station – in design

# Wastewater System Capacity Summary

## **Wastewater Treatment**

- Currently we have adequate capacity to serve existing customers with room for additional flows under dry weather conditions
- We have additional capacity in the non-summer months
- Downtown system say only 1.1 MGD versus 2.0 MGD capacity for August 2025, a dry month.
- We are currently planning to expand the hydraulic capacity of the Main Street PS and Main Wastewater Treatment Facility to collect and treat additional wet weather flows as well as reduce I/I coming into the collection system.

## **Wastewater Collection System**

- We have hydraulic capacity in our pipe network during dry weather. Allowing additional flow requires removal of I/I in the collection system.
- We utilize hydraulic model as needed to support analysis.
- So far, no customers have been turned away as we have been able to manage I/I removal through our planned infrastructure projects.

# How Public Works uses the TRT and Municipal Code (Ch 125, 165, 195) to evaluate projects

- Water
  - Institutional Knowledge
  - Water Master Plan recommendations
  - CIP Projects planned or in design
  - Hydraulic Model
- Wastewater
  - Institutional Knowledge
  - Flow and load data
  - CIP Projects planned or in design
  - Hydraulic Model
  - Is there a project the Town can do to mitigate I/I to allow new customers to connect

# Question and Answer Discussion

THANK YOU