



Middletown

AGENDA FOR THE WATER & SEWER COMMITTEE MEETING

January 25, 2023

7:00 p.m.

- Monthly Water & Sewer Operations Reports
 - December 2023

- Update on Active Water & Sewer Projects
 - Progress Report – West WWTP Upgrade
 - I&I Project – Walnut Street to South Jefferson Street

- Comp Plan – Water Resource Element – Final Draft

**Public Works Monthly Report
January 5, 2023**

COMPLETED WORK

Museum storage room construction started. Hydrant refurb (2), multiple truck and equipment service, brine maker repair, ice events (2), booster station desk tops installed. Road temp sensors installed on trucks. Numerous welding projects, Built desk for well 15, cleaned chem feed lines at reservoir, cleaned wetwells and influent channels with Taylors, Brookridge pump pulled, replace heater at gen room EWWTP and build heated enclosure for transducer for Elev Tank.

Public Works

New Projects or Requests

Jefferson Street Parking and Traffic review: Traffic Calming Policy guidelines forwarded to PW, review on 1/25 6pm. Dead End and No Outlet Sign Policy presented for first review.

Unbudgeted Expenses:

On road diesel tank, 500 gal need replaced. \$4,500.00.
Irrigation PS Pond transducer, Water Tank level transducer

Sludge cost for FY \$6,670 15,000 gal hauled, 17,100 gal bedded **Total hauled 69,000 gal Bedded 54,159 Gal**
Water Use (Average Daily for the Month, Flows stated in gallons per day)

MONTH	WATER USE		SPRING FLOW		East WWTP		West WWTP		Rain
	past yr	present yr	past yr	present yr	past yr	present yr	past yr	present yr	
January	317,614	300,936	100,405	85,469	260,000	241,963	224,000	147,012	2.5
February	300,936	311,685	109,250	105,258	291,000	263,000	179,000	195,000	2.8
March **	297,775	293,702	144,800	118,808	281,442	235,867	208,134	169,018	3.4
April **	316,218	311,260	147,075	139,909	221,150	267,481	220,184	185,830	3.25
May	318,004	317,665	149,126	126,325	234,000	300,180	261,000	293,045	7.6
June	327,808	329,912	136,400	141,430	183,167	203,251	183,360	124,123	2.65
July	312,871	314,364	95,242	106,315	176,000	195,429	144,000	137,369	6.4
August	321,358	324,822	72,415	79,521	185,000	201,118	154,000	132,900	3.6
September	300,680	302,063	91,340	67,700	312,000	226,936	342,000	159,864	5.7
October **	318,893	309,119	88,721	61,992	213,309	209,733	198,997	138,747	2.05
November**	287,629	295,148	86,898	59,769	204,000	217,000	143,000	141,000	3.65
December	287,269	302,135	81,035	80,456	180,706	282,795	101,370	238,529	5.2

Avg Daily/yr	308,921	309,401	108,559	97,746	228,481	237,063	196,587	171,870
Avg Yr Flw	112.76	112.93	39.62	35.68	83.40	86.53	71.75	62.73

**Hydrants flushed this month

October 2019 531,958, Spring 2020 not flushed. Fall 2020 582,024 Spring 2021 704,842 Fall 2021 744,925 Spring 2022 664,933 Fall 2022 749,561(5 day avg)

Sewer Flow

July flow up 5% (332,798) EWWTP down 1%, W WWTP up 5%. Aug flow up 0.4% (334,018) EWWTP up 3%, W WWTP down -3%. Sept flow up 12% (334,018) EWWTP up 9%, W WWTP up 16%. Oct flow down 8% (344,577) EWWTP down 4%, W WWTP down 13%. Nov flow up 1% (358,089) EWWTP 0% chg, W WWTP up 1%. Dec flow up 50% (531,324) EWWTP up 34%, WWWTP up 75%.

Planned Work

MDE water inspection corrections.

ARP Budget and WS Projects: Staff updates costs and project biweekly. DPW has initiated 4 waterline projects at this date (I&I, Remsberg Park Connector Water, Linden Blvd Waterline).

Open Projects

I & I Walnut to Jefferson St.: Contractor has completed new sewer line and manholes from Walnut through the 306 W Main St. End of January is the projected completion.

ADA sidewalk ramp reconstructions: None this month.

Water System:

Water Hydraulic Model:

Broad St Streetscape: Asbuilts to be submitted, 1 year warranty expires July 8, 2023. No action

SSO and I&I: Regulating flow daily to meet the flow discharge in our permits. Public Announcement for I & I Project and to disconnect illegally connected sump pumps (provide early notice). Flow Monitoring is complete, met with consultant to discuss results and finalize the initial results. Staff agreed to move forward with televising the areas that show the highest influence from storms. A summary report will be provided to the Board in the near future.

West Wastewater Treatment Plant: No issues.

East WWTP: No issues.

Municipal Center: No issues

Maintenance Facility: Contract has been executed with Triad Engineering. We have received 60% improvement plans for review. No action

Washington Street: Project is complete. Asbuilts will be completed, and project closed out with agencies.

Pedestrian Blinker signs: Received permit install at Holter Road in County ROW. Prepared sketch plan for installation and coordination with FrCo. FrCo has responded and we are permitted to proceed. Staff has laid out the work, installation is contingent on receiving missing parts.

Wiles Branch Stream Rehabilitation (MS4): MS 4 annual report is complete and submitted. Consultant is moving ahead with Wiles Branch Stream Restoration design and permitting.

Linden Boulevard Culvert Replacement: Timeline and estimated costs presented for streetscape and stream restoration to the Board. Culvert lining ilo replacement and stream restoration at Wiles Branch appears to be the favored options. No action

Brookridge PS: Project has been provided to Contractor for cost proposal.

Remsberg Park Waterline Extension: Plans have been received for review and approval and submitted to MDE for the stream crossing. Preconstruction meeting January 19, 2022.

Pickleball Courts: We have received schematic layouts for review. Will develop cost comparison for presentation, submitted to FrCo for initial review of SWM. Some complications to work through at this time regarding APF requirements.

Developments

Middletown Library: West side foundations being constructed.

ADMAR Annexation: Design for treatment plant in progress 60% submittal reviewed. Construction drawings and specs submitted to MDE.

Chesterbrook IP's: Completed, closed out the guarantee.

Middletown Municipal Hall: Water meter and piping has been installed 10/28/2022.

Horman Property Caroline's View: Draft Public Works Agreements were returned to Developer for execution 10/24/22.

Future Budget Considerations

W&S: Comprehensive sewer plan, West WWTP ENR plant replacement (non process component for Town budget). upsize CB pumps (part of the facility review or ENR upgrade)

GF: Additional 1 ton truck. New Skilled labor position and 2 future positions for 2 full crews.

Regulatory

EPA

Revised Lead and Copper: Will provide summary of the requirements in the next month (not competed). Inventory of all public and private service lines due October 2024.

PFOA PFOS: interim health advisory levels PFOA 0.004 ppt and PFOS 0.020ppt. Sample results for Well 15 4.36 ppt, Brookridge 8.36 ppt. Town is required to participate in UCRM 5 as a result of the previous sampling. MDE / EPA will pay for the testing. MDE resampled the finished water on 9/28/2022. No results at this time.

Emergency Response Plan: Certification submitted.

MDE

Permits: East WWTP Discharge Permit (exp Dec 2021) submitted 22 months prior to expiration and then revised 14 months before expiration. MDE advertised the reapplication. We have requested an increase in discharge flow from 250,000 to 350,000. MDE has approved the County Water and Sewer Plan which requested the increase in flow. MDE is has started working on the permit may be 9 months till completed.

Irrigation Pump Station Permit Renewal has been advertised by MDE.

MS4 Permit: Received a Proposal from FSA or inspection and survey MS4 stream improvements to justify the MS4 credits and have placed in the General Fund budget. Staff has submitted the 2022 report to MDE. MDE has issued a new MS4 permit to FrCo (they administer the permit) valid for 5 years. Consultant has reviewed existing SWM ponds, the Town will receive a reduction of 2 acres credit for these ponds reducing the number of credits the Town needed from 18.67 to 16.57.

West WWTP ENR Upgrade: PER contract has been provided for execution. Kickoff meeting on November 8, 2022. We have reviewed two possible force main alignments for the study. A meeting with MDE for planning discharge limits on December 6 revealed concerns by MDE for discharging 700,000 gpd to the Hollow Creek based on summer base flows. The planning limits will not likely be provided until February.

Capacity Management reports: Submitted July 30, 2022.



MEMORANDUM

DATE: January 23, 2023

TO: Jennifer Falcinelli, Water and Sewer Chairperson

CC: John D. Miller, Burgess

FROM: Bruce Carbaugh, Director of Public Works

SUBJECT: Status report for ENR Upgrade projects for the East and West Plants

The ENR Project kickoff meeting on November 8, 2022 started the project (minutes attached).

Town staff has complied and supplied much data including discharge reports back to 2018 for Whitman Requart and Associates to review. Operators' setup and installed influent composite samplers at both plants for sampling that will be used as the basis for design for the upgrades.

The design team met with MDE for planning discharge limits and discussed the Department's concern over discharging 0.75 MGD into the Hollow Creek and the possible alternatives. The concern is the summer base flow and the upgraded plant discharging more than the Creek flows in the driest part of the year.

Important Dates

November 8, 2022: kick off meeting
November 18, 2022: walk the possible force main alignment
December 6, 2022: MDE meeting for planning limits

Project Cost to Date (January 2, 2023)

Gold & Associates		WRA			
Nov-21	\$360.00		Jan-23	\$	9,949.73
Feb-22	\$1,170.00				
Jun-22	\$1,212.00				
Aug-22	\$763.45				
Nov-22	\$1,724.46				
Total to date	\$5,229.91			\$	9,949.73
Proposal Amount				\$	49,923.38
Balance Remaining				\$	39,973.65
Total Cost to date		\$	45,203.56		

I have attached minutes and letters regarding the project for your review or interest. At this time the preliminary engineering report (PER) is delayed waiting for MDE planning limits. If you have any questions, please let me know.

Town of Middletown

Wastewater Treatment System ENR Upgrades – Preliminary Engineering Report

Kick-off Meeting – 11/8/2022

Meeting Summary

Meeting Date: 11/8/2022 10:00 AM

Location: Microsoft Teams Meeting

Participants:

<u>Name</u>	<u>Project Role</u>
Kelly Duffy	RKK Project Manager
Maia Tatinclaux	RKK Process Engineer
Kelly Ferguson	RKK Process Engineer
Bob Andryszak	RKK QA/QC Engineer
Bruce Carbaugh	Middletown Director of Public Works
Joe Hott	Middletown Water/Wastewater Superintendent
Lenny Gold	Middletown Consultant

A kick-off meeting was held at the Middletown Town Hall to discuss the development of the preliminary engineering report (PER) for the ENR upgrades to the Town’s wastewater treatment system. A summary of the key discussion follows.

Summary:

The Town of Middletown would like to move forward with confirming the feasibility of a combined plant at the site of the current East WWTP.

Combining the plants would require RK&K to look at the conveyance of all flow currently going to the West WWTP to the East WWTP. The West WWTP would be retrofitted to be a pump station with a force main to the East WWTP. The force main will be evaluated and designed based on additional future flows. RK&K will return to walk the alignment of the proposed force main.

The East WWTP’s permit is currently being reviewed to increase capacity from 0.25 to 0.35 million gallons per day (MGD). When the permit is approved, the Town would have a total permitted capacity of 0.6 MGD. It is RK&K’s understanding that the design for the combined plant would have the same total capacity with an ability for future expansion to accommodate growth. (Future growth from areas that may be annexed is not included in the 0.6 MGD). The Town understands there may be a limitation on stream assimilative capacity.

The East WWTP’s discharge permit allows up to 68,000 gpd, as an annual average, to be sprayed on the golf course.

At the East WWTP, reed beds are used to dry sludge from the Biolac process. The Town noted the reed bed life cycle cost is quite high due to having to haul the waste to a landfill that will accept it. The Town is interested in evaluating several options for biosolids processing including using a private contractor for processing and disposal, aerobic digestion, lime stabilization, dewatering through a belt filter press, a screw press, a centrifuge, or a popcorn gravel drying bed.

At the East WWTP approximately 15 gal/day of caustic is used.

At the East WWTP, the Aquaguard screen was recently re-built and the Pista grit works with some grit escaping to the Biolac basins. Kelly Duffy indicated the headworks will probably not be replaced in the expansion.

Based on the discussion during the kick-off meeting, the following preferences stated by the Town will be noted and addressed in the PER phase:

- The Town would like equalization storage as part of the WWTP upgrades due to inflow and infiltration (I/I) throughout the collection system. I/I is bad in the Middle Basin.
- A 4/5 stage custom Bardenpho system will be added to the list of alternatives to be evaluated. A custom system affords the opportunity to not have the post anoxic zone coupled to the pre-anoxic zone.
- There is no driver for an MBR treatment system, as it is higher cost system and space is not a limiting factor at either WWTP. At this time, the MBR system will not be evaluated.
- The Town is not committed to continue using the Biolac system. If the Biolac system is to remain or be expanded, the integral clarifiers should be replaced with circular clarifiers.
- The Town would prefer to not be dependent on a single manufacturer.
- Continuous backwash filters and downflow filters should both be considered.
- The Town prefers stainless steel vessels over painted carbon steel due to the high cost to repaint.
- The East WWTP's UV system currently does not work; Superintendent would like to have UV back up and running to reduce the cost of disinfection chemicals.
- The Town would prefer Class B over Class A biosolids; solar drying is not preferred.

Action Items for Middletown:

1. Contact City of Frederick/Ballenger to determine their current sludge processing and disposal methods
2. Provide O&M budget information*
3. Provide electric service and usage information – an electric bill*
4. Provide cold weather wastewater temperature data*

*Action Items have been completed since 11/8/2022

Project Schedule

Task	Days	Date
Kick-Off Meeting	1	11/8/2022
Develop combined WWTP layout and FM alignments	35	
Conduct preliminary solids alternatives evaluation	20	
Prepare preliminary cost estimates	25	
Interim workshop with Town	1	2/20/2023
Determine permit requirements	10	
Refine solids processing evaluation	20	
Compile and submit draft PER	15	4/3/2023
PER review meeting with Town	1	4/7/2023
Receive review comments from Town	15	4/28/2023
Finalize PER and submit to MDE	15	5/19/2023
MDE review	45	6/30/2023
Respond to MDE comments	15	7/21/2023

Moving forward, RK&K will follow the sequence listed below for PER development:

1. Send MDE Letter requesting planning limits
 - a. Discuss consolidating plants from two to one (0.6 MGD)
 - b. Discuss potential plant expansion in the future (0.6 to 0.71 MGD)
 - c. Request limits for upgrade of each WWTP separately
2. Confirm feasibility of force main design to consolidate WWTPs
3. Conduct Alternatives Evaluation of Combined Treatment Plant
 - a. Develop Design Criteria using 2018-2022 data
 - b. Alternatives to be evaluated:
 - i. Oxidation Ditch (4/5 stage Bardenpho)
 - ii. Custom 4/5 stage Bardenpho
 - iii. Biolacwith post-anoxic zone and separate clarifiers
4. Present results of combined treatment plant to Town
5. Develop design criteria and cost estimates for two treatment plants (use same recommended alternative from the combined treatment plant option)
6. [in parallel with items listed above] Conduct a high-level evaluation of sludge processing alternatives listed below and recommend 2-3 for detailed evaluation. Present recommended alternatives to Town before proceeding with detailed evaluation.
 - a. Enter into agreement with private contractor
 - b. Aerobic Digestion
 - c. Lime stabilization
 - d. Dewatering—screw press, centrifuge, belt press
 - e. Popcorn gravel drying bed

Next Meeting

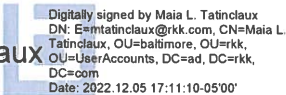
The interim workshop will be conducted in approximately 11 weeks, 2/20/2023.

End of Meeting Summary

This summary is intended to accurately portray the meeting. If there are any comments to revise this summary, please notify Maia Tatinclaux at RK&K.

Prepared by:

Maia L. Tatinclaux



Digitally signed by Maia L. Tatinclaux
DN: E=mtatinclaux@rkk.com, CN=Maia L.
Tatinclaux, OU=baltimore, OU=rkk,
OU=UserAccounts, DC=ad, DC=rkk,
DC=com
Date: 2022.12.05 17:11:10-05'00'

Maia Tatinclaux, PE

RK&K Project Manger

December 9, 2022

Yen-Der Cheng, Chief
Municipal Discharge Permit Division
Wastewater Permit Program
Maryland Department of Environment
1800 Washington Boulevard
Baltimore, MD 21230

**Reference: Middletown Wastewater Treatment Plants
Revised Request for Updated Effluent Planning Limits**

Dear Mr. Cheng:

Based on the outcome of our meeting held on December 6, 2022, RK&K is requesting effluent planning limits for our use in the preparation of the preliminary engineering report (PER) for the Enhanced Nutrient Removal (ENR) upgrade, potential consolidation, and future expansion of the East and West wastewater treatment plants serving the Town of Middletown. RK&K is tasked with: 1) evaluating what is required to upgrade to ENR, 2) evaluating the required improvements if treatment is consolidated to the East WWTP, and 3) identify the impacts of future expansion to accommodate three planned developments.

Due to the West WWTP site being entirely in the 100-year floodplain, we do not anticipate that construction of an ENR facility at that site will be feasible or cost-effective. Rather, an expansion of the East WWTP to consolidate the East WWTP and West WWTP at the site of the current East WWTP may be the best option for the Town. In this scenario, the West WWTP would be taken offline and replaced with a pump station to convey all flow from the existing West collection system to the expanded East WWTP. It is our understanding that MDE is in the process of revising the East WWTP permit to increase capacity from 0.25 to 0.35 million gallons per day (MGD). With that understanding, RK&K is requesting the limits for a total of 0.6 MGD which is the sum of the East WWTP flow of 0.35 MGD and the West WWTP flow of 0.25 MGD.

To complete the evaluation, could you please provide planning limits for the following effluent discharge scenarios:

1. The combined flow of 0.60 MGD treated effluent would be discharged through the existing East WWTP outfall. The West WWTP's outfall would be taken out of service.

Could you also please provide effluent planning limits for reviewing the WWTP's future expansion to increase the design capacity from 0.6 to 0.71 MGD to accommodate the three future developments.

2. The West WWTP outfall would remain and discharge 0.25 MGD treated effluent pumped from the expanded East WWTP. The East WWTP outfall would discharge a maximum of 0.35 MGD treated effluent.

Could you also please provide effluent planning limits for reviewing the WWTP's future expansion to increase the design capacity from 0.6 to 0.71 MGD to accommodate the three future



developments. The West outfall would discharge the additional 0.11 MGD of treated effluent pumped from the expanded East WWTP.

3. The West WWTP outfall would remain and discharge the entire combined flow of 0.60 MGD treated effluent pumped from the expanded East WWTP. The East WWTP's outfall would be taken out of service.

Could you also please provide effluent planning limits for reviewing the WWTP's future expansion to increase the design capacity from 0.6 to 0.71 MGD to accommodate the three future developments.

In addition, for Scenarios 2 and 3, could you please confirm that the final sampling point for the West outfall discharge could be located at the last accessible point of the treatment plant (sited at the East WWTP) and that additional sampling directly at the West outfall would not be required?

We appreciate your assistance on this project. Please feel free to contact me at 410-462-9260 or mtatinclaux@rkk.com.

Sincerely,

RUMMEL, KLEPPER & KAHL, LLP

Maia L. Tatinclaux

Digitally signed by Maia L. Tatinclaux
DN: E=mtatinclaux@rkk.com, CN=Maia
L. Tatinclaux, OU=baltimore, OU=rkk,
OU=UserAccounts, DC=ad, DC=rkk,
DC=com
Date: 2022.12.09 13:20:16-05'00'

Maia Tatinclaux, P.E.
Project Manager, Wastewater

cc: Kelly Duffy (RK&K)
Bob Andryszak (RK&K)
Kelly Ferguson (RK&K)
Bruce Carbaugh (Middletown)

January 10, 2023

Mr. Bruce Carbaugh
Director of Public Works
31 West Main Street
Middletown, MD 21769

Reference: **PER for ENR Upgrades of Middletown WWTP**

Subject: Progress Report and Invoice No. 1

Mr. Carbaugh:

This letter constitutes our first progress report for the referenced project and covers the period from Notice to Proceed through December 30, 2022.

A. PROGRESS

- Held kick-off meeting and site visit with the Town
- Attended site visit related for force main alignment.
- Coordinated meeting with MDE to discuss permit requirements for alternatives and conceptualized alternatives for final discharge for further evaluation
- Initiated evaluation of upgrading/expanding the East WWTP

B. SCHEDULE AND DELAYS

- Awaiting a response from MDE for effluent planning limits.

C. INFORMATION AND APPROVALS REQUIRED

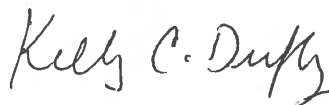
- Awaiting a response from MDE for effluent planning limits.

D. WORK TO BE ACCOMPLISHED IN THE NEXT REPORTING PERIOD

- Evaluate upgrade alternatives based on effluent requirements received from MDE.
- Continue efforts on draft report

A copy of the invoice representing the work conducted during this period is enclosed. Please do not hesitate to contact me if you have any questions.

Sincerely,
RUMMEL, KLEPPER & KAHL, LLP



Kelly C. Duffy, P.E.
Director, Wastewater



Town of Middletown
Mr. Bruce Carbaugh
Director of Public Works
31 West Main Street
Middletown, MD 21769

Commission No: 22321.000
Invoice No. 01
Invoice Date: 01/10/2023

Project Name: PER for ENR Upgrades of Middletown WWTP

Services from: NTP through December 30, 2022

Task	Description	Agreement Fee	Percent Complete	Total Earned To Date	Previously Billed	Fee Earned This Invoice
1	WA1: New ENR Plant for West Plant	\$14,533.82	30.00%	\$4,360.15	\$0.00	\$4,360.15
2	WA2: New Pump Station and Force Main	\$9,367.26	40.00%	\$3,746.90	\$0.00	\$3,746.90
3	EA1: Upgrade East Plant to ENR	\$8,785.90	0.00%	\$0.00	\$0.00	\$0.00
4	EA2: Expand and Upgrade East Plant	\$9,213.40	20.00%	\$1,842.68	\$0.00	\$1,842.68
5	Sludge Management Evaluation	\$6,672.74	0.00%	\$0.00	\$0.00	\$0.00
6	Sampling and Analysis for Process Development	\$1,350.26	0.00%	\$0.00	\$0.00	\$0.00
		\$49,923.38	19.93%	\$9,949.73	\$0.00	\$9,949.73

Amount Due This Billing Period

\$9,949.73

DocuSigned by:

E0DF190A3AB54B9
Kelly Duffy, Director

1/10/2023

Prepared By: Kara Beall (410) 462-9394
kbeall@rkk.com

WATER RESOURCES ELEMENT



Introduction

This Water Resource Element is to evaluate the land use plan for the town of Middletown (Chapter 9) and its potential impact on local water resources. These resources include ground water supplies (springs and wells) and streams that are tributaries of the Chesapeake Bay. Achieving the Town's water resources goals will take a coordinated effort by its citizens, the Town's government, and its businesses. Each has a role to play in preserving the Town's water resources for future generations.

The Water Resource Element identifies drinking water and other water resources that will be adequate for the needs of existing and planned development for the next 20 years, as well as identifying suitable receiving waters and land areas to meet the stormwater management and wastewater treatment and disposal needs of existing and planned development for the next 20 years. It is important that the Comprehensive Plan integrates water resources issues and potential solutions, and this chapter will outline how management of water, wastewater and stormwater will support planned growth, given water resource allocations.

Water Resources Goals:

To be drafted by the Water & Sewer Committee

Executive Summary

In order to meet the water resources goals above:

1. The Town will employ demand management strategies and conservation measures (water pricing, recycling and reuse) to maximize use of existing resources.
2. New development projects will be staged according to the availability and adequacy of the drinking water supply.
3. Per the Town's Adequate Public Facilities Policy, new annexations must provide 250 gallons of allocable water per dwelling unit and must use the Maryland Department of the Environment (MDE) Water Balance calculations to determine the maximum number of equivalent dwelling units (EDU's) possible for the property to be developed. Water must come from the watershed under the annexed land and no use of other watersheds is permitted. The number of dwelling units permitted will depend on factors including the water allocation by the Maryland Department of the Environment (MDE) and the amount of water developed on the property. Allocation of water from other watersheds is not permitted without approval from the Town.
4. The Town will continue to monitor ground water conditions in the watersheds and streams.

5. The Town shall work to promote wellhead protection around its water resources.

Water Resources Vision

Maintain a safe, secure and adequate drinking water supply to accommodate the needs of the current population as well as future generations, while protecting and enhancing the quality of the areas surface water, groundwater, and wetlands. Promote coordinated planning with other federal, state, and local agencies responsible for drinking water, wastewater water, and stormwater management.

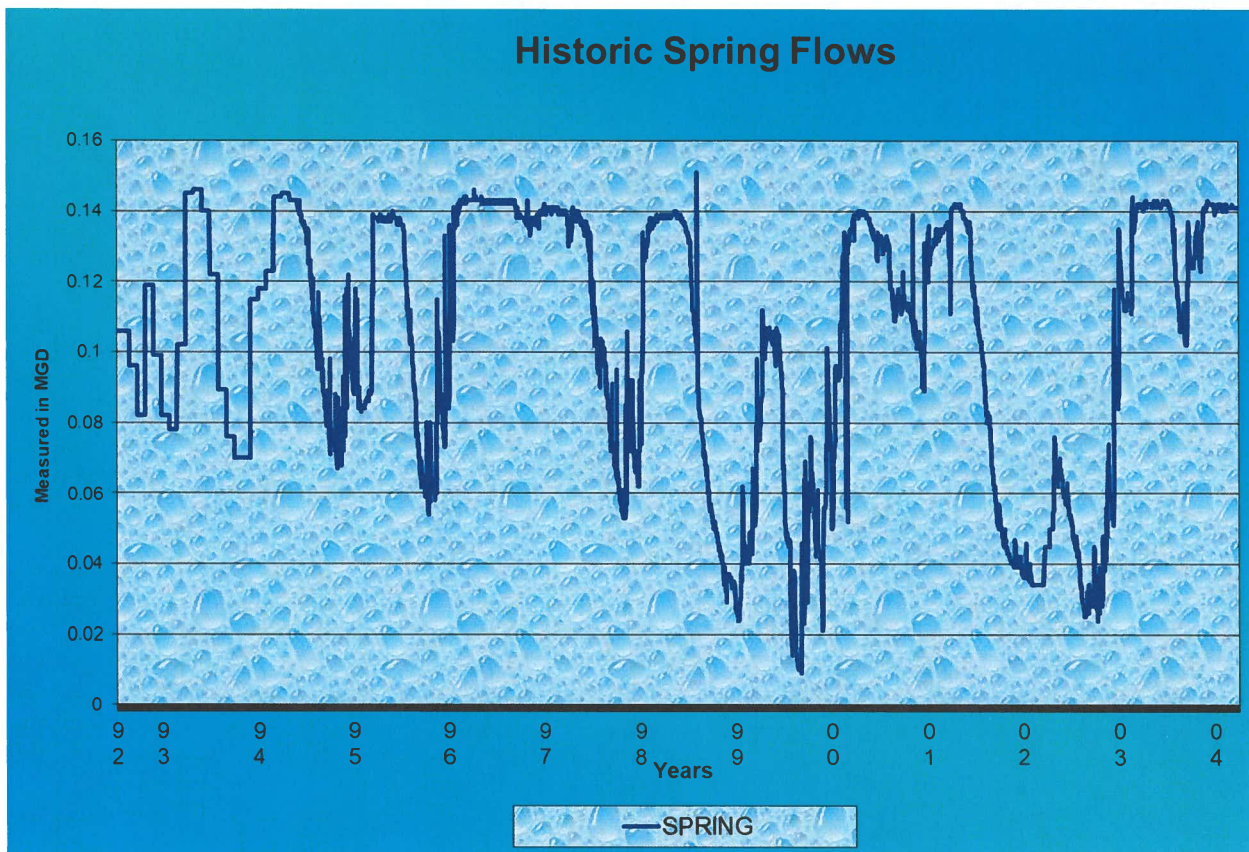
Drinking Water System Background

Geological and Climatic Conditions

The Town of Middletown's drinking water supply is currently served exclusively from groundwater sources. The available supply of groundwater in Middletown is dependent upon the underlying geologic conditions, local rainfall, and water demands. In most areas, the water bearing characteristics of the geology offer low storage capacity and low transmissibility. An extensive stream network and the nature of fine particle soils contribute to these characteristics. The United States Geologic Survey (USGS) and Maryland Geological Survey have generalized the water yielding character of Frederick County's aquifers and organized them by hydrogeomorphic region. Middletown is located in the Piedmont Crystalline region. The poorest aquifers, in terms of yield and capacity, include fractured rock aquifers which are typical in the Piedmont Crystalline regions.

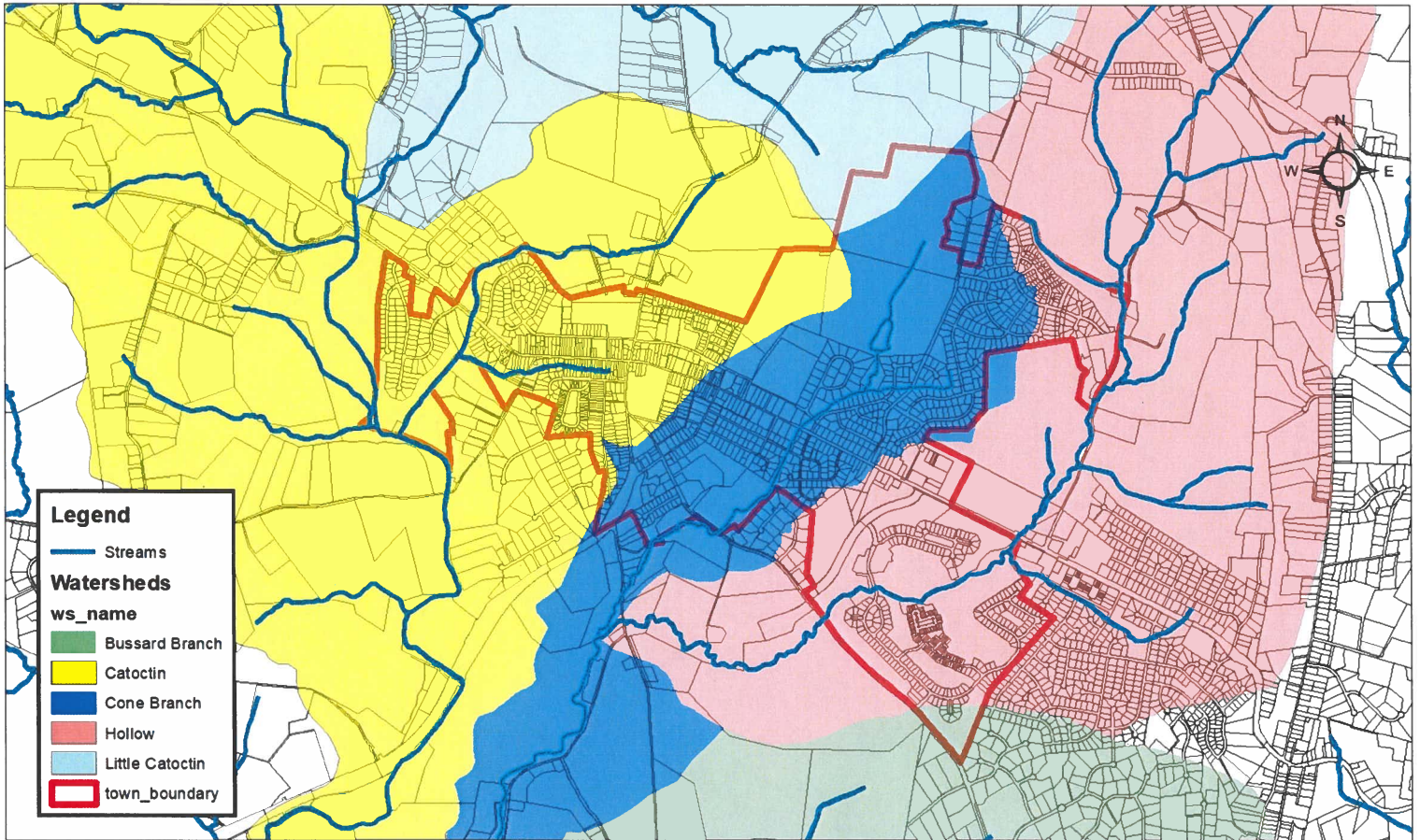
In addition to geology, climatic conditions impact groundwater supply. Seasonal variation in groundwater table level is a primary limitation to its use as a reliable water supply. In 2006 when MDE performed an evaluation of the Catoclin Creek watershed, it was concluded that groundwater may be an adequate source for the Town during average precipitation years, but under drought conditions, groundwater supplies are not adequate to meet existing demand and support the biological and natural resources of the watershed¹. It is for this reason, that the Town now requires that all new annexations must bring the water they need for their development along with a 10% reserve capacity. Groundwater supply limitations are typically accentuated during the summer months. Mid-June through mid-September is historically the driest time of the year and groundwater supply declines significantly during the summer months. Groundwater levels are monitored by manual measurement of well depths, spring flow and the USGS stream gauging station.

¹ 2006. MDE. *An Evaluation of Water Resources in the Catoclin Creek Watershed, Frederick County, Maryland.*



Watersheds

Catoctin Creek flows through the Middletown Valley, an intermountain area characterized by heavily rolling land and narrow streams. The valley is surrounded on three sides by the Catoctin and South Mountain ridgelines. These mountain ranges form the boundary of the Catoctin Creek watershed, a part of the piedmont Crystalline Region, which accounts for approximately 25% of Frederick County's total land area. Although Catoctin Creek Watershed is the watershed referred to in overviews regarding the Middletown Valley, for the purposes of allocation of water rights, the Maryland Department of the Environment (MDE) has broken down the Catoctin Creek Watershed into other sub-sections for legal allocations to users of the watershed.



Watersheds
Town of Middletown - Frederick County

MDE uses the principal that water rights are based on control/ownership of land within each watershed. These rights are then reviewed through MDE determining the water balance within each watershed as shown below:

	WATERSHEDS				
	Catocin Creek	Little Catocin	Cone Branch	Hollow Creek	Bussard Creek
Gross Acreage By Digital Planimetry	384	32	504	631	14
Net Acreage Available for Allocation (Assumes 10% impervious surface)	346	29	454	568	13
Drought (1-in-10) Ground Water Availability (432 gpd/ac)	149,366	12,442	195,915	245,318	5,597
Set-Aside for Maintenance of a 7Q10 Base Flow (15 gpd/ac)	5,186	432	6,803	8,518	194
Groundwater Potentially Allocable in the Watershed (gpd)	144,179	12,010	189,112	236,800	5,402
Groundwater Potentially Allocable in the Watershed (gpm)	100.12	8.34	131.33	164.44	3.75
Existing Appropriation Permit Allocation (gpd)	25,500	-	53,500	308,000	-
Available Allocation (gpd)	118,679.38	12,009.60	135,612.17	-	5,402.44
Potential Units (EDU's)	475	48	542	-	22

The Hollow Creek watershed is over-allocated due to the failure of the Braddock Heights' water system. Allocation was taken from the Hollow Creek watershed by MDE when Frederick County had to take over the Braddock Heights' water system. MDE will not allocate any additional water from this watershed to Middletown.

It is important to recognize that the maximum allocation of water, using the MDE water balance for the Middletown Valley watersheds, makes it challenging to meet the Smart Growth Density of 3.4 units/acre². This factor must be considered in determining future growth areas and zoning densities for the Town. It should also be noted that Middletown's geology makes it difficult to find high producing wells as evidenced by past attempts and failures in the Catocin watershed.

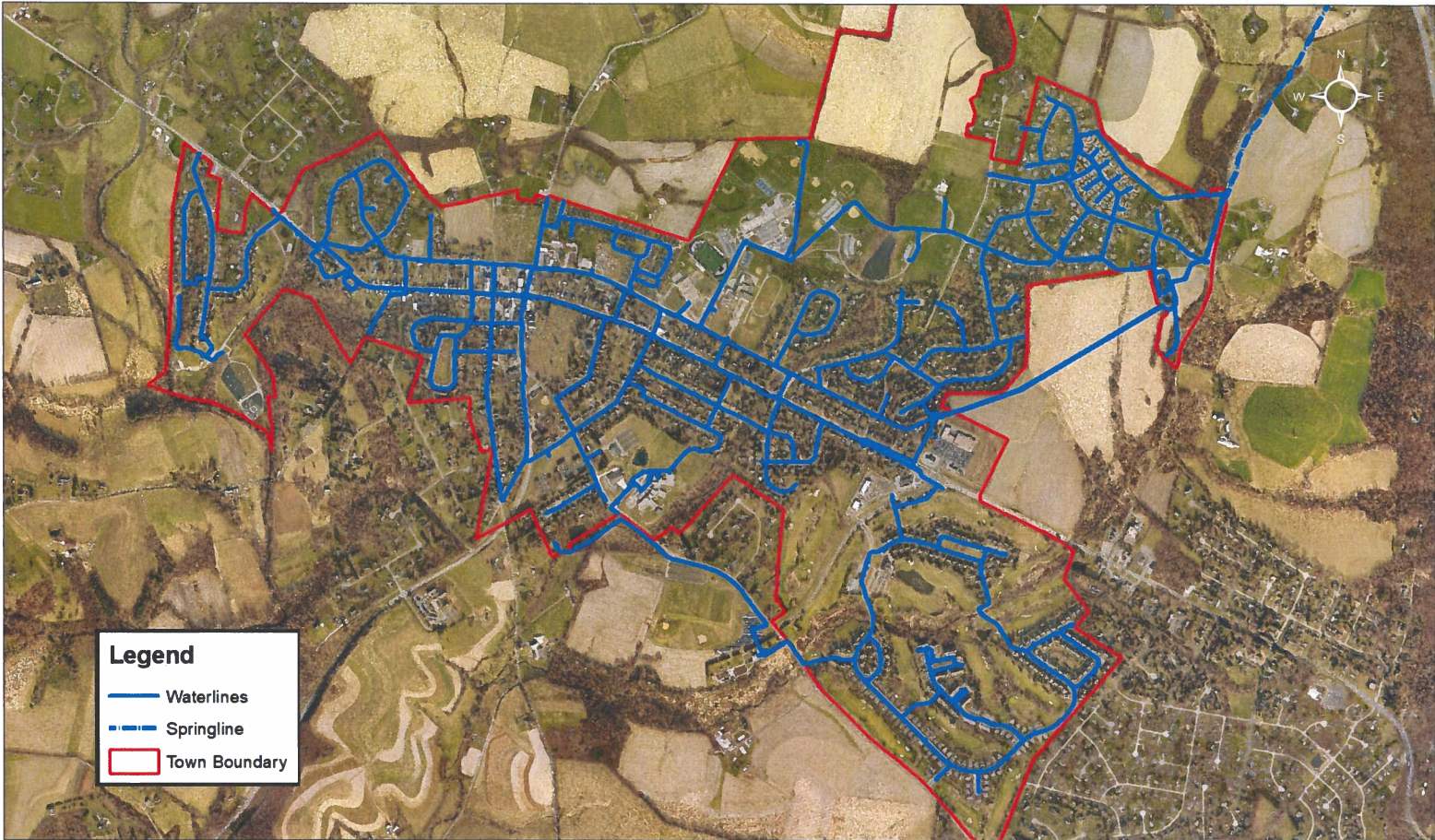
Existing Water Resources

The Middletown water system is supplied by twenty-three (23) wells and four (4) major groups of springs located on the west side of the Catocin Mountain, north of town. The Middletown water system draws from the Catocin Mountain Watershed. Raw water from springs and 20 wells is stored in a 1-million-gallon ground storage tank. Raw water from the raw water tank flows directly to the water treatment plant. Water treatment consists of

² 1992 Economic Growth, Resource Protection, and Planning Act

adding caustic soda, for pH adjustment and chlorine as a disinfectant to protect against microbial contaminants. No fluoride is added.

Two other sources of raw water are treated with caustic soda and chlorine by independent water treatment plants and flow directly into the distribution system. Those wells are 15 & 16 and 22 & 23. Both facilities also remove iron and manganese.



**Town of Middletown - Frederick County
Water Distribution System**

Current Water Allocations

Middletown's current (2023) total water appropriation permit is 387,000 gpd (Annual Average) and 504,000 gpd (Month of Maximum Use).

Current Appropriation Permits

Watershed	Annual Average (GPD)	Month of Maximum Use (GPD)	Permit Number	Expiration Date
Hollow Creek	308,000	390,800	FR1974G025 (07)	4/1/2022**
Catoctin Creek	25,500	33,200	FR1974G125 (02)	9/30/2032
Cone Branch	53,500	80,000	FR1974G225 (06)	5/1/2023
Total	387,000	504,000		

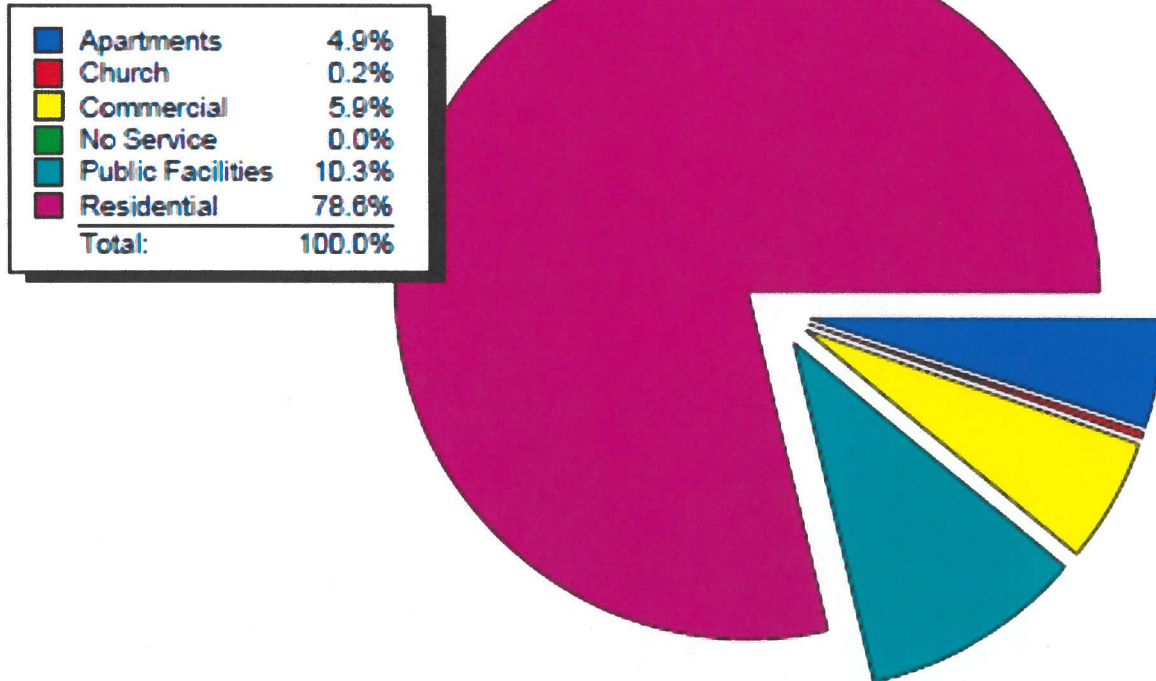
** Renewal Appropriation Permit Submitted 2/17/2022 - Awaiting Issuance from MDE

Existing Demand

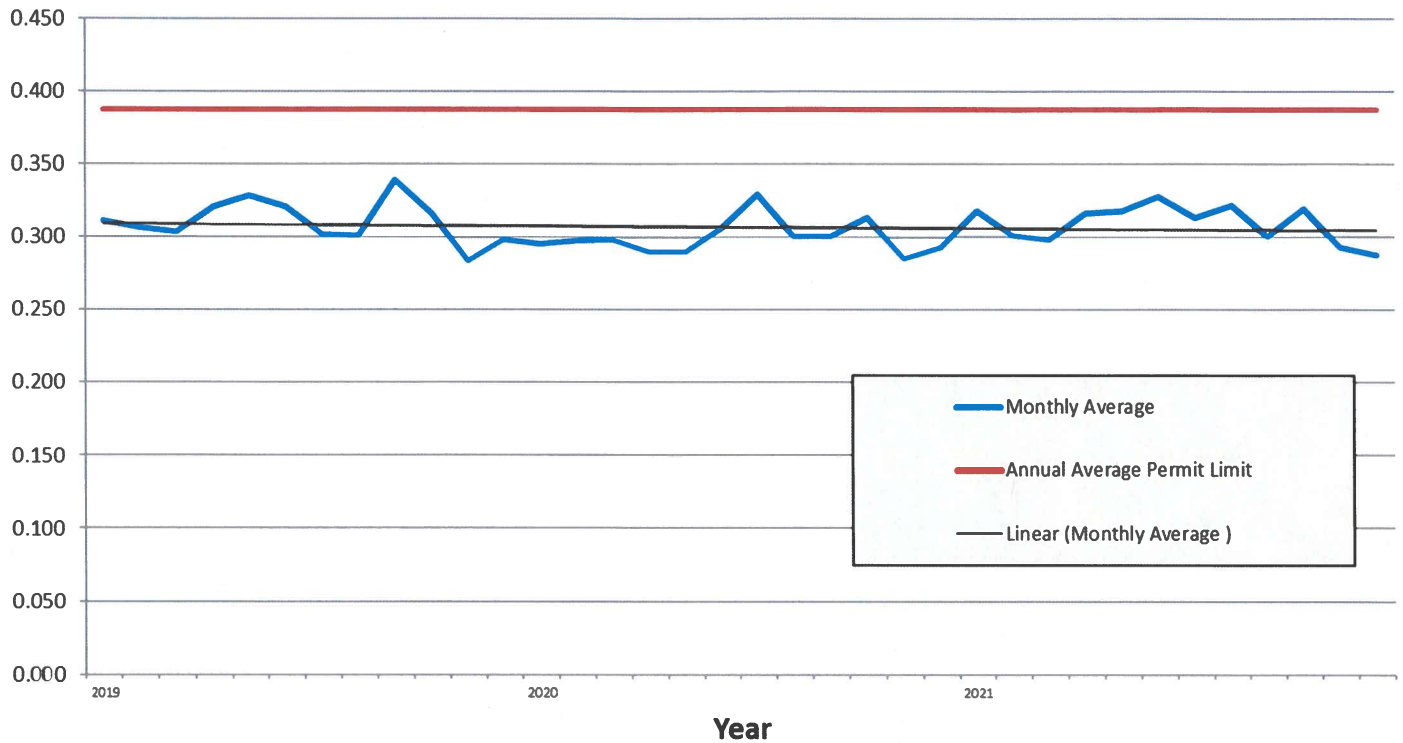
As of 2022, the Town of Middletown has 1,702 water service accounts. The existing demand for these accounts varies seasonally, with a three (3) year average daily demand at 307,000 gallons per day (gpd).

Burgess and Commissioners

Water Usage for
October 2022 Billing



Middletown Water Production



Drinking Water Future Demand

The future demand for water in the Town of Middletown is directly related to future annexations. New residential dwelling units are targeted to occur in Frederick County's Community Growth Areas which includes the Town of Middletown. However, the town must keep development balanced with available water and state water allocation policies which will limit the density that can occur within our growth limits.

As stated previously, the amount of water MDE will allow per acre is low in the context of land development. Because of that reason, it is critical that the Town consider carefully where and what density the Town applies to land within its growth area. Middletown's Adequate Public Facilities Policy states that land will be developed in the Town based on the water rights that the land to be developed brings with it. Although the transfer of water allocations between watersheds is permitted by MDE, the Town does not allow those transfers due to potentially being left with undeveloped land in an aquifer with no future allocations available under current state guidelines.

The estimated total infill and redevelopment potential for Middletown by 2040 is an additional 203 residential dwelling units (see Table 8-6). The infill lots of record, along with the lots of approved site plans and the Foxfield Section 6 preliminary plan, total 101.6 acres. The vast majority of that acreage is the 94 acres associated with the active adult subdivision.

Table 8-6 Infill Lots Available for Development

Approved Preliminary Plats	Development	Additional Acreage	Units	Additional Population¹
R-20	Foxfield Section 6 - Active Adult ²	94	148	296
Existing Lots of Record - Allocation				
R-1	204 Lombardy Ct.	0.49	1	2.8
R-1	216 East Green	0.41	1	2.8
R-1	500 East Main Street	0.70	1	2.8
R-1	502 East Main Street	0.94	1	2.8
R-2	18 East Green	0.24	1	2.8
R-2	28 East Green	0.21	1	2.8
R-2	28 Walnut Street	0.59	1	2.8
R-2	310 S. Jefferson Street	0.28	1	2.8
R-2	312 S. Jefferson Street	0.24	1	2.8
R-2	316 S. Jefferson Street	0.33	1	2.8
R-3	114 East Main Street	0.25	1	2.8
TC	406 West Green Street	0.29	2	5.6
Approved Site Plans³ - Allocation				
TC	Memorial Hall Apts.	0.27	15	42
R-3	Caroline's View Apts.(Horman)	0.62	9	25.2
R-3	Franklin Commons Townhouses	1.74	18	50.4
Totals:		101.6	203	450

^[1] Based on population projections of 2.0 for R-20 active-adult zoning, and 2.8 for R1, R2, R3 and TC zoning districts.

^[2] Annexation

^[3] Hollow Creek Professional Center received site plan approval for commercial use 9/2022

Based on population projections through 2040 of 203 potential dwelling units, an additional 37,000 gpd of water and sewer capacity will be required. See Table 8-7.

IMPACTS OF TOWN INFILL/REDEVELOPMENT GROWTH

Table 8-7 Impacts of Infill/Redevelopment Growth on Public Facilities & Services Based on Population Projections Through 2040	
Classification	Infill/Redevelopment Areas
Dwelling Units	203
Population	450
New Residential Water/Sewer Demand (gpd) ¹	37,000
New Non-Residential Water/Sewer Demand (gpd)	0
TOTAL New Residential/Non-Residential Water/Sewer Demand (gpd)	37,000

Planned Future Water Sources

Per Middletown’s Adequate Public Facilities Policy, Foxfield Section 6 has developed 6 wells and has received a water appropriation of __ gpd. This development will require an additional 37,000 gpd of water and sewer capacity based on buildout capacity of 148 units and 250 gpd/unit. The town will receive a water surplus of __ gpd from this development that will be considered reserve capacity.

Any future annexation must find, develop, and appropriate the required amount of water prior to consideration of annexation.

Sanitary Sewer Background

Geological Conditions/Watershed

The town of Middletown is in the Catocin Creek Watershed. The streams receiving the treated wastewater are Hollow Creek on the east side of town and Catocin Creek on the

west side of town. Hollow Creek flows into Catoctin Creek which flows into the Potomac River and to the Chesapeake Bay.



Town of Middletown - Frederick County
Sanitary Sewer System

Existing Sewer Resources

The town of Middletown has two Waste Water Treatment Plants (WWTP). The East WWTP is located on Holter Road, discharges into Hollow Creek, and is an activated sludge plant built in 2000. The treated effluent is seasonally pumped to Richland Golf course as a conservation method to preserve drinking water and decrease discharge to Hollow Creek. The West WWTP is located in Wiles Branch Park, discharges into Catoctin Creek and is a lagoon plant built in 1976. There are three sewage pump stations that send sewer to the

WWTP: Brookridge South Pump Station, Cone Branch Pump Station and Foxfield Pump Station.

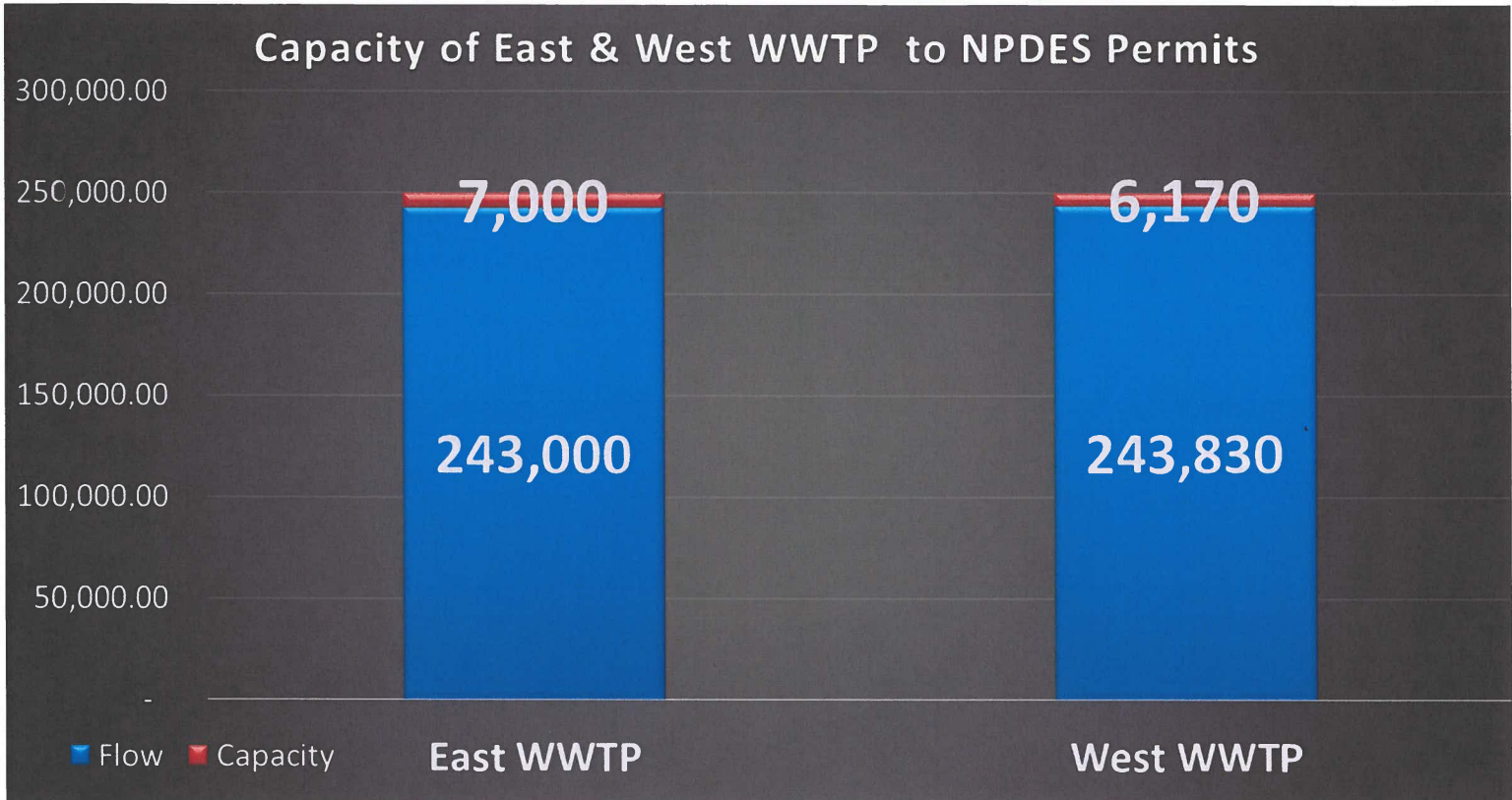
Current Sewer Capacity

The Town has a total permitted capacity for discharge of treated wastewater of 500,000 gpd, as described below.

East WWTP – The East WWTP has a current permitted capacity of 250,000 gallons per day (gpd) and a design capacity of 350,000 gpd. An application to increase the permitted capacity by 100,000 gpd is pending with the Maryland Department of the Environment (09/2022).

West WWTP – The West WWTP has a current permitted capacity of 250,000 gpd and is at design capacity. Due to the age of this plant a study is underway (2022) to consider upgrades or other alternatives for this plant using state grant funds from the Bay Restoration Fee.

Inflow and Infiltration (I&I) – happens when water from the environment that does not need to be treated enters the sewage system. This water uses up permitted capacity and causes unnecessary treatment expenses. The Middletown sanitary sewer system has a large amount of I&I that affects the capacity of the system as evidenced by the increase in flow during heavy rains. Two large I&I remediation projects are underway (09/22) to decrease the I&I impacts to permitted capacity and therefore should increase available capacity when complete.



Current Sewer Demand

The Town of Middletown’s yearly average wastewater treatment is 243,000 gpd at the East WWTP and 243,830 gpd at the West WWTP.

Based on the current permitted capacity of 500,000 gpd the Town has capacity for an additional 52 EDU’s. With the request for a permit increase at the East WWTP and the I&I remediation work in progress the town will substantially increase sewer capacity. The 100,000 gpd permit increase will increase sewer capacity by 400 taps/EDU’s.

Future Sewer Demand

The estimated total infill and redevelopment potential for Middletown by 2040 is an additional 203 residential dwelling units (see Table 8-6 and 8-7). The infill lots of record, along with the lots of approved site plans and the Foxfield Section 6 preliminary plan, total 101.6 acres. The vast majority of that acreage is the 94 acres associated with the active adult subdivision. The future sewer capacity for this projected growth is 37,000 gpd. With the

increase in the East WWTP permit (100,00 gpd) and the I&I remediation projects, sewer capacity is more than adequate for this growth.

Stormwater Management Facilities

Background

In 1984, the Maryland General Assembly passed the Chesapeake Bay Protection Act. This legislation was enacted to address pollution in the Chesapeake Bay. Stormwater management or the treatment of road run-off was a primary tool used to help improve pollution reaching the local streams and eventually the Chesapeake Bay.

The Maryland Department of the Environment, through the Environmental Protection Agency, in December of 1999 promulgated the municipal separate storm sewer system regulations called MS4. These regulations address pollution discharges from small MS4s in urbanized areas (UA). The Phase II Final Rule also required the NPDES (National Pollutant Discharge Elimination System) permitting authority to evaluate additional small MS4s located outside of UA's that should be regulated. Maryland expanded its MS4 permit program by issuing two general permits, one for municipalities (2003) and one for state and federal agencies (2004) operating small MS4s. These permits were reissued in 2018.

Maryland's Phase II program now covers over 90 small MS4 operators. The Phase II MS4 permits are similar to Phase I permits in that they require implementing stormwater best management practices and programs to reduce pollution discharges and to protect water quality. The work of Maryland's Phase I and Phase II MS4 programs demonstrate a significant commitment to stormwater management and improving local water quality and the Chesapeake Bay.

Stormwater management facilities are located throughout the Town. These facilities vary in design from the early days of stormwater management to integral bio-retention style stormwater management. Most of the facilities in the Town are owned and maintained by the Town. The rest are owned and maintained by private ownership or homeowner's associations. These facilities discharge to local streams in the areas including; Hollow Creek, Cone Branch Creek, Wiles Branch Creek, Tanners Run, and Catoctin Creek. In the Appendix

is a list of all the stormwater management facilities within the Town limits. The items highlighted in yellow are owned and maintained by the Town.

MS4 Program

The MS4 Program is broken down into six (6) sections of focus.

1. Public Education and Outreach Plan
2. Public Involvement and Participation Plan
3. Illicit Discharge Detection and Elimination Plan
4. Construction Site Stormwater Runoff Control Plan
5. Post Construction Stormwater Management Plan
6. Operation and Maintenance Program

Below is the budget for implementation of the MS4 requirements by 2025.



**Burgess and Commissioners
Middletown, Maryland**

NPDES General Permit for Discharges From
Small Municipal Separate Storm Sewer Systems
MS-4 - Budget

Categories	2020	2021	2022	2023	2024	2025	Totals
PUBLIC EDUCATION & OUTREACH							
Presentation to Elementary School on Importance of Managing Stormwater Quality	\$ 300	\$ 315	\$ 330	\$ 345	\$ 365	\$ 385	\$ 2,040
Presentation to Middle School on Importance of Managing Stormwater Quality	\$ 300	\$ 315	\$ 330	\$ 345	\$ 365	\$ 385	\$ 2,040
Presentation to Senior Citizens on Importance of Managing Stormwater Quality	\$ 300	\$ 315	\$ 330	\$ 345	\$ 365	\$ 385	\$ 2,040
Information Display Booth at Middletown Green Expo	\$ 1,000	\$ 1,050	\$ 1,100	\$ 1,150	\$ 1,200	\$ 1,250	\$ 6,750
Information Display Booth at Middletown Heritage Festival	\$ 1,000	\$ 1,050	\$ 1,100	\$ 1,150	\$ 1,200	\$ 1,250	\$ 6,750
Town Website Upgrade with Importance of Managing Stormwater Quality Information	\$ 1,500	\$ 500	\$ 250	\$ 950	\$ 250	\$ 500	\$ 3,950
PUBLIC INVOLVEMENT & PARTICIPATION							
SWM Pond Clean Ups - Community Groups (Boys Scouts, Girls Scouts, Lions Club, etc.)	\$ 2,000	\$ 2,500	\$ 2,500	\$ 1,500	\$ 2,000	\$ 3,000	\$ 13,500
Tree Plantings	\$ 3,000	\$ 5,000	\$ 1,500	\$ 4,000	\$ 5,000	\$ 2,000	\$ 20,500
Stormwater Inlet Stenciling	\$ 1,200	\$ 1,000	\$ 800	\$ 600	\$ 500	\$ 500	\$ 4,600
ILLICIT DISCHARGE DETECTION & ELIMINATION							
Training for DDE	\$ 2,500	\$ 1,500	\$ 750	\$ 750	\$ 750	\$ 750	\$ 7,000
Testing & Analysis of Samples	\$ 1,500	\$ 1,601	\$ 1,708	\$ 1,822	\$ 1,944	\$ 2,074	\$ 10,649
Testing Supplies and Equipment	\$ 3,000	\$ 40	\$ 40	\$ 40	\$ 600	\$ 40	\$ 3,760
Inspections	\$ 750	\$ 780	\$ 811	\$ 844	\$ 877	\$ 912	\$ 4,975
CONSTRUCTION SITE STORMWATER RUNOFF CONTROL							
Fielding Phone Calls, Emails, etc.	\$ 1,800	\$ 1,872	\$ 1,947	\$ 2,025	\$ 2,106	\$ 2,190	\$ 11,939
Ordinance Amendments	\$ 1,500	\$ -	\$ -	\$ 1,800	\$ -	\$ -	\$ 3,300
POST CONSTRUCTION STORMWATER MANAGEMENT							
Training for SWM Inspections	\$ 2,500	\$ 1,500	\$ 750	\$ 750	\$ 750	\$ 750	\$ 7,000
Testing & Analysis of Samples	\$ 5,000	\$ 5,335	\$ 5,692	\$ 6,074	\$ 6,481	\$ 6,915	\$ 35,497
Testing Supplies and Equipment	\$ 15,000	\$ 200	\$ 200	\$ 200	\$ 3,000	\$ 200	\$ 18,800
Inspections	\$ 5,000	\$ 5,200	\$ 5,408	\$ 5,624	\$ 5,849	\$ 6,083	\$ 33,165
POLLUTION PREVENTION & GOOD HOUSEKEEPING							
GIS Information Updates	\$ 8,000	\$ 10,800	\$ 12,364	\$ 14,658	\$ 15,478	\$ 17,012	\$ 78,312
Salt Brine Generation Unit	\$ 100,000	\$ 5,000	\$ 5,250	\$ 5,513	\$ 5,788	\$ 6,078	\$ 127,628
CONSTRUCTION PROJECT(S)							
Stream Restoration - West WWTP	\$ -	\$ -	\$ 53,502	\$ -	\$ 500,000	\$ -	\$ 553,502
Stream Restoration - Linden Blvd	\$ -	\$ -	\$ 37,620	\$ -	\$ -	\$ 1,000,000	\$ 1,037,620
5 Year Total	\$	\$	\$	\$	\$	\$	\$ 1,995,317

All future developments are required to follow the current regulations for stormwater management. These measures will continue to work to improve the health of the Chesapeake Bay.

Appendix

This table represents the basic data elements that are required of all structural, ESD and alternative Best Management Practices (BMPs)

BMP ID	REPORTING YEAR	NO. POINTS	NO. PDS	PERMIT NO.	LOCAL BMP ID	BMP NAME	BMP CLASS	BMP TYPE	FCM PURPOSE	EST. INSP. DATE	BMP STATUS	MAINT. DATE	NO. BMP DFT	NO. BMP STATUS	COM. COMMENTS
FR15BMP000143	2022	197182.3239	354168.5652	13-M_5500		Foxfield @ Middletown-Sec. 1 ED Pond	S	XDPD	NEWD	03/01/2021 (T)	P		05/11/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000143	2022	196720.5042	354686.1241	13-M_5500		Middletown Plaza-Detention Pond (F14)	S	XDPD	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000144	2022	197610.8831	353175.8284	13-M_5500		Model Garage-infiltration Trench (F18)	S	ITRN	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000142	2022	197383.1622	352340.6872	13-M_5500		Creamery Row Detention Basin (F5)	S	XDPD	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR16BMP000147	2022	197316.4514	352634.1089	13-M_5500		Manor Ridge UGS Facility-SWM Facility "A"	S	XOGS	NEWD	05/20/2021 (T)	P		06/23/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR16BMP000408	2022	197261.3654	352617.8447	13-M_5500		Manor Ridge-SWM Facility "B"	S	XOGS	NEWD	05/14/2021 (T)	P		05/14/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000149	2022	197290.4185	353269.4675	13-M_5500		FC-Middletown Library-infiltration Trench	S	ITRN	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000141	2022	197577.7556	352078.7991	13-M_5500		Brookridge South WQI Pond No. 1	S	XDED	NEWD	05/18/2021 (T)	P		06/23/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000319	2022	197336.5255	351049.5871	13-M_5500		Brookridge South WQI Pond No. 2	S	XDED	NEWD	05/20/2021 (T)	P		06/09/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000320	2022	197207.6094	351858.0543	13-M_5500		Brookridge South WQI Pond No. 3	S	XDED	NEWD	05/20/2021 (T)	P		06/09/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000411	2022	197466.4691	352968.1843	13-M_5500		Ray's Division-OGS & Trench	S	ITRN	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000326	2022	197125.0566	354483.2107	13-M_5500		Foxfield @ Middletown-Sec. 2 Pond	S	XDED	NEWD	05/20/2021 (T)	P		05/25/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000409	2022	197465.7907	352985.0056	13-M_5500		Leatherman Property-Parking Lot Trench	S	ITRN	REDE	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000410	2022	197361.1491	352943.7554	13-M_5500		Middletown Valley Bank-infiltration Trench	S	ITRN	REDE	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000146	2022	197338.9664	354397.4014	13-M_5500		Foxfield @ Middletown-Sec. 3-ED Pond	S	XDED	NEWD	04/01/2021 (T)	P		05/11/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000347	2022	197364.9383	351702.0612	13-M_5500		Brookridge South-Pond #4	S	XDED	NEWD	05/18/2021 (T)	P		05/25/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000328	2022	196499.7601	353169.1583	13-M_5500		Walnut Pond-SWM Pond	S	XDED	NEWD	05/20/2021 (T)	P		05/24/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000586	2022	197460.151	354705.4663	13-M_5500		Foxfield @ Middletown, Sec. 4, Phase 1-Shallow*	S	WSHW	NEWD	05/20/2021 (T)	P		06/09/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000070	2022	197893.0749	357288.45	13-M_5500		North Pointe SWM Pond	S	WSHW	NEWD	05/14/2021 (T)	P		05/16/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000535	2022	196325.3287	354543.5566	13-M_5500		Glenbrook-Pond #1	S	PWED	NEWD	05/18/2021 (T)	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000040	2022	197676.0169	352743.4956	13-M_5500		North Pointe Infiltration Trench	S	ITRN	NEWD	05/18/2021 (T)	P		05/16/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000300	2022	197178.7276	354107.7349	13-M_5500		Cone Branch Estates-Regional Facility	S	XDED	NEWD	05/18/2021 (T)	P		06/01/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000301	2022	197088.779	354029.4353	13-M_5500		Cone Branch Estates-WQI Facility	S	FSND	NEWD	05/18/2021 (T)	P		06/01/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000684	2022	197296.6097	354629.1459	13-M_5500		The Lands of Landcaster	S	PWED	NEWD	05/20/2021 (T)	P		06/09/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000571	2022	197495.5708	355707.1386	13-M_5500		Foxfield @ Middletown, Sec. 4, Phase 3-Shallow*	S	WSHW	NEWD	05/20/2021 (T)	P		05/25/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000703	2022	197337.5306	352575.3922	13-M_5500		Manor Ridge, Sec. 2, Lots 11-14-SWM Pond*	S	FBIO	NEWD	05/20/2021 (T)	P		05/25/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000062	2022	197918.1613	354888.6388	13-M_5500		Foxfield @ Middletown, Sec. 4, Phase 6	S	FSND	NEWD	05/18/2021 (T)	P		06/23/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000221	2022	196233.8718	354317.6256	13-M_5500		Glenbrook-Biofilter #1	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000214	2022	195924.4722	354482.565	13-M_5500		Glenbrook-Biofilter #3	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000216	2022	196070.1121	354553.5101	13-M_5500		Glenbrook-Biofilter #6A	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000217	2022	196077.8487	354707.4724	13-M_5500		Glenbrook-Biofilter #6B	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000218	2022	195815.7015	355097.7598	13-M_5500		Glenbrook-Biofilter #7	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000219	2022	195861.1222	354878.1639	13-M_5500		Glenbrook-Biofilter #12	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000210	2022	196288.1074	354077.4988	13-M_5500		Glenbrook-Biofilter #1	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000211	2022	196115.338	354107.0189	13-M_5500		Glenbrook-Biofilter #10	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000212	2022	196080.3043	354237.7626	13-M_5500		Glenbrook-Biofilter #2	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000213	2022	195941.676	354288.1805	13-M_5500		Glenbrook-Biofilter #14	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000220	2022	196223.1557	355041.9711	13-M_5500		Glenbrook-Biofilter #8	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000853	2022	197603.9843	355225.9903	13-M_5500		Fountainsdale Auto Center-Shallow Marsh	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR15BMP000215	2022	195818.5768	354579.8517	13-M_5500		Glenbrook-Biofilter #4	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR16BMP000705	2022	197155.7136	351845.0827	13-M_5500		Wiles Branch Community Park, Ph 2-SWM Pond	S	FBIO	NEWD	05/05/2021 (T)	P		06/20/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR16BMP000706	2022	197149.896	351706.2739	13-M_5500		Wiles Branch Community Park, Ph 2-Bioretentation	S	FBIO	NEWD	05/20/2021 (T)	P		06/20/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000938	2022	197173.8823	351826.3449	13-M_5500		Wiles Branch Park/Brookridge South Wells-infiltration	S	ITRN	NEWD	05/20/2021 (T)	P		06/23/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR15BMP000947	2022	197002.2925	354447.6929	13-M_5500		Coblentz Grove, Lots 1-3-Dry Swales	S	ODSW	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR20BMP142319	2022	197432.044	352804.857	13-M_5500		West Green Street Filters	S	FBIO	NEWD	12/16/2021 (T)	P		06/22/2022 (T)		Fred. Co. inspects and reports/Town Owned
FR18BMP000001	2022	197755.154	353755.53	13-M_5500		Hollow Creek Stream Restore	A	STRE	REST	10/31/2021 (T)	P		09/07/2022 (T)		Town Owned
FR17BMP000981	2022	197469.559	353327.683	13-M_5500		The Valley School - Biofilters	E	MMBR	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR17BMP001028	2022	197457.401	353398.910	13-M_5500		Thompson Funeral Home - Biofilters	S	FBIO	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR17BMP001063	2022	197238.247	352978.128	13-M_5500		Putnam Plumbing - Stone Trench	S	ITRN	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FRM20BMP000001	2022	196427.142	354228.706	13-M_5500		Parkway Tree Plantings	A	FPU	REST	05/2021	P		08/2022		Town Owned
FRM20BMP000002	2022	196394.638	353372.8	13-M_5500		Rensburg Park Tree Plantings	A	FPU	REST	05/2021	P		09/2022		Town Owned
FRM20BMP000003	2022	197697.459	352357.237	13-M_5500		North Pointe Tree Plantings	A	FPU	REST	05/2021	P		10/2022		Town Owned
FRM20BMP000004	2022	VARIOUS	VARIOUS	13-M_5500		Branch/Foxfield Tree Plantings	A	FPU	REST	09/2021	P		09/2022		Town Owned
FRM21BMP000001	2022	197078.434	354046.482	13-M_5500		Cone Branch Pocket Park Tree Plantings	A	FPU	REST	04/2021	P		04/2022		Town Owned
FRM21BMP000002	2022	197755.154	355735.53	13-M_5500		Hollow Creek Riparian Tree Plantings	A	FPU	REST	10/15/2021	P		09/2022		Town Owned
FR21BMP129597	2022	197729.451	353465.685	13-M_5500		Coblentz Property SWM 1	S	XDPD, MMBR, MSWG, MSWG	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR21BMP164201	2022	197642.657	353211.009	13-M_5500		Coblentz Property SWM 2	S	XDPD, MMBR, MSWG, MSWG	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FR21BMP171880	2022	197309.215	353596.564	13-M_5500		Miller Property	E	MMBR	NEWD	Frederick County	P		Frederick County		Fred. Co. inspects and reports/Private
FRM22BMP000001	2022	VARIOUS	VARIOUS	13-M_5500		Foxfield Pass/Removal Park/Elm St. Tree Plantings	A	FPU	REST	04/2022	P		N/A		Town Owned
FRM22BMP000002	2022	VARIOUS	VARIOUS	13-M_5500		Private Properties in Town Tree Plantings	A	FPU	REST	04/2022	P		N/A		Town Owned
FRM22BMP000003	2022	VARIOUS	VARIOUS	13-M_5500		Wiles Branch/North Pointe SWM & Tot Lot/Willow St Tree Plantings	A	FPU	REST	04/2022	P		N/A		Town Owned
UNKNOWN - TBD	2022	197010.429	353409.704	13-M_5500		Broad Street Filters	S	FBIO	NEWD	06/01/2022 (T)	P		N/A		Fred. Co. inspects and reports/Town Owned

Note: The following template is based on recent MD Phase II NPDES data reporting requirements. Definitions of each column and data elements can be found in the three descriptions sheets.
 Note: Several Example BMPs have been incorporated to help display the new structure.

¹ Every BMP identified in this table should match BMP_ID data entered in either "Table B.1.b, ESD STRUCTURAL" sheet or "Table B.1.c, Alternative" sheet

² Northing and Easting are geographic points used to locate BMPs. Maryland requires using State Plane NAD 83 meters for geographic location. You can use Geographic Information Systems (GIS) or other computer programs to provide these coordinates.

Questions on Maryland specific stormwater design? Follow the link below:
[Go to Maryland's Stormwater Design Manual](#)