



**AGENDA FOR THE
VIRTUAL
WATER & SEWER COMMITTEE MEETING
May 26, 2021
7:00 p.m.**

- **Monthly Water & Sewer Operations Report**
- Update on Inflow & Infiltration Study
- **Update on Memar Water Study**
- **Water Capacity Plan – 2020**
- **Sewer Capacity Plan - 2020**

Zoom Invitation Information:

*Topic: Water & Sewer Meeting - May 26, 2021
Time: May 26, 2021 07:00 PM Eastern Time (US and Canada)*

Join Zoom Meeting

<https://us02web.zoom.us/j/89090412194?pwd=VC9hS2ROK0NMakZPT1JFdDMlWUJmZz09>

Meeting ID: 890 9041 2194

Passcode: 460842

One tap mobile

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+13126266799,,89090412194#,,, *460842# US (Chicago)

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+1 301 715 8592 US (Washington DC)

+1 312 626 6799 US (Chicago)

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+1 253 215 8782 US (Tacoma)

Meeting ID: 890 9041 2194

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**Public Works Monthly Report
May 6, 2021**

COMPLETED WORK

Public Works

Brookridge Sewage PS clogging has subsided Aqua disk refurbishment and control upgrade completed and online. All work performed by staff with Dylan responsible for the completion. Hydrant flushing completed, will revise flushing order in the fall to conserve water. Leak detection completed with nothing found. I and I with May 3 storm is well documented and almost instantaneous on the flow meters. I and I project in on the Town website for proposals. Mulching completed, equipment and vehicle repairs.

New Projects or Requests

Unbudgeted Expenses:

Well 6 pump and motor replacement: -\$3250.00, Well Pump 1 motor and pump: -\$4612.00, No sludge Hauling Sept: +\$2990.00, No sludge Hauling October +2990.00, No hauling November + \$2990.00, No sludge hauling December +2990.00 Solids Meter Purchased +\$2300.00 (will be paid for in 3 months vs lab testing) Additional lab testing for MLSS at East Plant +\$2000.00

Sludge cost for FY \$ 21,750.00, 36000 gal hauled, 000 gal bedded Total hauled 225,000 gal Bedded 83,300 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	295,230	317,614	96,085	100,405	257,000	260,000	262,000	224,000	2.6
February	297,096	300,936	133,808	109,250	258,000	291,000	352,000	179,000	4.9
March **	298,579	297,775	140,805	144,800	225,000	281,442	214,000	208,134	2.7
April **	290,726	316,218	143,076	147,075	214,000	221,150	222,000	220,184	3.5
May	328,737	290,109	132,987	143,632	279,000	239,000	542,000	327,000	
June	321,467	306,095	135,541	139,857	303,000	185,000	233,000	175,000	
July	302,495	329,237	129,973	106,703	218,000	167,000	260,000	147,000	
August	301,201	300,267	113,503	80,583	159,000	178,000	158,000	168,000	
September	339,215	300,687	87,210	64,513	141,000	175,000	154,000	147,000	
October **	316,050	313,370	72,217	52,296	184,000	173,000	180,000	128,000	
November**	284,740	285,014	74,322	50,700	200,000	194,000	218,000	137,000	
December	298,071	293,083	78,176	68,898	230,000	305,000	222,000	199,000	

Avg Daily/yr 306,134 304,200 111,475 100,726 222,333 222,466 251,417 188,277
Avg Yr Flw 111.74 111.03 40.69 36.76 81.15 81.20 91.77 68.72

**Hydrants flushed this month

April 2019 737,446. October 2019 531,958, Spring 2020 not flushed. Fall 2020 582,024 Spring 2021 704,842

Sewer Flow

March: East Plant flow is up 7% from Feb, West Plant flow is up 32% from Feb (all gravity), combined flow 489,576 (up 17%). April EWWTP flow down 24% from March, West WTP is up 2%, combined flow 441,334 gal down 13%. Permits not exceeded in April

Planned Work

HVAC Replacements, UV lights
MDE water inspection corrections and emergency plan update
Continue Fire Hydrant ID tag and numbering system installation
Regulatory: Grease Ordinance completion.
Bid Sludge Hauling and Chemicals.
Reed Bed Development cost analysis.

Reservoir Tank: Contractor has returned to complete the project, substantial completion granted April 26, 2021.

Subgrading for paving (3rd week of May), topsoil placed and permanent seeding occurring, fencing being installed. Walk through scheduled for May 10.

Open Projects

I & I Walnut to Jefferson St.: Submitted plans for permit, easement document created. Construction documents at 95% and ready to bid when the budget is available. Phased into two phases. Will hold this project and redirect funds to I and I study for the Foxfield Basin to CBPS. Scope of work has been developed and will be sent to several engineering firms.

ADA sidewalk ramp reconstructions: No action.

W WWTP. Final pond baffle is malfunctioning, Investigation needed. Needs review. Received chemical building plans for review. Provided info to Consultant for baffle replacement. No action If pursuing a new plant I would not recommend the replacement.

Develop Grease Trap Ordinance and Education Program: No Action

Water System:

Hydraulic Model: Met with GF and Farhad to model and review the Memar Subdivision water system, the proposed treatment plant and pressure zone requirements.

System: 3 days of Risk and Resilience Webinars completed for the June 30 certification and December 31 Emergency Response plan certification. The assessment and plan will take weeks to complete. EPA requirement.

Broad St Streetscape: Bid Date March 31, 2021, prebid March 17 2021. Staff has surveyed and design the segmental retaining wall and will issue the project and sketches for project announcement on May 10.

SSO and I&I: Wet weather months have us very close to the combined permit limit of 500,000 gpd avg discharge. We have begun to regulate 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). The May 3 storm data shows continued inflow concerns. Excess pumped flow was 400,000 gallons on May 3, 450,000 May 4, 270,000 May 5 normal daily is 150,000 gal.

MDE /Permits: West WWTP Discharge Permit DRAFT received discussed and was advertised by MDE in the newspaper in April. East WWTP Discharge Permit (exp Dec 2021) submitted 22 months prior to expiration and then revised 14 months before expiration. We have requested an increase in discharge flow from 250,000 to 350,000.

MDE MS4 Permit Reports: Report submitted in October. No action

West Wastewater Treatment Plant: Final flow meter stopped working on April 30 after the power outage.

East WWTP: Permit renewal complete (exp Dec 2021). Monitoring plant operation and flows. Filter refurbishment project has complete. PO issued for barscreen.

Franklin St Conceptual Sidewalk Plans: Included in the Broad St project.

Municipal Center: no action

Maintenance Facility: Contract has been executed with Triad Engineering. We have received a preliminary sketch. No action.

Washington Street: 95% drawings provided to Board for review and presentation to residents November 2020 meeting. Resident requests need to be resolved. Updated consultant with changes.

Garage Drive Street Lights: Project completed final cost \$55,000 estimate was \$50,000.

Pedestrian Blinker signs: Completed survey work and design for sidewalk ramp and crosswalk at Franklin and Prospect. Need to meet with resident to discuss 2 options for grading.

2021 F550 Replacement Truck Crew Cab: Ordered truck through PA CoStars program and expect delivery in March 2021. \$99,486.00 scheduled completion is May 10, 2021.

East Green Street Stop Sign Parking Modification: Will examine crosswalk location when Library Project is submitted. No action

Greg Curry (Southern States Green St) Drainage Issue: Survey and design completed. Work is included in the patching contract.

Wiles Branch Stream Rehabilitation: Survey work has begun. No action

Linden Boulevard Culvert Replacement: RFP meeting with Frederick Seibert completed. Proposal has been received and is being reviewed. Proposal amount of \$31,600 was accepted and awarded. No action

Brookridge PS: No problems.

Booster Station Process Pipe Upgrade: Bid awarded and contract agreement has been executed. Will upgrade our current teamviewer license to enable additional security measures.

Developments

Middletown County Park Improvements: Utility Construction, 12" waterline installed and being tested.

ADMAR Annexation: Met with GF and Farhad to model and review the Memar Subdivision water system, the proposed treatment plant and pressure zone requirements. Consultant to provide price proposal.

Chesterbrook IP's: Contractor has completed underground utilities and Owner has applied for building permits.

Middletown Municipal Hall: No action

Horman Property Caroline's View: 9 Condo Units. Received revised guarantee and approved.

Future Budget Considerations

W&S: Comprehensive sewer plan, West WWTP ENR plant replacement. Brookridge PS Headworks, motor op and scada control for cbps valve, SCADA for West Plant flow, upsize CB pumps, regional pressure monitors.

GF: Personnel organization and evaluation



*Excellence Delivered **As Promised***

May 18, 2021

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

RE: Memar Development Water Supply

Mr. Carbaugh:

Gannett Fleming is pleased to submit our Proposal to provide design engineering services to the Town for the Memar Development water study and treatment system design. Our scope includes an initial study to evaluate the water system and determine the piping and pumping requirements required to serve the new Memar residential development with a preliminary design for the treatment facility for the new groundwater supply. Upon approval by the Town, we will design and prepare the contract documents for the treatment facility, pumps, and piping to serve the development.

Based on our understanding of the scope of services, our estimated fee for the study phase is \$54,340, and for the design and permitting our estimated fee is \$200,180. The attached proposal includes the detailed scope of work and exclusions, schedule and fee.

We propose to perform this work in accordance with the terms of our prior contracts with the Town on a "Cost Plus Multiplier" fee structure. The Town will be invoiced for actual labor costs billed at a 2.9 multiplier. Mileage will be billed at rate of \$0.57 per mile. All other expenses will be billed directly at cost.

We appreciate the opportunity to provide to you our proposals and look forward to working with the Town on another important project. If you would like to discuss any aspect of this proposal, please feel free to contact either me or Dennis at [443-348-2017](tel:443-348-2017) or by email at elivay@gfnet.com, or dfunk@gfnet.com.

Sincerely,
GANNETT FLEMING, INC.

A handwritten signature in black ink that reads "Eliezer Livay".

Eliezer (Elik) Livay, PE, PMP, ENV SP
Vice President

Gannett Fleming, Inc.

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t: 443.348.2017 • f: 410.298.3940
www.gannettfleming.com

Project Background/Objective

The Town of Middletown (Town) has entered into an annexation agreement with the Memar Corporation to incorporate a 93.938-acre tract into the Town limits, which includes providing public water and sewer service. The annexation agreement stipulates that a water impact study shall be performed to ensure that all units in the development, neighboring and adjacent properties served by the municipal water system will have adequate fire flow based on the Town's standards and to maintain normal average pressures of 50 psi water pressure and greater.

Additionally, as part of the annexation agreement, the Developer must identify and establish a groundwater supply to provide adequate capacity to meet the domestic supply requirements of the proposed subdivision. As stated in the agreement, the proposed subdivision will include a maximum of 148 single family dwelling units. Based on the Town's estimated 250 gallons per day per unit, the average water demand is estimated at 37,000 gallons per day. Six groundwater wells have been drilled, developed, and tested on the subject property. A sufficient number of wells will be connected to the Town water system to offset the projected water demand of the development. The Developer will be responsible for raw water piping system from the wells to the new water treatment plant site, and for the cost of the piping, valves, pumping, and treatment facilities necessary to provide potable water supply to the Town water system.

Based on raw water quality testing, the groundwater supply requires treatment to remove iron and manganese, followed by disinfection and potentially pH adjustment to meet Drinking Water Standards and regulations. A water treatment facility capable of treating approximately 60,000 gpd will be constructed by the Developer at a site to be located within the subdivision. Upon testing and acceptance by the Town, the water treatment facility, distribution system and appurtenances will be turned over through the "donation" process to become part of the Town's water facilities for operation and maintenance.

The Town has retained Gannett Fleming (GF) to provide professional engineering services in accordance with the terms of our current agreement, to evaluate the distribution system to determine if it will meet fire flow and pressure requirements and provide recommendations for improvements to meet the service requirements. GF will also provide preliminary design and design services for a new drinking water treatment facility to serve the proposed development and adjacent identified areas currently being served by the Town.

Project Scope

GF will perform a hydraulic evaluation of the proposed distribution system and evaluate and design a functional groundwater source drinking water facility to connect to the Town's water system and proposed Memar subdivision. GF will prepare a Preliminary Engineering Memorandum documenting the evaluation and recommendations for the distribution system improvements. A Preliminary Design Memorandum and Contract Documents will be prepared for the proposed water treatment plant.

The scope of the engineering services for the water treatment plant includes design of the building, treatment equipment, piping, valves, mechanical, electrical, instrumentation, and site work including site piping, paving, and site lighting. A sanitary connection will be provided for sink and floor drains, and for backwash discharge. Equipment selection, layout, and operational arrangement will be similar to the Town's two existing treatment facilities, with twin greensand filters, backwash piping and controls, chemical feed for sodium hypochlorite and pH adjustment, piping, valving, metering, and sampling. Mechanical systems will include heating by electrical unit heaters, and dehumidification. Plumbing will include domestic hot and cold water supply for sinks and hose bibbs, emergency shower and eye wash, and drains for sink, backwash, and floor drains. No toilet facilities will be provided.

The site will include a short entrance driveway and parking area, sidewalks or asphalt paving to building entrances. Site lighting will be provided on the building exterior walls. Site utilities will include the public water supply connection, a gravity sanitary sewer connection to the proposed sanitary sewer serving the planned subdivision, and power supply to the treatment facility. Erosion and sediment control plans will be prepared. We will coordinate with the Developer on the site design, entrance, paving, and storm drainage.

A diesel-powered emergency generator will be provided, housed in a separate sound-attenuating enclosure. The generator will be provided as a package system with the electrical switchgear and enclosure provided by a single manufacturer. GF will provide the following services:

TASK 1 – PROJECT MANAGEMENT

GF will be responsible for overall coordination and management of this project task through its assigned Project Manager, Dennis Funk (PM). The PM will manage the agreed budget and scheduling aspects of the various work activities identified herein for the period indicated in the Project Schedule. The PM's efforts will be focused on completion of tasks and submittal of deliverables according to the project schedule and budget, staffing, facilitating QA/QC reviews of project efforts and identifying and communicating to the Town issues that arise, which may impact project progress. GF will notify the Town in writing of any out-of-scope items of work that are required or requested before proceeding with any such work.

GF shall prepare monthly progress reports in support of invoices to describe the work completed during the previous reporting period, anticipated work for the following period, current budget and schedule status, and any project issues requiring discussion or resolution.

Deliverables:

1. Kick-off Meeting, Agenda and Meeting Notes
2. Six Project Meetings, Agenda and Meeting Notes
3. Monthly Progress Reports
4. Monthly invoices

Meetings:

1. In-person kick-off meeting

TASK 2 – STUDY

Task 2.1 Distribution System

- GF will use the Town's existing hydraulic model updated with the proposed piping and demands for the Memar development.
- GF will perform steady state hydraulic simulations and evaluate the proposed system using simulations for annual average daily demands, maximum day demand, peak flow, and fire flow.
- GF will identify the hydrant flow tests to be performed by the Town needed to calibrate/validate the model simulations.
- GF will perform the hydraulic analyses to determine the improvements required to ensure the system will be able to meet the water demand of the new subdivision with a minimum 50 psi service pressure under maximum day demands in the new subdivision and in the adjacent service areas boundary under this project.
- The evaluation will consider the requirements to meet the available fire flow requirements for residential areas for the system.
- The distribution system will be evaluated to identify deficiencies and will provide recommendations for improvements for piping, valving, and pumping configurations to meet the system needs.
- GF will prepare a preliminary engineering memorandum summarizing the evaluations, developing and evaluating improvement alternatives, establishing the capacity of the planned treatment facility, and presenting recommendations with planning level engineering estimates of probable construction costs.
- A review workshop will be held to discuss the results of the hydraulic evaluation, different scenarios, and recommendations.

Task 2.2 Water Treatment Facility

- GF will provide an overview of the features associated with the new treatment facility and provide project description, design requirements, preliminary design drawings. Plans will include a general building floor plan and equipment layout, primary equipment listing, and design calculations.
- Site civil will include site layout, concept grading, site access and paving. A concept layout will be developed for the site piping, with a layout for the proposed connection to the existing distribution system and storage tank, and to the subdivision water system. Raw water lines will be planned and sized for connections from the wells in the subdivision.
- GF will provide a recommendation for the wells to be used for the groundwater supply.
- Evaluation and conceptual design recommendations will be documented in a Draft Preliminary Engineering Memorandum and preliminary design drawings, with planning level engineering estimates of probable construction costs. GF will submit an electronic copy (PDF) of the Draft Preliminary Engineering Memorandum.
- GF will lead a workshop to review the piping and connection recommendations and conceptual plant and site layouts, and discuss comments and recommendations following the Town's review of the Preliminary Engineering Memorandum. Subsequently, GF will revise the Draft Preliminary Engineering Memorandum by addressing the comments and submit an electronic copy (PDF) of the Final Preliminary Engineering Memorandum.

Deliverables:

1. Draft Preliminary Engineering Memorandum for the Distribution System and Water Treatment Plant
2. Final Preliminary Engineering Memorandum for the Distribution System and Water Treatment Plant

TASK 3 – DETAILED DESIGN WATER TREATMENT FACILITY

Upon approval of preliminary design and written authorization from the Town, GF will proceed with detailed design and preparation of contract documents, incorporating the revisions and recommendations from the Town and MDE. For this proposal, the engineering fee is based on design of a single room, single story, slab-on-grade, masonry and brick structure, with timber truss roof and asphalt shingles.

This scope assumes the treatment system will consist of a pair of greensand filters, with a sodium hypochlorite chemical feed system. High service pumps for domestic supply and potentially for fire flow are anticipated. For domestic supply, a package system will be provided with redundant variable speed pumps with discharge pressure controller and hydropneumatic tank for pressure buffering. Depending on the results of the hydraulic evaluations, it is assumed that fire service pumps may be required and are anticipated in the design.

Site topographic mapping will be provided in electronic (CAD) format by the Developer. Geotechnical investigations will not be provided. The contract documents will require the contractor to confirm the available bearing capacity for the building foundation and make adjustments to the slab thickness or reinforcing as required.

Detailed design will be delivered in three deliverable phases, design development (60%), final design (95%), and Bid Ready (100%) and submissions will include electronic (PDF) files. The design will include multidisciplinary design services and will be in accordance with local and state regulations and permits. Design drawings and technical specifications for: Mechanical (Process, HVAC, Plumbing), Architectural, Structural, Instrumentation and Controls, Electrical, Geotechnical (foundations), and Site Civil. Instrumentation and telemetry equipment design will be performed by Micro-Tech. GF will coordinate with Micro-Tech to identify the equipment required and develop P&I diagrams.

Preliminary Design (60%) – design will be developed to 60% level of design. A review workshop will be held with the Town PM to obtain feedback and comments to be addressed in the next design submittal.

Final Design (95%) – 60% design will be further developed to 95% level of design. A review workshop will be held with the Town PM to obtain feedback and comments to be addressed in the next design deliverables.

Bid Ready – Bid Ready drawings and specifications will be prepared by addressing comments from 95% design documents and permitting review comments

Deliverables:

- 60% design drawings, technical specifications, and opinion of probable construction cost
- 95% design drawings and technical specifications
- Bid Ready drawings, technical specifications, and opinion of probable construction cost
- Review meetings and comment logs

TASK 4 – PERMITTING SUPPORT

- GF will prepare permit applications for the MDE Water and Sewerage Construction Permit and sediment control permit.
- GF will provide project data for coordination with the Developer's stormwater management permit.
- GF will obtain the Erosion and Sediment Control permit and the MDE Water and Sewerage Construction permit for the treatment facility.

ASSUMPTIONS

- The Town will use their instrumentation vendor (Micro-Tech) for equipment selection and integration, so specifications for this equipment will not be provided.
- Site topographic mapping will be provided by the Developer in CAD format.
- Design of distribution system piping beyond the plant yard piping will be the responsibility of the Developer.
- GF will provide sizing for the raw water piping and the design will provide the connections for the well supplies.
- Well development and well design (well size, depth, screening, and construction details) will be provided by the Developer's hydrogeologist.
- It is assumed that design of distribution piping within the subdivision and raw water piping from the wells to the treatment plant will be the responsibility of the Developer.
- Design of piping, valving, and controls to connect the treatment plant to the existing Town water system will be included in the GF scope.
- Treatment plant capacity is estimated as 60,000 gpd, which will be confirmed during the water study.
- The project will be part of the overall site development and stormwater management permitting and storm drain design will be by the Developer. We will coordinate with the Soil Conservation District for approval of the sediment control plans for the treatment plant and site piping.
- GF will determine the well pump selection based on the hydrogeologist's recommended well capacity and pump depth setting.
- The accompanying effort and fee are based on assumptions of the final design scope as described here. Upon finalizing the design memorandum and recommendations, we reserve the right to prepare a revised proposal based on any revisions to the outlined scope.

EXCLUSIONS

The following specific tasks are not included in the SCOPE OF WORK above:

- Litigation services of any nature.
- Topographic survey and geotechnical investigation.
- Hydrant flow tests, if needed, to be provided by others.
- Design of landscaping and fencing.
- Design of wells and raw water piping to be provided by others.
- Design of distribution system piping to be provided by others.
- Design of instrumentation and telemetry equipment will be by others.
- Grading permit and stormwater management design and permit are to be provided by others.
- Bid and construction phase services.
- Permit fees.

PERIOD OF SERVICE

Gannett Fleming will endeavor to complete the work activities described herein within 7 months of receipt of an executed Notice to Proceed (NTP) and kickoff meeting.

Upon NTP, GF anticipates the study and preliminary design can be completed within 8 weeks. GF anticipates the design phase will require 5 months for the final design documents and permit submittals from approval of the Preliminary design and written approval from the Town.

COMPENSATION

Gannett Fleming will provide the scope of services above for a Cost Plus Multiplier fee of \$254,520.00 to be invoiced on a monthly basis.

**ENGINEERING SERVICES
PRICE PROPOSAL
WORK SHEET
18-May-21
Middletown - Memar Water Supply
STUDY PHASE**

ASSIGNMENT	HOURS		LOADED HR. RATE		TOTAL
Principal	4	hrs @	\$247.00	=	\$ 988.00
Sr Proj Mgr	50	hrs @	\$199.00	=	\$ 9,950.00
Sr Engr	116	hrs @	\$132.00	=	\$ 15,312.00
Sr Engr- Process	8	hrs @	\$193.00	=	\$ 1,544.00
Proj Engr	134	hrs @	\$128.00	=	\$ 17,152.00
Des Engr	0	hrs @	\$116.00	=	\$ -
Des Engr- Process	0	hrs @	\$128.00	=	\$ -
Sr Civil Engr	6	hrs @	\$194.00	=	\$ 1,164.00
Civil Engr	8	hrs @	\$102.00	=	\$ 816.00
Sr Struct Engr	0	hrs @	\$189.00	=	\$ -
Struct Engr	0	hrs @	\$133.00	=	\$ -
Sr ME/EE	6	hrs @	\$191.00	=	\$ 1,146.00
ME / EE	0	hrs @	\$131.00	=	\$ -
I&C Engr	0	hrs @	\$116.00	=	\$ -
Architect	2	hrs @	\$131.00	=	\$ 262.00
Arch - Designer	0	hrs @	\$122.00	=	\$ -
Arch - Drafter	0	hrs @	\$99.00	=	\$ -
CADD	44	hrs @	\$93.00	=	\$ 4,092.00
QA/QC	8	hrs @	\$180.00	=	\$ 1,440.00

SUBTOTAL	386				\$ 53,866.00
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Other Direct Costs

Travel	480	miles @	\$0.57	=	\$ 273.60
Reproduction and Mail					\$ 200.00

Other Direct Cost Total	\$ 473.60
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Total Contract Value	\$ 54,339.60
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Town of Middletown
 Memor Subdivision Water Supply
 MANHOUR ESTIMATE - STUDY PHASE
 18-May-21

Task Description	Principal	Sr Proj Mgr	Sr Engr	Sr Engr-Process	Proj Engr	Des Engr	Des Engr-Process	Sr Civil Engr	Civil Engr	Sr Struct Engr	Struct Engr	Sr ME/EE	ME / EE	I&C Engr	Architect	Arch - Designer	Arch - Drafter	CADD	QA/QC	TOTAL
A Study																				
Hydraulic Modeling		8	8		80															96
Preliminary Engineering - Distribution		4	24																	28
Preliminary Engineering - Treatment Facility		4	8	8	24			4	8						2			12		70
Preliminary Cost Estimate		6	24		24			2				6								62
Preliminary Engineering Memorandum		8	40		20													32		100
B Project Management																				
Management	4	12																		16
QA/QC			4		6														8	18
Kickoff Meeting		8	8																	16
TOTAL HOURS	4	50	116	8	134	-	-	6	8	-	-	6	-	-	2	-	-	44	8	388

**ENGINEERING SERVICES
PRICE PROPOSAL
WORK SHEET
18-May-21
Middletown - Memar Water Supply
DESIGN PHASE**

ASSIGNMENT	HOURS		LOADED HR. RATE		TOTAL
Principal	14	hrs @	\$ 247.00	=	\$ 3,458.00
Sr Proj Mgr	82	hrs @	\$ 199.00	=	\$ 16,318.00
Sr Engr	280	hrs @	\$ 132.00	=	\$ 36,960.00
Sr Engr- Process	18	hrs @	\$ 193.00	=	\$ 3,474.00
Proj Engr	24	hrs @	\$ 128.00	=	\$ 3,072.00
Des Engr	92	hrs @	\$ 116.00	=	\$ 10,672.00
Des Engr- Process	110	hrs @	\$ 128.00	=	\$ 14,080.00
Sr Civil Engr	30	hrs @	\$ 194.00	=	\$ 5,820.00
Civil Engr	96	hrs @	\$ 102.00	=	\$ 9,792.00
Sr Struct Engr	28	hrs @	\$ 189.00	=	\$ 5,292.00
Struct Engr	74	hrs @	\$ 133.00	=	\$ 9,842.00
Sr ME/EE	52	hrs @	\$ 191.00	=	\$ 9,932.00
ME / EE	184	hrs @	\$ 131.00	=	\$ 24,104.00
I&C Engr	20	hrs @	\$ 116.00	=	\$ 2,320.00
Architect	20	hrs @	\$ 131.00	=	\$ 2,620.00
Arch - Designer	0	hrs @	\$ 122.00	=	\$ -
Arch - Drafter	100	hrs @	\$ 99.00	=	\$ 9,900.00
CADD	292	hrs @	\$ 93.00	=	\$ 27,156.00
QA/QC	24	hrs @	\$ 180.00	=	\$ 4,320.00

SUBTOTAL	1540				\$ 199,132.00
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Other Direct Costs

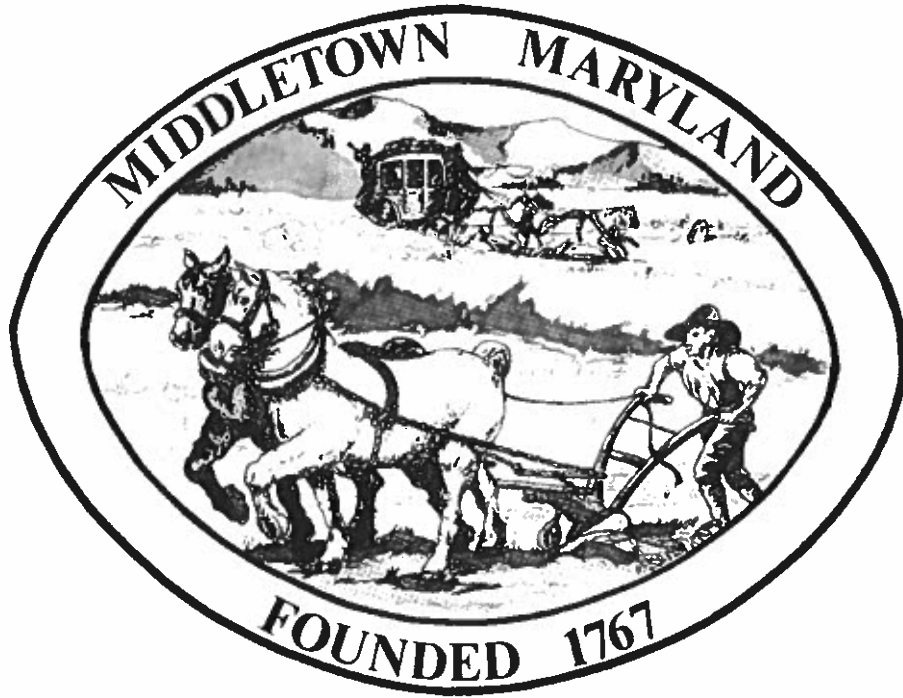
Travel	960	miles @	\$0.57	=	\$ 547.20
Reproduction and Mail					\$ 500.00

Other Direct Cost Total					\$ 1,047.20
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Total Contract Value					\$ 200,179.20
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Town of Middletown
 Memar Subdivision Water Supply
 MANHOUR ESTIMATE - DESIGN PHASE
 18-May-21

Task Description	Principal	Sr Proj Mgr	Sr Engr	Sr Engr-Process	Proj Engr	Des Engr	Des Engr-Process	Sr Civil Engr	Civil Engr	Sr Struct Engr	Struct Engr	Sr ME/EE	ME / EE	I&C Engr	Architect	Arch - Designer	Arch - Drafter	CADD	QA/QC	TOTAL
A Design 80%																				
Process Mechanical			4	8			30												16	58
Facility Design		8	40			18													32	98
Site Piping		8	24			18													20	68
Architectural															8		60			68
Structural										18	58								18	92
Mechanical												4	24							28
Electrical												12	40							52
Instrumentation and Controls			4																	12
Civil Site								8	20										12	38
Construction Cost Est		8	16				12		8			8				2				52
B Design 95%																				
Process Mechanical	2		8	8			40												24	82
Facility Design		4	48			18													40	100
Site Piping		8	24			18													12	60
Architectural																				-
Structural										4	18								8	28
Mechanical												4	24							28
Electrical												12	48							60
Instrumentation and Controls																				8
Civil Site								12	32										12	56
C Final Documents																				
Process Mechanical	2		4	2			24												16	48
Facility Design		4	18			4													18	40
Site Piping		2	8			12													16	38
Architectural															4		40			44
Structural										2	2								2	8
Mechanical												4	8							12
Electrical												8	24							30
Instrumentation and Controls																				4
Civil Site								4	18						4					28
Construction Cost Est		4	16				4		4			4				2			8	28
Permits		4	16			12		4	18											34
																			16	68
D Project Management																				
QA/QC		2	12		24														24	24
Constructability	2	2	8					4		4					4					24
PM	8	16	16																	40
Review Meetings (3)		12	24										16							
TOTAL HOURS	14	82	280	18	24	92	110	30	96	28	74	52	184	20	20	-	100	292	24	1,840



**Burgess and Commissioners of
Middletown, Maryland**

Water Supply Capacity Management Plan
2020

Approved by Burgess and Commissioners
Of Middletown, Maryland
On _____

General Information

PURPOSE OF THE WATER SUPPLY CAPACITY MANAGEMENT PLAN (WSCMP)

This WSCMP is provided to assist the Town Board and Planning Commission in determining the capacity of their water supply systems and in allocating the remaining capacity in a responsible manner. Having an adequate water supply that meets the existing and future water demand in a community is vital for public health protection. Having accurate allocation information, combined with reasonable demand projections, will help ensure that water supply systems achieve a high level of public health protection; operate within Water Appropriation Permit parameters; operate within the limitations of their system to produce safe water; and meet the water supply needs of future residential, commercial, and industrial users in a timely manner. This plan enables the Town to:

- ❖ • Identify when the demand for water is approaching or exceeding the safe capacity of the water supply system;
- ❖ • Provide timely and critical information to the Local Health Officer, Environmental Health Director, and elected officials for the approval of subdivision plats and building permits;
- ❖ • Make commitments for new connections with confidence that there is adequate capacity to serve new as well as existing customers;
- ❖ • Determine when the approval of subdivision plats and the issuance of additional building permits need to be curtailed until improvements are completed to meet the additional water demand;
- ❖ • Plan for needed water supply system improvements to ensure continued adequacy of the water system as new growth occurs and as water demand increases; and
- ❖ • Provide an adequate water supply in order to ensure the protection of public health.

LEGAL MANDATES

It is essential for local governments to carefully manage the allocation of water to new residential, commercial and industrial customers, in conformance with local Comprehensive Plans, County Water and Sewerage Plans, Water Appropriation Permits, and the requirements of the Annotated Code of Maryland pertaining to building permits and subdivision plats. Local governments must ensure that the water supply will be adequate to meet the demand of existing and new users and must allocate any available water in accordance with State as well as local requirements.

The Environment Article of the Annotated Code of Maryland sets forth the State requirements for insuring the adequacy of the water supply to serve new development as well as the authority of the Secretary of the Department to require Water Supply Capacity Management Plans:

§ 9-512 (b) Building Permits – Conformity with county plan; issuance of building permits. –

(1) A State or local authority may not issue a building permit unless:

- (i) The water supply system, sewerage system, or solid waste acceptance facility is adequate to serve the proposed construction, taking into account all existing and approved developments in the service area;*
- (ii) Any water supply system, sewerage system, or solid waste acceptance facility described in the application will not overload any present facility for conveying, pumping, storing, or treating water, sewage, or solid waste; ...*

§ 9-512 (d) Subdivision plats – Conformity with county plan; recording or approving subdivision plats. –

(1) A State or local authority may not record or approve a subdivision plat unless any approved facility for conveying, pumping, storing, or treating water, sewage or solid waste to serve the proposed development would be:

- (i) Completed in time to serve the proposed development; and*
- (ii) Adequate to serve the proposed development, once completed, without overloading any water supply system, sewerage system, or solid waste acceptance facility.*

(2) Each water supply system, sewerage system, and solid waste acceptance facility in a subdivision shall:

- (i) Conform to the applicable county plan; and*
- (ii) Take into consideration all present and approved subdivision plats and building permits in the service area.*

§ 9-205. Submitting plans for existing water supply system, sewerage system, or refuse disposal system for public use.

(a) “Authority” defined. – In this section, “authority” means a water, sewerage, or sanitary district authority.

(b) Application of section. – This section applies only to any water supply system, sewerage system, or refuse disposal system that is for public use in this State.

(c) Required plans, specifications, and reports – In general. – Any authority or person who owns a water supply system, sewerage system, or refuse disposal system or who supplies or is authorized to supply water, sewerage, or refuse disposal service to the public shall submit to the Secretary:

(1) A certified copy of the complete plans for the water supply system, sewerage system, or refuse disposal system that:

- (i) Is correct on the date of submission; and*
- (ii) Is of the scope and detail that the Secretary requires; and*

(2) Any existing specifications of or reports on the water supply system, sewerage system, or refuse disposal system.

(d) Same – Exceptions. – If plans do not exist or are of insufficient scope or detail, the authority or person who is required to submit the plans shall:

- (1) Prepare and submit to the Secretary new or supplemented plans; and*
- (2) Make any investigation that is necessary to ensure that the new or supplemented plans are correct.*

(e) Additional information. –

(1) The Secretary may request any other information about the water supply system, sewerage system, or refuse disposal system, including information or records on maintenance and operation, that the Secretary considers appropriate.

(2) Any authority or person to whom a request is made under paragraph (1) of this subsection shall submit the information or records to the Secretary.

In addition to the required State mandates, the Town has also passed legislation to ensure capacity is available. In April of 2003, the Town Board passed the Water & Sewer Certification Ordinance which requires capacity to be available prior the approval of improvement plans:

16.12.055 Water and sewer capacity certification

A. Upon approval of the preliminary plat, the town administrator shall conduct a review and analysis of the capacities of the town water and sewer systems in order to determine whether there exists sufficient water and sewer capacity to service the proposed subdivision or the development project thereon. The review and analysis shall be conducted in coordination with the director of operations and construction and the water and sewer superintendent who shall provide the administrator with pertinent information and data regarding the capacity of the town to provide water and sewer service to the proposed subdivision or project. In the review and analysis of the town water and sewer capacity, the demands of the proposed subdivision or project for water and sewer shall be based upon a daily consumption of two hundred and fifty (250) gallons per equivalent dwelling unit as per the standards of the American Water and Wastewater Association.

B. If the town administrator determines that there is sufficient water and sewer capacity to service the proposed subdivision or project, then he shall issue a certificate of water and sewer capacity for the proposed subdivision or project.

C. If the town administrator determines that there is not sufficient water and sewer capacity to service the proposed subdivision or project, then a certificate of water and sewer capacity shall not be issued for the proposed subdivision or project.

D. The planning commission shall not approve any improvement plans for the proposed subdivision or project unless a certificate of water and sewer capacity has been issued for the proposed subdivision or project.

E. If an approved preliminary plat is revised after a certificate of water and sewer capacity has been issued and the revision is approved by the planning commission, and if the effect of the revision does not increase the previously determined water demand of the proposed subdivision or project based upon the standards provided for in subsection (A) of this section, then a new certificate of water and sewer capacity shall not be required, and the previously issued certificate shall remain valid. If the effect of such approved revision is to increase the previously determined water demand of the proposed subdivision or project based upon the standards provided for in subsection (A) of this section, then the previously issued certificate shall be void, and a new certificate shall be issued, if appropriate, in accordance with the procedures set forth above.

(Ord. 03-04-01 §1, 2003)

Executive Summary

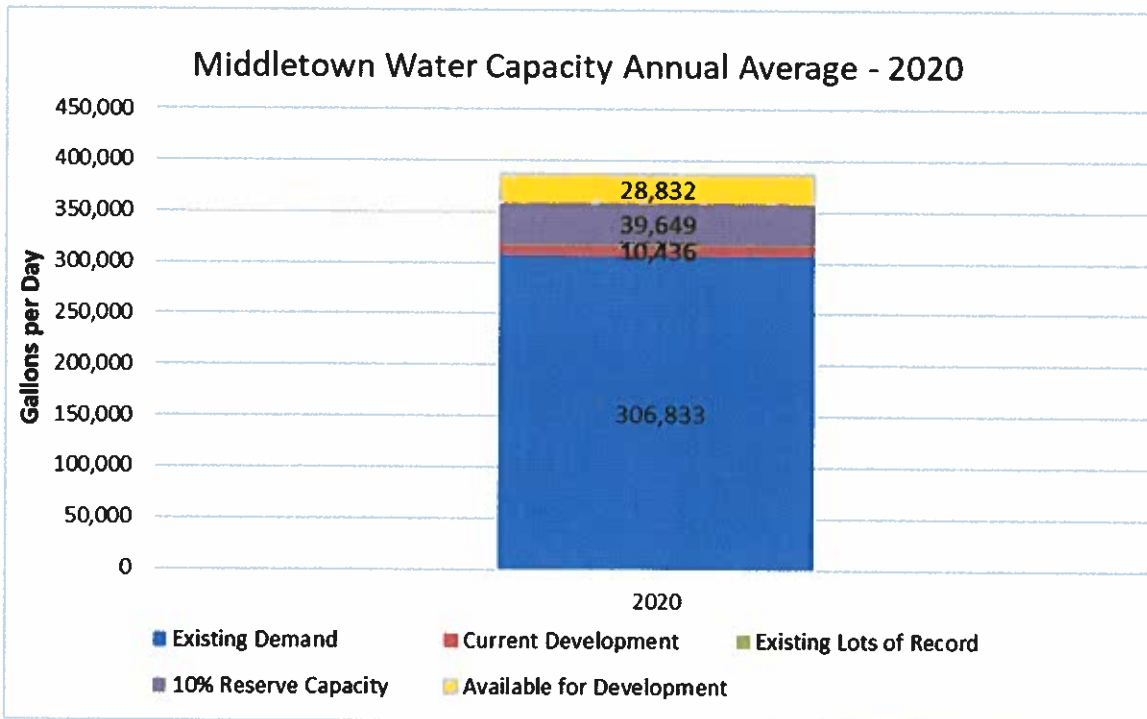
The Middletown water system is supplied by twenty-three (23) wells and four (4) major groups of springs located on the west side of the Catoctin Mountain, north of town. Water from the springs flow by gravity to a new groundwater storage tank with a capacity of one million gallons. Water treatment consists of adding caustic soda, for pH adjustment, chlorine, as a disinfectant to protect against microbial contaminants. From the plant, the water is pumped to our 400,000 gallon elevated storage tank.

The Town currently has Water Appropriation Permits in the Hollow Creek, Cone Branch, and Catoctin Watersheds. The combined permit limits for withdraw are 387,000 gpd Annual Average and 504,000 gpd Month of Maximum Use. The current capacity of the Town's water supply, during drought conditions, has been determined by MDE to be 533,640 gpd.

The information contained in this report was generated following the details specified in the Guidance Document – *Water Supply Capacity Management Plans* as prepared by the Maryland Department of the Environment.

Annual Average

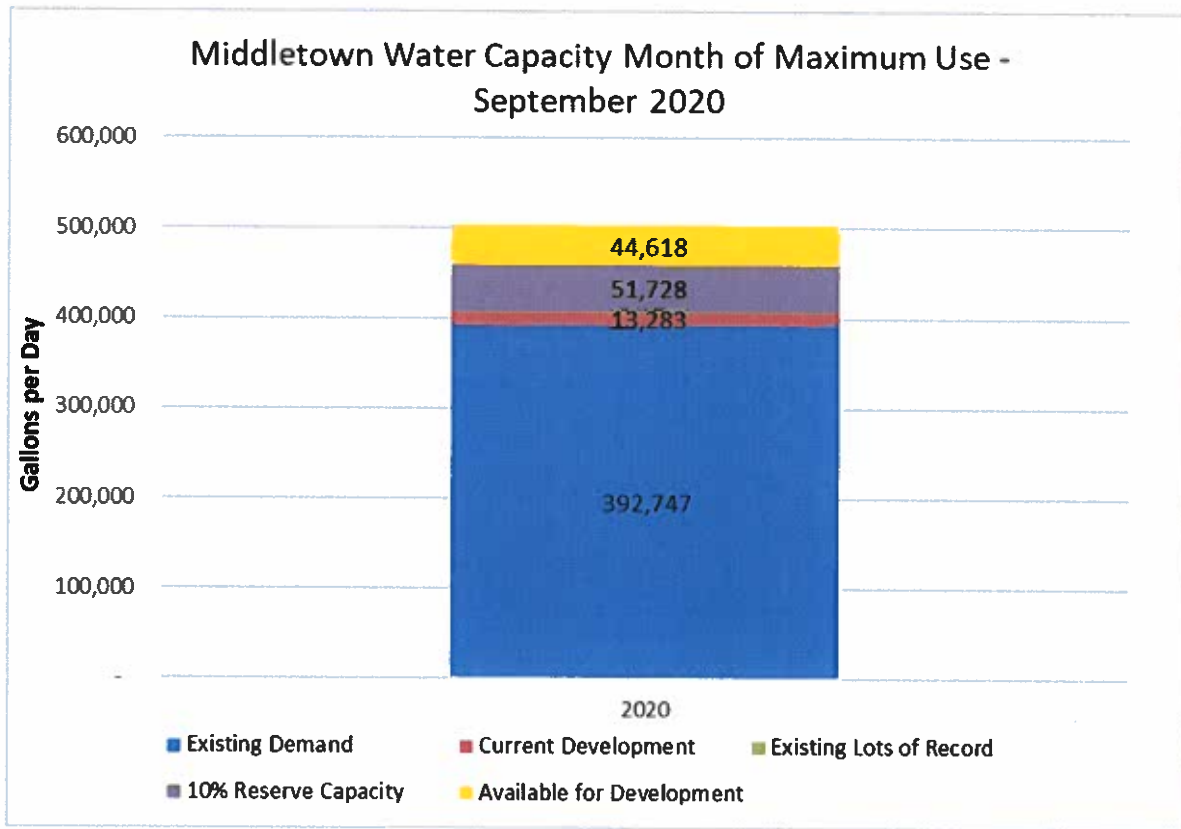
The Town of Middletown's current water system capacity, based on flow is 92.5%.



****Calculation do not include Memar Annexation**

Month of Maximum Use

The Town of Middletown’s current water system capacity, based on calculations by flow is 91.1%.



*****Calculation do not include Memar Annexation***

Summary and Recommendations

Based on the calculation, in accordance with MDE guidance, the Town has 115 (28,832gpd / 250gpd) water taps available based on the capacity analysis.



**Burgess and Commissioners of
Middletown, Maryland**

Wastewater Capacity Management Plan 2020

Approved by Burgess and Commissioners
Of Middletown, Maryland

General Information

PURPOSE OF THE WASTEWATER CAPACITY MANAGEMENT PLAN (WWCMP)

This WWCMP is provided to assist the Town Board and Planning Commission to determine plant capacity and to track the remaining available capacity for allocation. Because of the significant lead time required for measures such as sewer rehabilitation or facility expansion, the WWCMP emphasizes the need to plan ahead to ensure that growth takes place without overloading sewage facilities. The guide enables the Town to:

- ❖ • Identify when a treatment plant's actual flows are approaching or exceeding the design capacity;
- ❖ • Make commitments for new connections with confidence that there is adequate capacity to serve the new as well as existing customers;
- ❖ • Determine when the issuance of additional building permits must be curtailed until improvements are completed so that the treatment plant can maintain compliance with its discharge permit;
- ❖ • Have more lead-time to plan for needed collection and wastewater treatment system upgrades to accommodate new growth and to arrange for the financing of the improvements;
- ❖ • Become more aware of how your facility is performing; and be encouraged to take appropriate steps to address or prevent increased flows before effluent violations, regular bypassing, or overflows occur; and
- ❖ • Provide Town Board and Planning Commission with the information needed to make informed decisions about the capacity of their wastewater systems and the ability to accommodate new connections.

LEGAL MANDATES

The Town faces many challenges to maintain and operate these systems in compliance with federal and State laws and regulations. The cost to keep these increasingly complex facilities operating properly continues to increase. The ability to raise rates to keep pace with these costs is a challenge. Perhaps most challenging, however, is the need to manage the allocation of flow to new customers for residential, commercial, and industrial use, in conformance with local land use, water and sewerage plans, and the NPDES permit limits. The following language from the Maryland Environment Article makes it clear that the authority responsible for issuing building permits and subdivision plat approvals must ensure that adequate capacity is or will be available:

§ 9-512 (b) Building Permits – Conformity with County Plan; Issuance of Building Permits

(1) A State or local authority may not issue a building permit unless:

(i) The water supply system, sewerage system, or solid waste acceptance facility is adequate to serve the proposed construction, taking into account all existing and approved developments in the service area;

(ii) Any water supply system, sewerage system, or solid waste acceptance facility described in the application will not overload any present facility for conveying, pumping, storing, or treating water, sewage, or solid waste;...

§ 9-512 (d) Subdivision Plats

(1) A State or local authority may not record or approve a subdivision plat unless any approved facility for conveying, pumping, storing, or treating water, sewage, or solid waste to serve the proposed development would be:

(i) Completed in time to serve the proposed development; and

(ii) Adequate to serve the proposed development, once completed, without overloading any water supply system, sewerage system, or solid waste acceptance facility.

(2) Each water supply system, sewerage system, and solid waste acceptance facility in a subdivision shall:

(i) Conform to the applicable county plan; and

(ii) Take into consideration all present and approved subdivision plats and building permits in the service area.

In addition to the required State mandates, the Town has also passed legislation to ensure capacity is available. In April of 2003, the Town Board passed the Water & Sewer Certification Ordinance which requires capacity to be available prior to the approval of improvement plans:

16.12.055 Water and sewer capacity certification

A. Upon approval of the preliminary plat, the town administrator shall conduct a review and analysis of the capacities of the town water and sewer systems in order to determine whether there exists sufficient water and sewer capacity to service the proposed subdivision or the development project thereon. The review and analysis shall be conducted in coordination with the director of operations and construction and the water and sewer superintendent who shall provide the administrator with pertinent information and data regarding the capacity of the town to provide water and sewer service to the proposed subdivision or project. In the review and analysis of the town water and sewer capacity, the demands of the proposed subdivision or project for water and sewer shall be based upon a daily consumption of two hundred and fifty (250) gallons per equivalent dwelling unit as per the standards of the American Water and Wastewater Association.

B. If the town administrator determines that there is sufficient water and sewer capacity to service the proposed subdivision or project, then he shall issue a certificate of water and sewer capacity for the proposed subdivision or project.

C. If the town administrator determines that there is not sufficient water and sewer capacity to service the proposed subdivision or project, then a certificate of water and sewer capacity shall not be issued for the proposed subdivision or project.

D. The planning commission shall not approve any improvement plans for the proposed subdivision or project unless a certificate of water and sewer capacity has been issued for the proposed subdivision or project.

E. If an approved preliminary plat is revised after a certificate of water and sewer capacity has been issued and the revision is approved by the planning commission, and if the effect of the revision does not increase the previously determined water demand of the proposed subdivision or project based upon the standards provided for in subsection (A) of this section, then a new certificate of water and sewer capacity shall not be required, and the previously issued certificate shall remain valid. If the effect of such approved revision is to increase the previously determined water demand of the proposed subdivision or project based upon the standards provided for in subsection (A) of this section, then the previously issued certificate shall be void, and a new certificate shall be issued, if appropriate, in accordance with the procedures set forth above.

(Ord. 03-04-01 §1, 2003)

Executive Summary

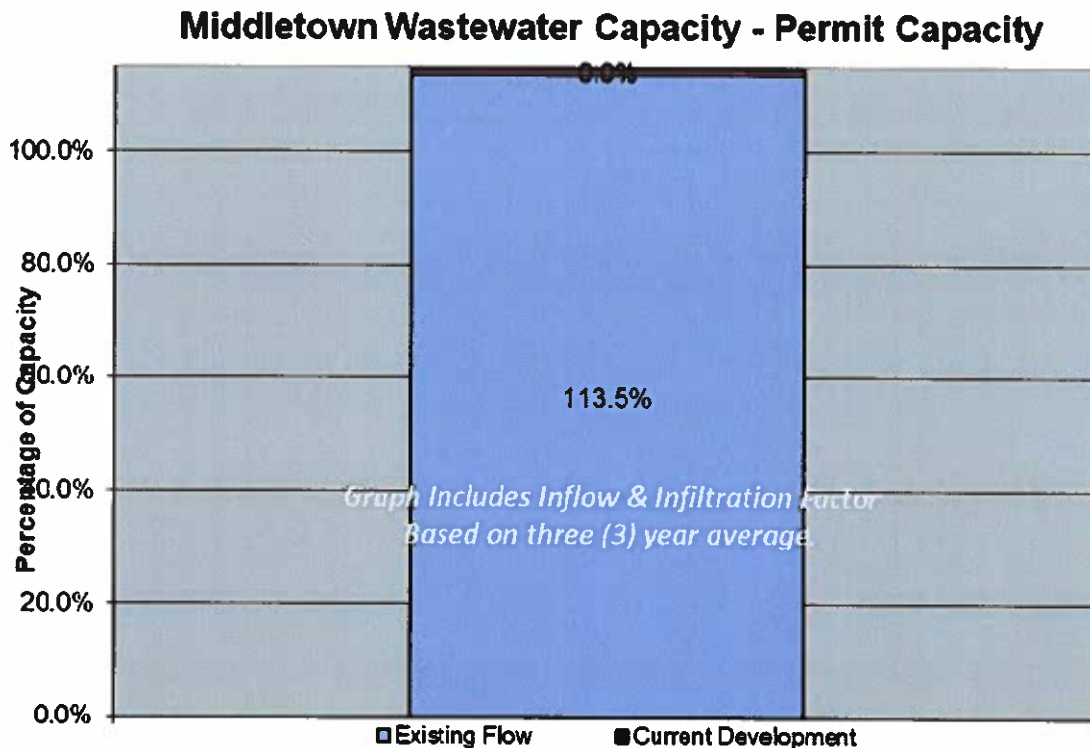
The Middletown sewage system consists of a 0.250 mgd treatment plant located on the west side of Town (West WWTP), and a 0.350 mgd activated sludge plant (expandable to 0.700 mgd) located on the east side of Town (East WWTP), three (3) sewage pump stations, and a network of 8" to 12" sanitary sewer lines. The West WWTP, which was designed in 1973, became operational in 1976 and replaced an older facility. The East WWTP, located on Holter Road, was constructed in 1999-2000 and became operational on June 14, 2000.

The West WWTP plant has a design capacity of 0.250 mgd with an NPDES Permit for the same. The East WWTP plant has a design capacity of 0.350 mgd with an NPDES Permit for 0.250 mgd. The Town has requested from MDE an increase in our permit capacity to the full design capacity. In calculating the capacity for the Town, the design and permit capacities were combined for an overall total of 0.600 mgd and 0.500 mgd respectively.

The information contained in this report was generated following the details specified in the Guidance Document – *Wastewater Capacity Management Plans* as prepared by the Maryland Department of the Environment.

Permitted Capacity

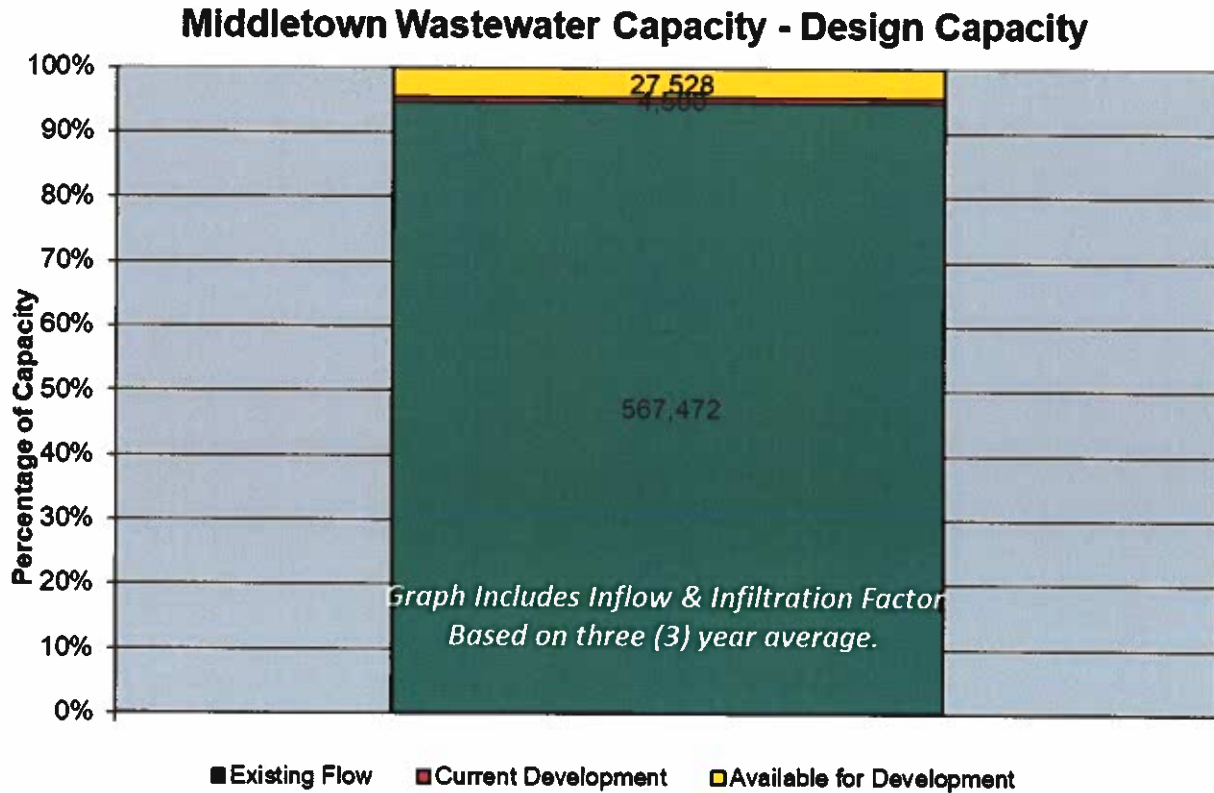
The Town of Middletown's current sewer system capacity, based on calculations by flow is 113%.



****Calculation do not include Memar Annexation**

Design Capacity

The Town of Middletown’s sewer system design capacity, based on calculations by flow, is at 95%.



****Calculation do not include Memar Annexation**

Summary and Recommendations

Based on the current permitted capacity of 0.500 mgd the Town has capacity for existing lots of record. The Town has requested an increase in the permit at the East WWTP to the full design capacity of 0.350 mgd from MDE and is currently conducting an I&I Study to make recommendations on repairs and improvements. This I&I work is expected to substantially increase sewer capacity. In additional, the three (3) year average will not include 2018 flows which were substantially higher due to an extremely wet year with rainfall significantly above a typical year. This will cause a substantial increase in capacity for next year.

It is recommended that the Planning Commission limit the number of approved subdivision lots to no more than 110 lots to stay within the Town’s design capacity until the completion of the I&I Study and Improvements are completed. An evaluation of the I&I reduction will be a factor in next year’s Capacity Plan.