

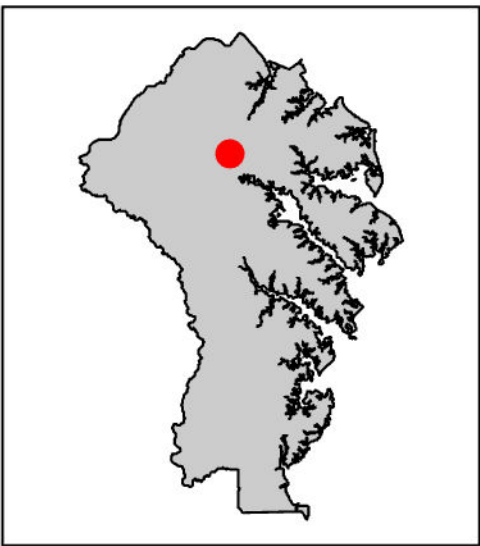
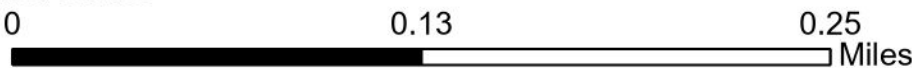
Police Special Ops Facility - Water -W-4

Bill No.

Exhibit No.

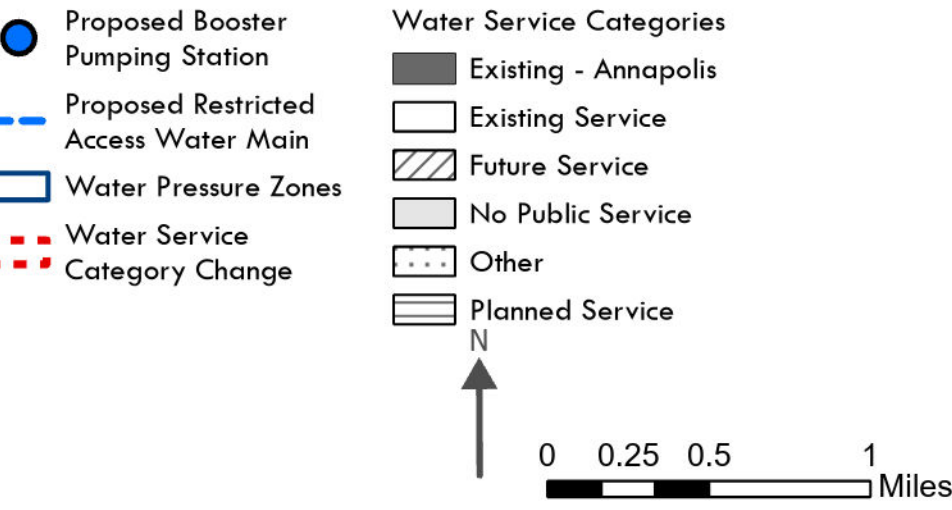
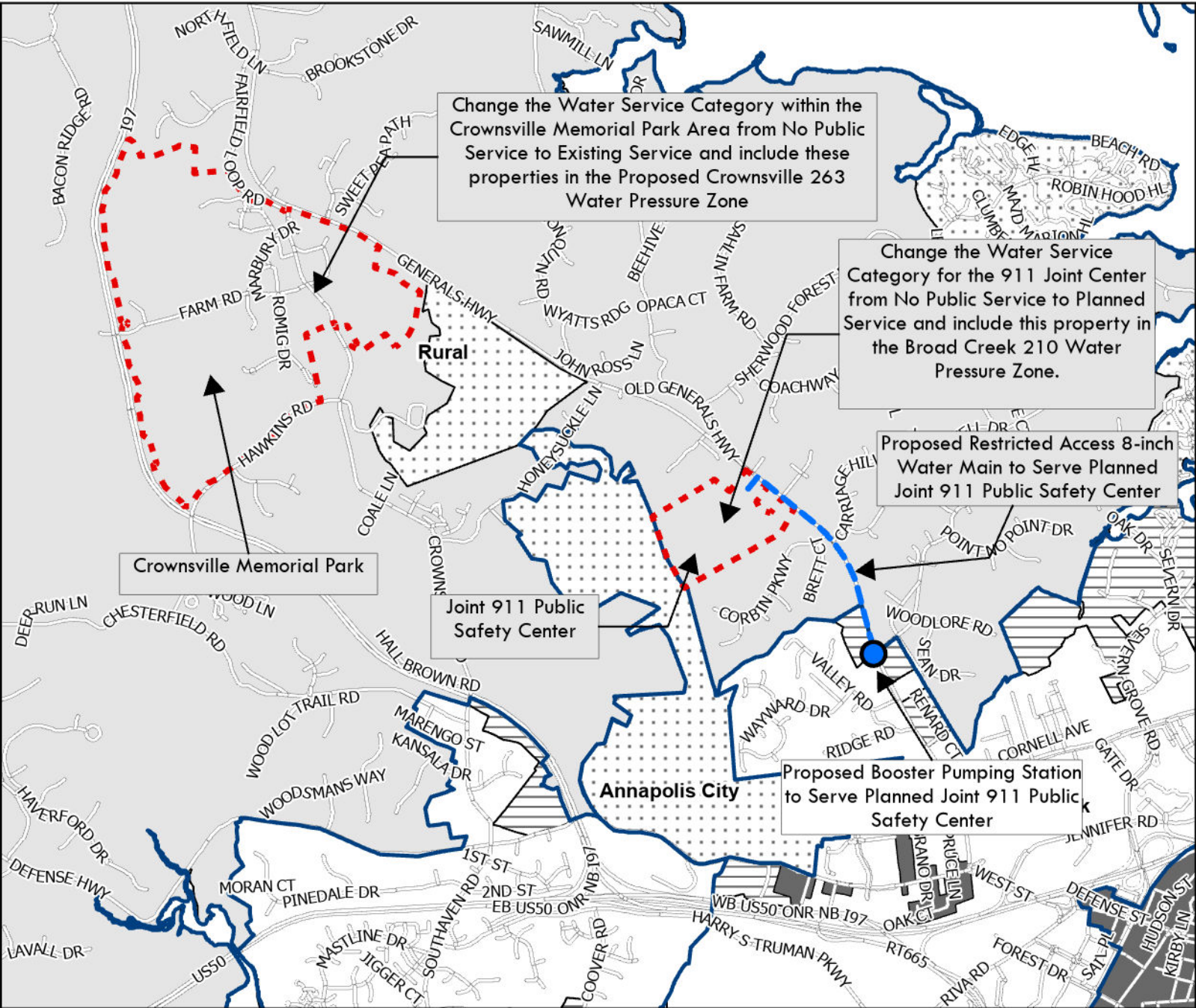


- Water Service Category Change
- Water Pressure Zones
- Water Service Categories
 - Existing - Annapolis
 - Existing Service
 - Future Service
 - No Public Service
 - Other
 - Planned Service



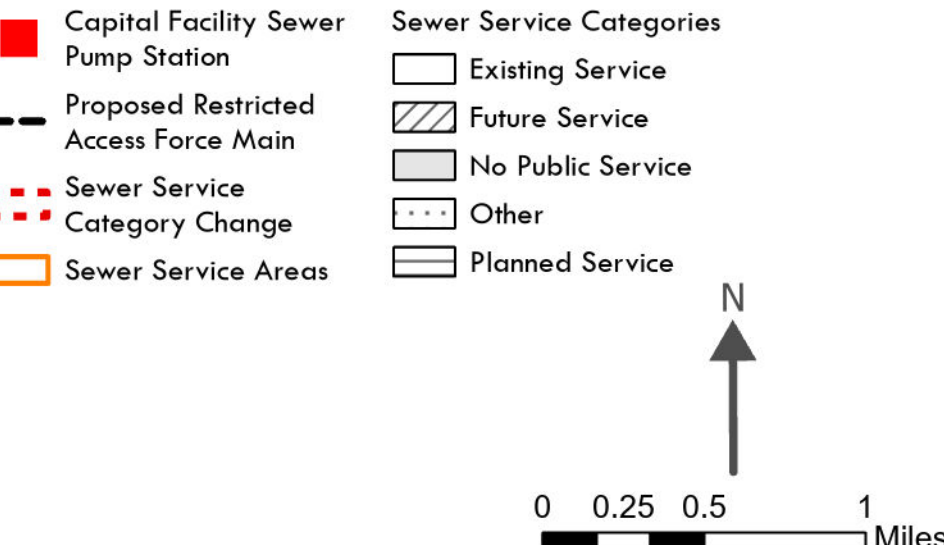
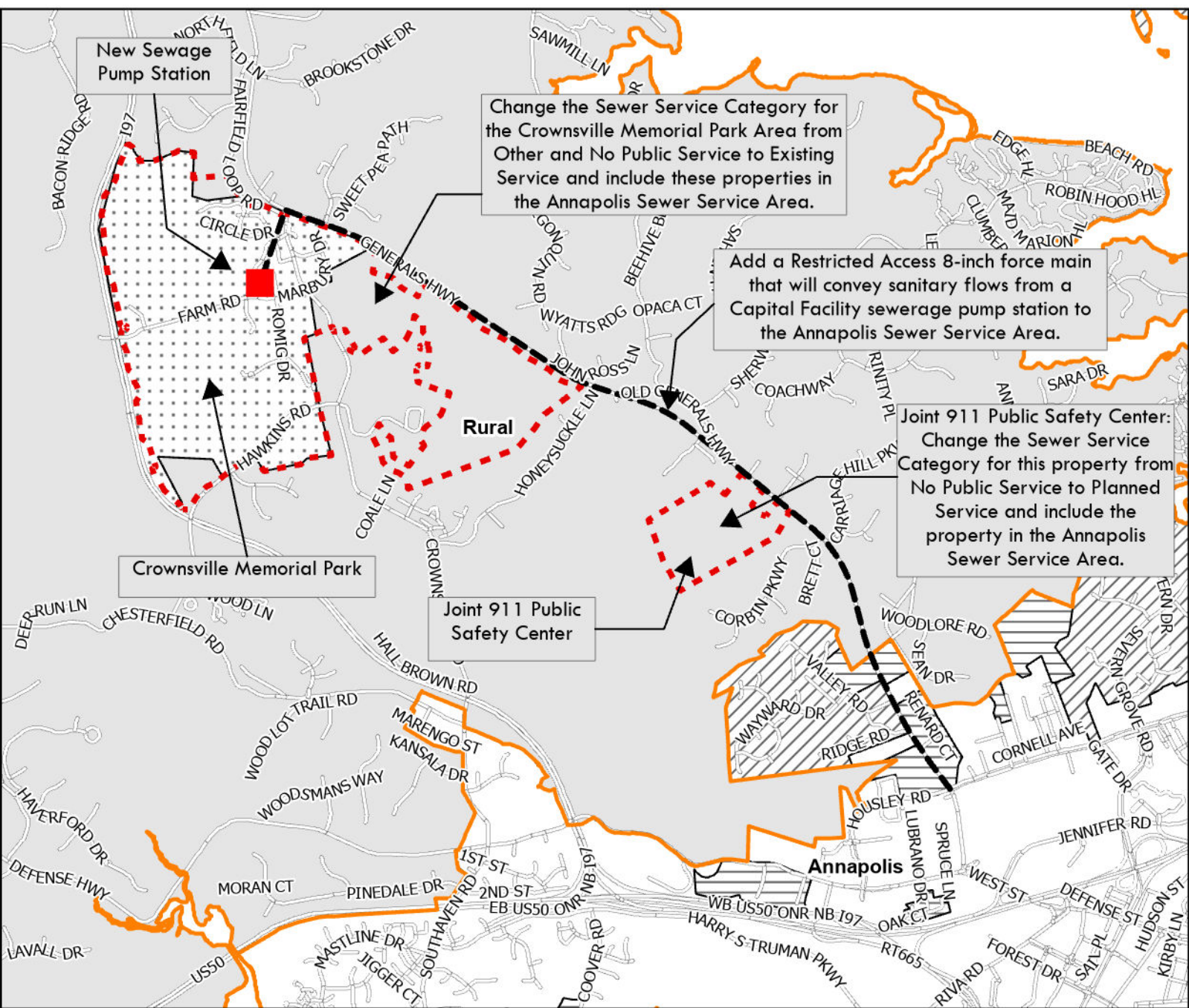
Crownsville Memorial Park Area and Joint Bill No. 911 Center - Water - W6 and W7

Exhibit No.



Crownsville Memorial Park Area and Joint 911 Center - Sewer - S6 and S7

Bill No.
Exhibit No.



ATTACHMENT A

AMENDMENT TO

ANNE ARUNDEL COUNTY

***2022 MASTER PLAN FOR WATER SUPPLY AND
SEWERAGE SYSTEMS***

TO INCORPORATE

***CROWNSVILLE WATER AND SEWERAGE SYSTEMS AND
JOINT 911 PUBLIC SAFETY CENTER***



June 2025

SECTION 3 - WATER SUPPLY SYSTEMS

This amendment revises Section 3 of the County's Master Plan for Water Supply to include the new Crownsville Water Service Area and revision of the Broad Creek Service Area boundary to include service to the planned Joint 911 Public Safety Center (Joint 911 Center).

Page 3-1 | Section 3.1 | First Paragraph

Change the number of pressure zones from 12 to 13.

Page 3-2 | Figure 3-1

Revise existing service boundary to include Crownsville Water Service Area and Joint 911 Center. GIS shape files provided by RK&K.

Page 3-6 | Table 3-2

Add the following data to the table.

	Projected Average Day Demand (MGD)					
	2010	2020	2025	2030	2035	Buildout
Crownsville	-	-	0.07	0.08	0.09	0.12

	Projected Maximum Day Demand (MGD)					
	2010	2020	2025	2030	2035	Buildout
Crownsville	-	-	0.08	0.13 ⁶	0.14 ⁶	0.19 ⁶

6. Based on a Max Day/ Avg Day peaking factor of 1.6

Page 3-7 | Table 3-3

Add the following data to the table.

	Population						
	2020	2025	2030	2035	2040	2045	2050
Crownsville**	-	875	1,000	1,125	1,250	1,375	1,500

** Crownsville Source: Derived from demand projections based on 80 gpd per capita demand

	Households						
	2020	2025	2030	2035	2040	2045	2050
Crownsville***	-	-	-	-	-	-	-

*** Commercial or institutional development only. No residential households

Page 3-9 | Table 3-4

Add the following data to the end of the table.

Pressure Zone	Existing Well Field	Facility Name	No. Prod. Wells	Aquifer	Permit. Annual Average (MGD)	Permit. Monthly Max. (MGD)	Best Well Out	GWP #	GWP Exp. Date
Crownsville	16	Crownsville WTP	2 (4,5)	Upat	0.120	0.156	0.120	AA1954 G001 (06)	6/2030

Page 3-12 | Figure 3-3

Add the number 16 next to the Crownsville existing wellfield symbol.

Page 3-13 | Table 3-6

Add the following data to the table.

Pressure Zone	Facility Name	Ex. Max. Day Capacity at WTP		Future Max. Day Withdrawal (Required at Buildout)	
		Ex. Well Field (Fig 3-3)	(MGD)	Future Well Field (Fig 3-3)	Max Day (MGD)
Crownsville	Crownsville WTP	16	1.0	D	0.16

Page 3-22 |

Add the following section.

3.5.3.1.12 Crownsville

Crownsville WTP is located in the Crownsville 263 zone. The facility has a current nominal treatment capacity of 1 MGD. The WTP was originally constructed in 1989 and upgraded in 1996 to include a new chemical storage room and loading dock. Three ion-exchange vessels were installed in around 2010 for removal of radionuclides. The County took over ownership of the WTP from the state of Maryland in 2022.

The treatment process involves a multi-step approach, including aeration, sedimentation, and filtration using two Trident Micro floc units (Model TR 210) for iron and manganese removal. Additionally, ion exchange is utilized for radionuclide removal, complemented by chemical addition and disinfection processes.

The county is currently working on a Long-Term Facility Plan to evaluate whether to continue operating the WTP or abandon it and supply the Crownsville Service Area from the Broad Creek 210 Pressure Zone or the Heritage Harbor 270 Pressure Zone.

Page 3-30 | Section 3.6.2.5 – Strategic Plan for Infrastructure and Capital Improvements

Add the following paragraph f) at the end of the list of 2020/2030 Improvement Projects.

- f) Extend the Broad Creek 210 Pressure Zone along General Highway by installing an approximately one mile long, 8–10-inch transmission main and booster pumping station to serve the County owned Joint 911 Center. This transmission main will be restricted access to only service the Joint 911 Center. No private connections to this pipeline will be permitted.

Page 3-25 | Table 3-9

Add the following data to the table.

Water Pressure Zone	OFE (feet)	Max FFE (feet)	Water Pressure Sub-Zones	Gradient (feet)	Max FFE (feet)	Permit Monthly Max. (MGD)	Major Private Systems within Pressure Zone
Crownsville	263	143					

Page 3-26 | Table 3-10

Add the following data to the table.

	200 ft Map	Existing Capacity (MG)	Proposed Capacity (MG)	Proposed Year to Construct	Total Capacity
Crownsville 263 Zone					
Front Tank	Q 20	.25			
Back Tank	Q 21	.25			

Add the following sections.

3.6.14 Crownsville 263 Water Pressure Zone

3.6.14.1 General Description

The Crownsville 263 water pressure zone is situated in the Crownsville area of the County near the confluence of Generals Highway and Crownsville Road. The pressure zone encompasses an area of about 705 acres and used to be part of the Crownsville State Hospital which was owned and managed by the State of Maryland. Ownership of the Crownsville Water System, which includes a water treatment plant, two water supply wells, two elevated storage tanks and distribution piping was conveyed to the County from the State of Maryland under an Agreement of Sale dated July 22, 2022. Nearly all of the 705-acre service area is property owned by Anne Arundel County or the State of Maryland.

The topography of the service area varies from 50 to 160 feet but existing distribution piping ranges from about 100 to 160 feet. Static pressures generally range from 70 psi to 45 psi. The overflow elevation of both elevated water storage tanks is 263 with the low water elevation of the back tank being 240 feet. According to the County's design criteria, the highest elevation that can be served within the Crownsville Pressure Zone is 100 feet without providing supplemental means of pressure.

3.6.14.2 Projected Population Growth and Demands

The Crownsville Pressure Zone presently only serves about 13 institutional or commercial tenants. No private residential properties are served nor are any planned to be served in the future. As shown in Table 3-2, the average and maximum day demands in the Crownsville Zone under projected buildout conditions are 0.12 MGD and 0.16 MGD respectively.

3.6.14.3 Groundwater Pumping and Water Treatment Facilities

The Crownsville Zone is presently supplied from two groundwater production wells, designated as Wells #4 and #5, and a WTP which has a nominal treatment capacity of 1.0 MGD. Presently, the WTP only operates about two hours per day to meet system demands.

3.6.14.4 Storage and Distribution Facilities

There are two (2) elevated water storage tanks known as the EST # 1 (Front Tank) and EST # 2 (Back Tank). Both tanks have a capacity of 250,000 gallons (500,000 combined). The condition of both tanks was inspected in 2020 and found to be in relatively good condition. The County

drained and removed EST # 2 from service in the fall of 2023 because it was not needed. See Table 3-10 for more information on the existing storage tanks for this zone.

Most of the existing distribution system piping was installed prior to 1960. Condition inspections revealed that all of the pipe was in very poor condition and beyond rehabilitation. The County initiated a construction contract in 2025 to completely replace all distribution piping and install about 13,500 linear feet of new PVC distribution pipe, new fire hydrants, customer service connections, water meters and backflow prevention devices.

3.6.14.5 Strategic Plan for Infrastructure and Capital Improvements

The only capital improvement project planned and underway for this zone at this time is the replacement of all distribution system piping and related appurtenances including fire hydrants, valves, service connections and water meters. Construction of new distribution piping is anticipated to be completed in 2026.

Page 3-63 | Table 3-18

Add the following information to the table.

Project Name	Project Number	Detailed Description
Crownsville Memorial Park Water Main Replacement	P588408	Design and construction of approximately 13,000 linear feet of 4-inch to 12-inch water mains and related appurtenances to replace the existing water distribution system piping at the Crownsville Memorial Park.
Joint 911 Public Safety Center Utilities Extension	F586403	Design and construction of approximately 5,300 liner feet of 8/10-inch water main and water booster pumping station to serve Joint 911 Public Safety Center

SECTION 4 - SEWERAGE SYSTEMS

This amendment revises Section 4 of the County's Master Plan for Sewerage Systems to incorporate the new Crownsville Sewer System, which includes a new force main and sewage pumping station, into the Annapolis Sewer Service Area. The planned Joint 911 Public Safety Center (Joint 911 Center) is included as part of the Crownsville Sewer System.

Page 4-2 | Table 4-1

Revise the population data for Annapolis SSA to include the Crownsville include Crownsville Sewer System. The number of households for Annapolis SSA will not change because Crownsville serves only commercial and institutional customers.

	Population						
	2020	2025	2030	2035	2040	2045	2050
Annapolis (County Portion)	47,634	49,636	50,638	50,889	51,163	51,340	51,532

Page 4-3 | Figure 4-1

Revise existing service boundary to include Crownsville Sewer Service Area which includes Joint 911 Center. ~~GIS shape files provided by RK&K.~~

Page 4-4 | Table 4-2

Revise the Annapolis SSA (County Portion) data in the table to include flow from Crownsville SPS and Joint 911 Center

Sewer Service Area	2020 Total Flow (MGD)	Capacity (MGD)	% of Capacity	2025 Total Flow (MGD)	Capacity (MGD)	% of Capacity
Annapolis (County Total)	4.79	6.30	76.0	5.07	6.30	80.5
Annapolis (County)	4.15			4.40		

Sewer Service Area	2030 Total Flow (MGD)	Capacity (MGD)	% of Capacity	2035 Total Flow (MGD)	Capacity (MGD)	% of Capacity
Annapolis (County Total)	5.20	6.30	82.5	5.31	6.30	84.3
Annapolis (County)	4.51			4.60		

Sewer Service Area	2040 Total Flow (MGD)	Capacity (MGD)	% of Capacity	2045 Total Flow (MGD)	Capacity (MGD)	% of Capacity
Annapolis (County Total)	5.41	6.30	85.9	5.47	6.30	86.8
Annapolis (County)	4.69			4.72		

Sewer Service Area	2050 Total Flow (MGD)	Capacity (MGD)	% of Capacity	Build-Out Flows (MGD)
Annapolis (County Total)	5.51	6.30	87.5	9.45
Annapolis (County)	4.74			8.31

Page 4-8 | Section 4.3.1

Remove Crownsville State Hospital information when existing system is decommissioned.

Page 4-10 | Table 4-4

Remove Crownsville State Hospital information when existing system is decommissioned.

Page 4-51 | Section 4.7.6.1 | Second Paragraph

Change service area from 19,619 acres to 20,629 acres to add 1,010 acres from Crownsville and Joint 911 Center.

Page 4-51 | Section 4.7.6.2 | First Paragraph

Change population from 97,878 to 99,378

Change population from 50,032 to 51,532

Page 4-54

Change the following data from:

- a) 61 County-owned sewer pump stations
- b) 138.7 miles of gravity mains ranging from 4 to 96 inches in diameter
- c) 9.26 miles of pressure collectors (grinder pump systems) ranging from 1.5 to 6 inches in diameter
- d) 40.91 miles of force mains ranging in size from 1.5 to 30 inches in diameter
- e) Approximately 13,700 connections

To;

- a) 62 County-owned sewer pump stations
- b) 140.7 miles for gravity sewers from 4 to 96 inches in diameter
- c) 9.26 miles of pressure collectors (grinder pump systems) from 1.5 inches to 6 inches in diameter
- d) 44.10 miles for force mains ranging in size from 1.5 to 30 inches in diameter
- e) Approximately 13,700 connections

Page 4-55 | Table 4-22

Add the following data to Table 4-22

Station Name	Owner	Address / Location	Master Plan Map	Operating Map 200/40	A.A. County Station ID Number	Design Capacity (MGD)
Crownsville	County	1215 Farm Road	S-6	Q-20	N/A	0.79

Page 4-58 | Section 4.7.6.5

Add the following description of improvements related to the Crownsville Sewer System and Joint 911 Center.

b) Crownsville Sewer System

The Crownsville sewerage system presently serves approximately 13 tenants and various other users within and around the 485-acre Crownsville Hospital Memorial Park (formally Crownsville State Hospital). Ownership of the wastewater system was conveyed to the County under an Agreement of Sale dated July 22, 2022, and is now operated and maintained by the County Department of Public Works.

The existing sewerage system consists of about 11,000 LF of gravity sewers and a wastewater treatment plant which includes multiple lagoons, storage ponds and spray fields. Most of the gravity sewers were cleaned and CCTV inspected in 2023 and found to be in generally good condition. The wastewater treatment plant was determined to be ineffective and beyond repair. The County has been pumping and hauling sanitary flows to the Annapolis Sewer System since 2024.

The County initiated several capital projects in 2024 to abandon and decommission the existing Crownsville Wastewater Treatment Plant and construct a new sewage pump station and force main to convey sanitary flows to the Annapolis Sewer Service Area for treatment and disposal at the Annapolis WRF. The force main will include stubs along its alignment to future connections from the County’s Eisenhower Golf Course and the planned County Joint 911 Center. This force main will have restricted access to serve only parcels currently served by the existing Crownsville sewer system, Joint 911 Center, and the County’s Eisenhower Golf Course. No other private connections including residential, commercial or industrial users will be permitted to connect to this force main. A listing of the project currently underway and planned is listed in Table 4-37 in Section 4.10.

Page 4-61 | Figure 4-9 Annapolis SSA

Amend Figure 4-9 to show the new Crownsville SPS.

Page 4-85 | Table 4-37 Wastewater Capital Improvement Projects, Anne Arundel County

Add the following information to the table.

Contract Title	Contract Number	Description
Crownsville WWTP Decommission – Phase 1	P588412	This project generally consists of removing and disposing accumulated liquid and sludge in the storage ponds and aeration lagoons, providing a new liner in Aeration Lagoon 1, and other improvements to stabilize the facilities until they can be permanently decommissioned and removed after the new sewage pump station and force main is constructed.
Crownsville Memorial Park Sewer Force Main	P588412	<p>This project consists of constructing a new force main to convey sanitary sewage from the Crownsville Sewer Service Area to the Annapolis Sewer Service Area for treatment and disposal at the Annapolis WRF. The new 8-inches diameter force main is approximately 21,000 linear feet and discharges to a receiving manhole in Generals Highway at Valley Road.</p> <p>This force main will have restricted access to serve only designated parcels within the defined Crownsville Sewer Service Area. No private connections, including residential, commercial or industrial users will be permitted to connect to this force main.</p>
Crownsville Memorial Park Sewage Pumping Station Replacement	P588412	This project consists of constructing a new sewage pump station that discharges to the new Crownsville Memorial Park Sewer Force Main to convey sanitary sewage from the Crownsville Sewer Service Area to the Annapolis

		Sewer Service Area for treatment and disposal at the Annapolis WRF. This sewage pump station is being designed for a maximum pumping capacity of 550 gpm.
Crownsville WWTP Decommission – Phase 2	P588412	This project consists of permanently decommissioning the Crownsville WWTP by demolishing and removing all storage ponds, aeration lagoons, and related structures. Construction of this project will occur only after completion of the new Crownsville force main and sewage pumping station.

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END OF AMENDMENT