PROPOSED

COUNTY COUNCIL OF ANNE ARUNDEL COUNTY, MARYLAND

Legislative Session 2025, Legislative Day No. 18

Bill No. 84-25

Introduced by Ms. Hummer, Chair
(by request of the County Executive)

By the County Council, October 6, 2025

Introduced and first read on October 6, 2025
Public Hearing set for November 3, 2025
Bill Expires January 9, 2026

By Order: Kaley Schultze, Administrative Officer

A BILL ENTITLED

AN ORDINANCE concerning: Planning and Development – Master Plan for Water Supply and Sewerage Systems

FOR the purpose of amending the Master Plan for Water Supply and Sewerage Systems, 2022 to alter certain text and maps; and generally relating to the Master Plan for Water Supply and Sewerage Systems.

SECTION 1. *Be it enacted by the County Council of Anne Arundel County, Maryland*, That, after passage of this Ordinance and in accordance with any amendments to this Ordinance, the Planning and Zoning Officer shall amend text, maps, charts, graphs, photos, and tables in the Anne Arundel County Master Plan for Water Supply and Sewerage Systems, 2022, as amended (the "Plan") as follows:

1. On page 3-1 of the Plan, amend "3.1 General Information" as shown in Exhibit A attached hereto.

2. On page 3-2 of the Plan, substitute "Figure 3-1 Water Pressure Zones and Service Categories" for the figure shown in Exhibit B attached hereto.

3. On page 3-6 of the Plan, amend "Table 3-2 Annual Average and Maximum Day Demand Projections" as shown in Exhibit C attached hereto.

4. On page 3-7 of the Plan, amend "Table 3-3 Population and Household Projections, 2020-2050" as shown in Exhibit D attached hereto.

5. On page 3-10 of the Plan, amend "Table 3-4 Existing Well Fields" as shown in Exhibit E attached hereto.

6. On page 3-12 of the Plan, substitute "Figure 3-3 Existing and Potential Well Fields" for the figure as shown in Exhibit F attached hereto.

7. On page 3-13 of the Plan, amend "Table 3-6 Maximum Day Groundwater Supply (Existing and Future Potential)" as shown in Exhibit G attached hereto.

8. On page 3-22 of the Plan, insert the section entitled "3.5.3.1.12 Crownsville" as shown in Exhibit H attached hereto.

9. On page 3-25 of the Plan, amend "Table 3-9 Anne Arundel County Water Pressure Zones" as shown in Exhibit I attached hereto.

10. On page 3-26 of the Plan, amend "Table 3-10 Water System Storage Facilities" as shown in Exhibit J attached hereto.

11. On page 3-31 of the Plan, in the section entitled "2020/2030 Improvement Projects:", insert subsection (f) as shown in Exhibit K attached hereto.

12. On page 3-51 of the Plan, insert the section entitled "3.6.14 Crownsville 263 Water Pressure Zone" as shown in Exhibit L attached hereto.

13. On page 3-66 of the Plan, amend "Table 3-18 Water Capital Improvement Projects, Anne Arundel County" as shown in Exhibit M attached hereto.

14. On page 4-2 of the Plan, in "Table 4-1 Population and Household Forecasts, 2020-2050", under the section of the table entitled "Population" amend the rows as shown in Exhibit N attached hereto.

15. On page 4-3 of the Plan, substitute "Figure 4-1 Sewer Service Areas and Service Categories" for the figure as shown in Exhibit O attached hereto.

16. On Pages 4-4 through 4-6 of the Plan, in "Table 4-2 Projected Sewer Flow 2020-2050", amend the rows as shown in Exhibit P attached hereto.

17. On Page 4-51 of the Plan, amend the subsections entitled "4.7.6.1 General Description" and "4.7.6.2 Projected Population Growth and Flows" as shown in Exhibit Q attached hereto.

18. On Page 4-54 of the Plan, amend the section entitled "4.7.6.4 Pumping Station, Collection, and Conveyance Systems" as shown in Exhibit R attached hereto.

19. On Page 4-56 of the Plan, in "Table 4-22 Annapolis Sewer Service Area, Inventory of Pump Stations", insert the row as shown in Exhibit S attached hereto.

20. On Page 4-58 of the Plan, insert subsection "b)" as shown in Exhibit T attached hereto.

21. On Page 4-60 of the Plan, substitute "Figure 4-9 Annapolis SSA" for the figure as shown in Exhibit U attached hereto.

22. On Page 4-93 of the Plan, in "Table 4-37 Wastewater Capital Improvement Projects, Anne Arundel County", add the rows as shown in Exhibit V attached hereto.

SECTION 2. *And be it further enacted*, That, after passage of this Ordinance and in accordance with any amendments to this Ordinance, the Planning and Zoning Officer shall amend text, maps, charts, graphs, photos, and tables in the maps of the Anne Arundel County Master Plan for Water Supply and Sewerage Systems, 2022, as amended (the "Plan") as follows:

1. As shown on Exhibit W, attached hereto, on Water Map W-4, change the water service category for the property on Tax Map 22, Parcel 78 and labeled as "Police Special Ops Facility" from No Public Service in the Rural Service Area to Planned Service in the Glen Burnie High 295 Water Pressure Zone.

2. As shown on Exhibit X, attached hereto, on Water Maps W-6 and W-7, change the water service category for the properties labeled as "Crownsville Memorial Park" from No Public Service to Existing Service in the Proposed Crownsville 263 Water Pressure Zone; change the water service category for the property labeled as "Joint 911 Safety Center" from No Public Service to Planned Service in the Broad Creek 210 Water Pressure Zone; and insert the labels for the "Proposed Restricted Access 8-inch Water Main to Serve Planned Joint 911 Safety Center" and "Proposed Booster Pumping Station to Serve Joint 911 Public Safety Center", respectively.

3. As shown on Exhibit Y, attached hereto, on Sewer Maps S-6 and S-7, change the sewer service category for the properties labeled as "Crownsville Memorial Park" from Other and No Public Service to Existing Service in the Annapolis Sewer Service Area; for the same properties, amend the map to include a new sewage pump station; insert the label "Add a Restricted Access 8-inch force main that will convey sanitary flows from a Capital Facility sewerage pump station to the Annapolis Sewer Service Area"; and change the sewer service category for the property labeled as "Joint 911 Public Safety Center" from No Public Service to Planned Service in the Annapolis Sewer Service Area.

SECTION 3. *And be it further enacted*, That, after passage of this Ordinance, the Planning and Zoning Officer may correct obvious errors, capitalization, spelling, grammar, headings, and similar non-substantive matters and may publish the "Anne Arundel County Master Plan for Water Supply and Sewerage Systems, 2022, as amended" and may add or amend covers, title pages, pagination, table of contents, and graphics to improve readability.

SECTION 4. *And be it further enacted*, That a certified copy of the Plan, as amended by Sections 1 and 3 of this Ordinance, shall be permanently kept on file with the Administrative Officer to the County Council and the Office of Planning and Zoning.

SECTION 5. *And be it further enacted*, That a certified copy of the map amendments to the Plan, as amended by Sections 2 and 3 of this Ordinance, shall be permanently kept on file with the Administrative Officer to the County Council and the Office of Planning and Zoning.

SECTION 6. *And be it further enacted*, That this Ordinance shall take effect 45 days from the date it becomes law or upon approval of the Maryland Department of the Environment under the authority granted by § 9-507 of the Environment Article of the State Code, whichever is later. If approved, in whole or in part, after the 45 days the approved provisions of this Ordinance shall take effect on the date the notice is received by the Office of Planning and Zoning. If disapproved, in whole or in part, the disapproved portions of this Ordinance shall be null and void without further action by the County Council. The Office of Planning and Zoning, within 5 days after receiving any notice from the Maryland Department of the Environment, shall forward a copy to the Administrative Officer to the County Council.

3 Water Supply Systems

3.1 General Information

The County's water system is divided into ~~12~~ 13 pressure zones or service areas, each with a distinct hydraulic grade based on the ground elevations within that zone. Eight of the ~~12~~ 13 zones are interconnected, which enables the County to transfer water between these zones as needed. There are also two sub-pressure zones that are entirely within and served by a single larger pressure zone. (See Section 3.6 for a more detailed description of each pressure zone.) The remaining land not contained in one of the ~~12~~ 13 pressure zones is either served by the City of Annapolis, Fort Meade or is designated as Rural. The boundaries of these pressure zones are shown on the adopted Master Plan Maps of the Water System W-1 through W-12 and also on Figure 3-1.

The County has developed a plan for all significant aspects of its water supply and distribution system for current and future users. The planning process ensures that there will be an adequate supply of the highest quality water to meet the demands of its customers. The plan has enabled the County to optimize groundwater utilization as well as evaluate the potential for Aquifer Storage and Recovery or additional water purchase from the City of Baltimore to meet forecasted interim and long-term demands.

The Water Strategic Plan is a detailed engineering study of the County's water supply system and is updated approximately every 10 years. The plan includes water demand projections, and the evaluation of system performance under existing and proposed future conditions using hydraulic modeling. Recommendations for capital improvements and a proposed capital improvement schedule, with cost estimates and an implementation time frame is also included in the plan. PSC Engineers and Consultants, Inc. completed a study in 1989 which was the basis for the County's water master plan. O'Brien & Gere Engineers completed an update to the Water Strategic Plan in 2003. The most recent Plan was completed in April 2016 by Malcolm Pirnie/Arcadis.

In 2020, the County produced approximately 33.1 million gallons per day (MGD) (average day) and 47.4 MGD (max day) from groundwater sources and did not purchase any water from Baltimore City. The County does not currently have an agreement in place to purchase water from Baltimore City, but can do so on an emergency basis. Anne Arundel County has a limited amount of funds available in the budget for purchase of emergency water from Baltimore City if required. The City of Baltimore is currently in negotiations with surrounding jurisdictions for new agreements to establish water usage demands and pricing. Additional details about the Baltimore City water system are available on their website or by contacting the City of Baltimore, Department of Public Works, Bureau of Water and Wastewater.

3.2 Future Demand Projections

3.2.1 Introduction

Facility planning in the County is done in accordance with the needs identified in the Water Strategic Plan. These needs are based on demand projections developed by consolidating planning criteria from the Department of Public Works (DPW) and the Office of Planning and Zoning (OPZ). The DPW and OPZ in conjunction with Malcolm Pirnie/Arcadis developed new demand projections for the 2016 Comprehensive Water Strategic Plan (2016 WSP). These demands were calculated for the planning period (2012 to 2030) and for buildout conditions.

Figure 3-1 Water Pressure Zones and Service Categories

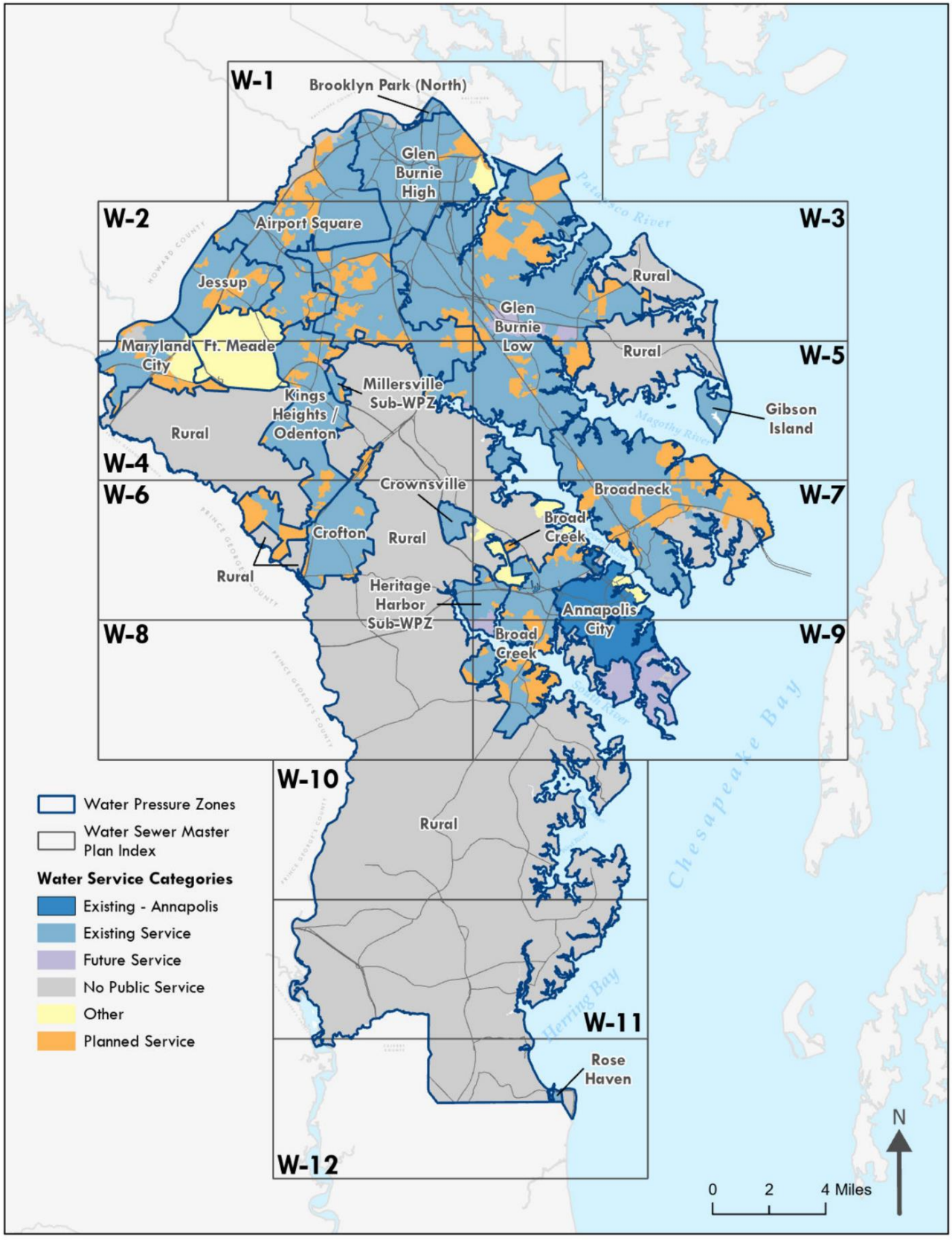


Table 3-2 Annual Average and Maximum Day Demand Projections

	Projected Average Day Demand (MGD)					
Water Pressure Zone	2010 [1]	2020 [1]	2025 [2]	2030 [3]	2035 [3]	Buildout [4]
Airport Square	3.39	2.94	3.27	3.60	3.75	5.82
Broad Creek	2.30	2.12	2.36	2.60	2.70	5.93
Broadneck/Glen Burnie Low	12.30	11.86	13.20	14.53	15.11	24.45
Brooklyn Park	0.50	0.15	0.17	0.18	0.19	0.66
Crofton	1.80	1.75	1.95	2.14	2.23	2.92
Crownsville	-	-	0.07	0.08	0.09	0.12
Gibson Island	0.08	0.08	0.09	0.10	0.10	0.18
Glen Burnie High	4.48	4.72	5.25	5.78	6.01	10.22
Herald Harbor	0.13	0.13	0.14	0.16	0.17	0.28
Jessup	1.40	2.04	2.27	2.50	2.60	3.99
Maryland City	1.24	1.13	1.26	1.38	1.44	3.46
Kings Heights / Odenton	2.77	2.76	3.07	3.38	3.52	8.37
Rose Haven	0.03	0.03	0.03	0.04	0.04	0.08
Total	30.42	29.71	~~33.06~~ 33.13	~~36.41~~ 36.49	~~37.85~~ 37.94	~~66.36~~ 66.48
	Projected Maximum Day Demand (MGD)[1]					
Water Pressure Zone	Max Day Factor [5]	2020	2025	2030	2035	Buildout
Airport Square	1.6	4.70	5.23	5.76	5.99	9.60
Broad Creek	1.8	3.82	4.25	4.68	4.86	11.00
Broadneck/Glen Burnie Low	1.6	18.98	21.12	23.26	24.18	39.00
Brooklyn Park	1.6	0.24	0.27	0.29	0.31	1.20
Crofton	1.6	2.80	3.12	3.43	3.57	3.90
Crownsville		-	0.08	0.13[6]	0.14[6]	0.19[6]
Gibson Island	3.0	0.24	0.27	0.29	0.31	0.53
Glen Burnie High	1.6	7.55	8.40	9.26	9.62	16.30
Herald Harbor	2.0	0.26	0.29	0.32	0.33	0.56
Jessup	1.6	3.26	3.63	4.00	4.16	6.30
Maryland City	1.6	1.81	2.01	2.22	2.30	5.60
Kings Heights / Odenton	1.6	4.42	4.91	5.41	5.63	14.20
Rose Haven	2.5	0.08	0.08	0.09	0.10	0.19
Total		48.15	~~53.58~~ 53.66	~~59.01~~ 59.14	~~61.34~~ 61.48	~~108.40~~ 108.59

Notes: 1. Years 2010 and 2020 reflect actual demand data from water billing records. Year 2010 was the baseline for the 2016 WSP. 2. Year 2025 was calculated by linear interpolation between actual 2020 demands and projected 2030 demands. 3. Totals for years 2030 and 2035 are projected demands from Figure 3-2. 4. Buildout demand projections are from the 2016 WSP. 5. The Maximum Day Flow Factors were calculated as part of the 2016 WSP. 6. Based on a Max Day/Avg Day peaking factor of 1.6

Table 3-3 Population and Household Projections, 2020-2050

POPULATION							
WATER PRESSURE ZONE	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Airport Square	21,541	23,489	25,928	28,986	31,595	33,212	33,898
Broad Creek	44,044	45,442	46,588	47,088	47,333	47,494	47,719
Broadneck/Glen Burnie Low	191,980	200,125	206,124	210,677	214,260	216,560	218,073
Brooklyn Park (North)	3,457	3,580	3,689	3,768	3,862	3,944	4,013
Crofton	29,200	30,813	32,379	33,683	34,543	35,246	35,718
Crownsville**	-	875	1,000	1,125	1,250	1,375	1,500
Gibson Island	329	335	339	345	350	356	362
Glen Burnie High	76,759	80,161	82,836	84,607	85,797	86,758	87,472
Herald Harbor	2,017	2,079	2,137	2,192	2,239	2,281	2,322
Jessup	19,364	23,103	26,241	28,106	28,770	29,328	29,732
Kings Heights/Odenton	51,873	55,985	59,424	61,080	62,529	63,565	64,463
Maryland City	19,160	20,628	22,049	22,864	23,479	23,892	24,193
Rose Haven	294	310	320	339	352	360	366
Ft. Meade (Private)	9,318	9,501	9,682	9,817	9,889	9,951	10,012
City of Annapolis*	43,046	44,284	45,522	46,760	47,998	49,236	50,646
Rural	80,313	81,852	82,956	83,902	84,428	84,936	85,246
COUNTY TOTAL	**592,695**	~~621,687~~ 622,562	~~646,214~~ 647,214	~~664,214~~ 665,339	~~677,424~~ 678,674	~~687,119~~ 688,494	~~694,235~~ 695,735
HOUSEHOLDS							
WATER PRESSURE ZONE	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Airport Square	8,361	9,117	10,064	11,635	13,203	13,879	14,486
Broad Creek	18,995	19,722	20,195	20,738	21,279	21,556	21,771
Broadneck/Glen Burnie Low	69,000	70,787	72,606	74,471	75,995	77,127	78,234
Brooklyn Park (North)	1,091	1,130	1,160	1,175	1,203	1,239	1,271
Crofton	10,246	10,518	10,753	11,186	11,572	11,828	12,068
Crownsville***	-	-	-	-	-	-	-
Gibson Island	197	198	200	202	205	209	213
Glen Burnie High	27,008	27,902	28,795	29,715	30,475	31,056	31,632
Herald Harbor	887	889	891	893	897	900	904
Jessup	7,176	8,562	9,725	10,516	10,843	11,052	11,254
Kings Heights/Odenton	20,952	22,313	23,702	24,671	25,356	25,776	26,200
Maryland City	7,054	7,694	8,296	8,634	8,735	8,810	8,881
Rose Haven	195	196	197	198	203	208	211
Ft. Meade (Private)	2,325	2,330	2,333	2,339	2,345	2,360	2,374
Annapolis City*	17,391	17,727	18,062	18,398	18,733	19,069	19,396
Rural	29,093	29,443	29,802	30,164	30,539	30,992	31,454
COUNTY TOTAL	**219,971**	**228,528**	**236,781**	**244,935**	**251,583**	**256,061**	**260,349**

Source: Draft Round 10 Projections for the Baltimore Metropolitan Council Cooperative Forecasting Group (2020-2050)
**City of Annapolis Source: BAE Urban Economics, June 2021 ** Crownsville source derived from demand projections based on 80 gpd per capita demand. ***Commercial or Institutional development only. No residential households.*

Pressure Zone	Existing Well Field (Fig. 3-3)	Facility Name	Number of Production Wells (Well No.)	Aquifer (1)	Permit Annual Avg. (MGD)	Permit Monthly Max. (MGD)	Total Well (MGD)	Best Well Out (MGD)	Groundwater Appropriation Permit #	GAP Expiration Date
		Zone Total:	**9**		**6.6**	**7.7**	**7.2**	**4.5**		
Herald Harbor (240 zone)	14	Herald Harbor WTP	2 (1, 2)	Lpat	0.16	0.26	1	0.5	AA1982G031 (03)	7/2029
Rose Haven (120 zone)	15	Rose Haven WTP	2 (1,2)	Aquia	0.07	0.135	0.576	0.288	AA1948G001 (05)	7/2027
Crownsville	16	Crownsville WTP	2 (4,5)	Upat	0.120	0.156	0.853	0.120	AA1954G001 (06)	6/2030
		WELL TOTALS:	~~54~~ 56		~~55.8~~ 55.92	~~67.2~~ 67.35	~~72.9~~ 73.8	~~42.9~~ 43.02		

Notes:
(1) Patuxent (Ptxn); Lower Patapsco (Lpat); Upper Patapsco (Upat)
(2) Existing facilities currently out of service
(3) Standby facility

Figure 3-3 Existing and Potential Well Fields

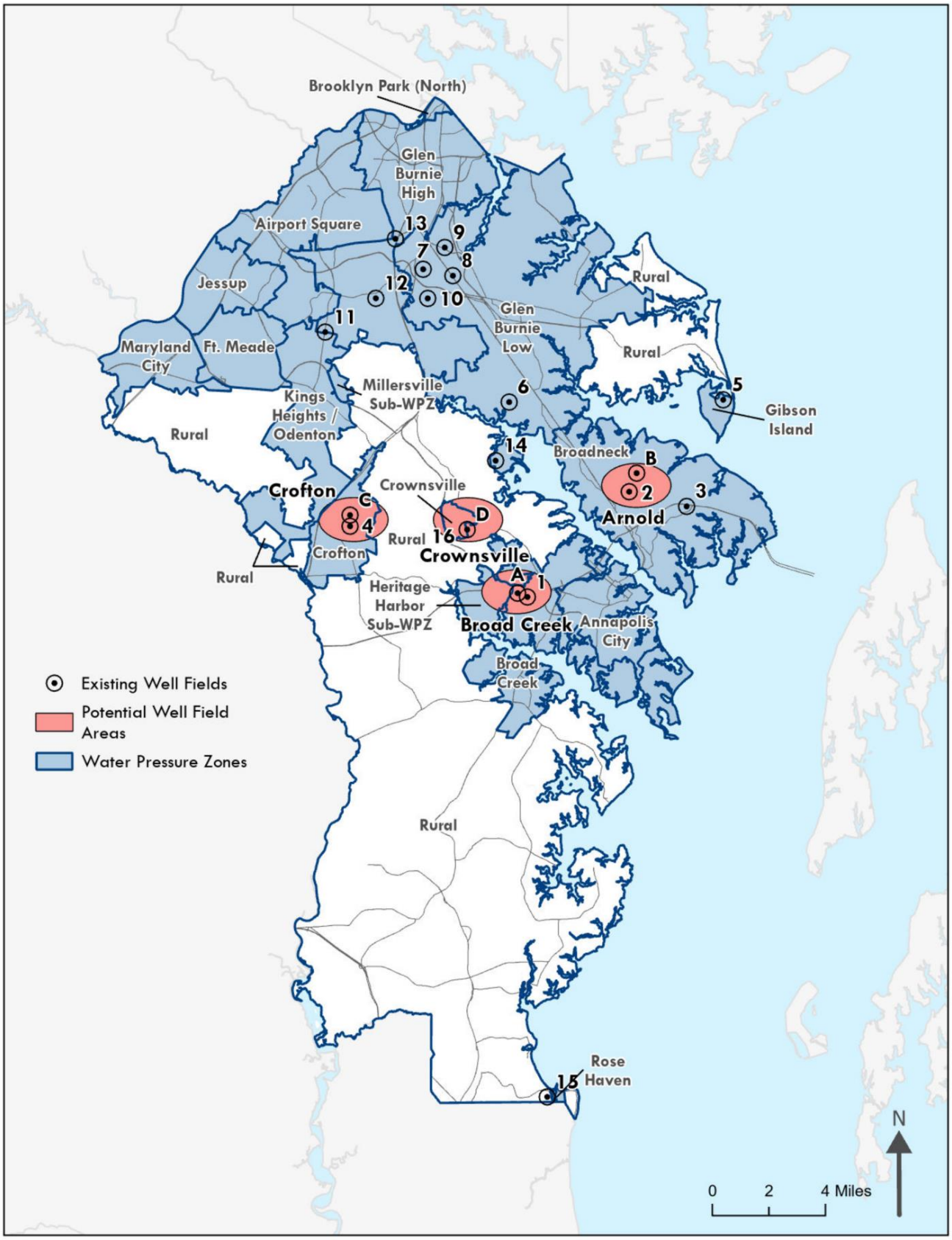


Table 3-6 Maximum Day Groundwater Supply (Existing and Future Potential)

Pressure Zone	Facility Name	Existing Max. Day Capacity at WTP		Future Max. Day Withdrawal (Required at Buildout)	
		Existing Well Field (Fig 3-3)	(MGD)	Future Well Field (Fig 3-3)	Max Day (Avg x Peaking Factor*) (MGD)
Broad Creek 210	Broad Creek II WTP	1	8.0	A	11.0
	Broad Creek I WTP(1)		2.9		
Broadneck 220	Arnold WTP	2	16.0	B	28.0
Crofton 290	Crofton Meadows II WTP	4	15.0	C	28.0
	Crofton Meadows I WTP (1)		4.2		
Crownsville	Crownsville WTP	16	1.0	D	0.16
Multiple Zones	Millersville WTP (future)			D	32.0
Gibson Island 160 (3)	Gibson Island	5	0.3		0.6
Glen Burnie Low 220	Severndale WTP	6	8.0		8.0
	Phillip Drive SCW(2)	7	0.0		
	Harundale WTP (1)	8	2.1		
	Elvaton Road SCW(1)	10	0.9		
Glen Burnie High 295	Telegraph Road SCW	11	1.0		
	Stevenson Road SCW	12	0.6		
	Dorsey Road WTP	13	3.5		
Herald Harbor 240	Herald Harbor WTP	14	0.6		0.6
Rose Haven 120	Rose Haven WTP	15	0.3		0.3
TOTAL (4)			~~63.3~~ 64.3		~~108.5~~ 108.21

** A peaking factor of 1.6 was used for all zones except Gibson Island (3.0), Herald Harbor (2.0) and Rose Haven (2.5)*
Notes: (1) Standby facility. (2) Facility is out of service. (3) Existing total well of 1.0 is greater than future max day withdrawal at buildout of 0.6. Therefore, a future well field is not included for this zone on Figure 3-3. (4) Total existing capacity is limited by the WTP capacity, which may be less that the total existing well capacity.

Phase I: Construct the Millersville WTP with treatment capacity sufficient to treat localized wellfield withdrawals (approximately 10.0 MGD); leaving adequate space for future expansions. The withdrawals from this location may be limited due to the surrounding wellfields. The available production from this location will need to be verified at a future date closer to anticipated construction.

Phase II: Construct a single raw water pipeline from Crownsville wellfield to Millersville WTP and expand Millersville WTP to treat approximately 24.0 MGD. The primary driver for initial plant construction will be the Glen Burnie High and Low demands as well as the amount of withdrawals from Baltimore City. If both the demand in Glen Burnie Low increases, and supply from Baltimore City into the Glen Burnie High Zone is reduced, the resulting demand will drive this additional expansion of Millersville. Furthermore, growth in Airport Square and the reduction or elimination of the Nursery Road connection will also drive this expansion.

Phase III: Expand the well fields and construct a second raw water pipeline. Expand Millersville WTP to approximately 32.0 MGD. The need for this expansion will be driven by demands in Kings Heights, Jessup, Maryland City, and Airport Square.

3.5.3.1.12 Crownsville

The 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.

3.5.3.2 Transmission System

North-South Transmission Main

The 1989 and 2003 strategic plans focused development of two main arteries for conveying water from Crofton to Glen Burnie and from Arnold to Glen Burnie. These two north-south arteries allow additional supply from groundwater sources to be conveyed from the southern pressure zones to the northern pressure zones, reducing dependency on Baltimore City. Proposed East-West distribution mains in the 220, 295, and 350 Zones will further increase the hydraulic linkage within the system allowing water to more freely move from the Crofton Meadows and Arnold to the northern pressure zones.

Arnold to Glen Burnie Transmission Main

The Arnold to Glen Burnie transmission system includes approximately 57,000 feet of 36-inch water main that begins at the Arnold WTP and continues along College Parkway to Ritchie Highway. The alignment continues north along the Ritchie Highway corridor to Mountain Road where it terminates with a connection to an existing 30-inch main. This transmission main allows the 16.0 MGD Arnold WTP to convey

before full ASR well system operation. Incremental benefits will be realized after each well in the program is brought on-line. A critical challenge for the program will be meeting regulatory needs and concerns.

3.6 Water Pressure Zone Descriptions

As the County's water distribution system has developed, interconnections have been constructed that essentially connect all served areas, excluding Broad Creek, Gibson Island, Herald Harbor and Rose Haven. Therefore, although water may be produced at a specific point, it is widely distributed throughout the County. The water pressure zones, sub-zones and the City of Annapolis are listed in Table 3-9. For each pressure zone, storage tank overflow elevations (OFE) and the County design criteria for the maximum first floor elevation (FFE) are also included. Table 3-10 lists the existing and future required water system storage tanks by pressure zone, along with the capacity and proposed year of construction, based on future demand projections.

Table 3-9 Anne Arundel County Water Pressure Zones

Water Pressure Zones	OFE* (feet)	Max FFE* (feet)	Water Pressure Sub-Zones	Gradient (feet)	Max FFE* (feet)	Major Private Systems within Pressure Zones[1]
Airport Square	350	230				The Provinces; Lake Village
Broad Creek	210	90	Heritage Harbor	285	150	
Broadneck / Glen Burnie Low	220	100				
Brooklyn Park North[2]	210	90				
Crofton	290	170				
Crownsville	263	143				
Gibson Island	160	40				
Glen Burnie High	295	175				
Herald Harbor	240	120				
Jessup	400	280				The Provinces
Kings Heights/ Odenton	330	210	Millersville	360	240	Pioneer City; Still Meadows; Fort Meade[3]
Maryland City	369	250				Fort Meade[3]
Rose Haven	130	10				
City of Annapolis - not served by County	173	--				

*Notes: * OFE = Overflow Elevation; FFE = First Floor Elevation (recommended). 1. Major private systems considered greater than 0.1 MGD 2. Currently supplied by the Glen Burnie High PZ, but can be supplied by Baltimore City if necessary. 3. The Fort Meade Private Water System is located between the Maryland City 369 Zone and the Kings Heights/Odenton 330 Zone. This system is divided into a north 391 Zone and a south 288 Zone*

Table 3-10 Water System Storage Facilities

Water Pressure Zone / Facility	200 ft Map	Existing Capacity (MG)	Proposed Capacity (MG)	Proposed Year to Construct[1]	Total Capacity At Build-Out (MG)
Airport Square 350 Zone					
Arundel Mills ET	F7	2.00			2.00
Disney Road ET	G9	2.00			2.00
Andover ET			1.00	2030+	1.00
Ridge Road ET			2.00	2030+	2.00
Total for Zone					**7.00**
Broad Creek 210 Zone					
Broad Creek ET	Q20	0.50			4
Broad Creek II WTP GST	Q20	3.00			3.00
Central Avenue ET	P24	0.75			0.75
Generals Highway ET	Q19	2.00			2.00
Annapolis Neck ET			1.00	2030+	1.00
Total for Zone					**6.75**
Heritage Harbor (Subzone of Broad Creek)					
Heritage Harbor HPT	P20	0.012			4
Heritage Harbor ET			1.00	2024	1.00
Total for Subzone					**1.00**
Broadneck 220 Zone					
Amberly ET[2]	V17	0.50			4
Arnold ET	T16	1.00			1.00
Arnold WTP GST	U16	3.00			3.00
Belvedere SP[2]	T14	0.10			4
Anne Arundel Community College ET			1.00	2030+	1.00
Cape Saint Claire ET			2.00	2030+	2.00
Total for Zone					**7.00**
Crownsville 263 Zone					
Front Tank	Q20	.25			
Back Tank	Q21	.25			
Glen Burnie Low 220 Zone					
Crain Highway ET	L8	1.00			1.00
Jacobsville ET	R9	2.00			2.00
Jumpers Hole ET	O12	1.00			1.00
Old Mill ET	M9	1.00			1.00
Severndale WTP GST	P13	3.00			3.00
Elvaton ET	O10	2.00			2.00
Fort Smallwood Road ET	S9	2.00			2.00
Freetown ET			2.00	2030+	2.00
Total for Zone					**14.00**
Crofton 290 Zone					
Crofton Meadows II WTP GST	J17	2 @1.50			3.00

d) Construct 2,000 feet of new 8-inch transmission main from the plant to serve Broad Creek 210 customers west of the plant. This would allow the 16-inch transmission line headed to Heritage Harbor to be converted to the 270 gradient.
e) Construct approximately 200 feet of 36-inch pipe parallel to the existing Broad Creek WTP discharge main, reducing discharge restrictions and to provide adequate capacity for the future planned expansion of the Broad Creek WTP to 11.0 MGD.
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.

Buildout Improvement Projects:

a) Construct a 16-inch main along Mayo Road to complete the loop between MD Route 3 and Central Avenue.
b) Construct 4,000 feet of 20-inch transmission main parallel to existing transmission mains north of MD Route 665 (along Solomons Island Road and Forest Drive and connecting to Riva Road) to provide sufficient capacity to convey flow from the future expanded plant to serve the increased demands in the northern part of the zone and the Annapolis Neck region.
c) Construct 26,000 feet of 20-inch transmission main that will connect the Annapolis Neck area to the primary Broad Creek service area. The line will run through Annapolis, but is not expected to be connected to the Annapolis City distribution system.
d) Construct a 1-MG Annapolis Neck tank to provide fire flow storage and redundancy if this isolated region is served in the future.
e) Construct 19,000 feet of 16-inch pipe and 4,000 feet of 20-inch pipe from the Broad Creek WTP, along Harry Truman and MD Route 2 south to Mayo Road, to increase the overall transmission in the pressure zone. The size, length and priority of this project will be driven by the rate of demand growth in the area in the future.
f) Expand the Broad Creek WTP to provide a total supply of 11.0 MGD in order to adequately supply buildout demand in this pressure zone.

3.6.3 Broadneck/Glen Burnie Low 220 Water Pressure Zone

3.6.3.1 General Description

The Broadneck/Glen Burnie Low 220 water pressure zone is the largest pressure zone within the County's public water system. It encompasses approximately 46,548 acres of land and extends from Pasadena to the Broadneck peninsula. The Broadneck and Glen Burnie areas of the overall 220 pressure zone are described below. Figure 3-1 shows the Broadneck/Glen Burnie 220 Zone in relation to the other pressure zones.

Broadneck 220 Zone (General Description)

The Broadneck 220 water pressure zone is situated in the eastern central portion of the County. Division valves located at Old County Road and Round Bay Road separate the Broadneck 220 Zone from the Glen Burnie Low 220 Zone. The Broadneck Zone is generally described as the Broadneck peninsula south of Cypress Creek. It includes the communities of Arnold and Cape Saint Claire as well as the Anne Arundel Community College's main campus and the David Taylor Naval Research Center.

The topography of the area varies from elevation 2 to 155 feet, while piping elevations range from 3 to 148 feet indicating those elevations served within the zone. Static pressures generally range from 85 psi to 30

It is the City's position that all three of the areas should be added to the County water service area and service of County properties transferred to the higher Broad Creek 210 pressure zone. This would increase the static pressure of properties, will allow for properties with wells to connect to public water and will simplify the water service area boundaries.

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 water 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 263 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 water pressure 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.

Project Name	Project Number	Detailed Description
CM II WTP Emergency Generator (06)	W805006	This contract includes the design and construction of one portable generator for Crofton Meadows II wells 8/9, 10/11 with a quick connect. The generator installation includes generator sets, fuel storage, and transfer switches, and other accessories necessary for a complete operational system. The portable sets will be 550 KW for wells 8, 9, 10, and 11.
CM Portable Gen Wells 8 - 11	W805011	This contract includes design and construction of one portable generator for Crofton Meadows wells 8/9 & 10/11 with a quick connect .The generator installation includes generator sets, fuel storage, and transfer switches and other accessories necessary for a complete operational system. The size of the generator be roughly 550 kW.
Coriander Place WM Extension (01)	W805901	This project is for the design, right of way acquisition and construction of approximately 1,400 LF of water main along Coriander Place and portions of Cardamon Drive and Oregano Drive. This is for a petition project.
Coriander Pl-Gngrvlle Mnr Wtr (66)	Y514266	This contract will perform a feasibility study and design for providing water service to 15 properties along Coriander Place and a portion of Cardamon Dr. This work in being done as part of a valid petition project. Construction, & Inspection being done under W805901.
Crofton Mdws WTP Site Valves (06)	W801406	This contract includes design, construction, and inspection services for the installation of on-site yard valves at the Crofton Meadows WTP site.
Crofton Mead-12&13 Raw Wtr Ln (04)	W778604	This contract includes the installation of a large diameter raw water line from the wellhouse for wells 12/13 to the Crofton Meadows II WTP. The basis of the design contract will be "progressive award"
Crofton Meadows ET Rehab (58)	X787058	The contract is for the design and construction of the rehabilitation of the Crofton Meadows Elevated Water Tank.
Crofton Meadows II Exp Ph 2 (01)	W801401	This contract will increase the capacity of the Crofton Meadows II WTP from 15 to 20.0 MGD by adding additional sedimentation basins, filters and raw water wells. Well field will be increased from 15.0 to 20.0 MGD.
Crofton Meadows II WTP 12&13 (03)	W778603	This contract includes the acquisition of a well site and installing two raw water production wells and a well house on the site. Location: intersection of St. Stephens Church Rd and Johns Hopkins Rd. Test wells 12T and 13T were completed under contract W778606. Also, see W778604 for the raw water TM.
Crofton Sphere EWST Rehab (54)	X787054	Rehabilitation of the 500,000 Gallon Crofton Sphere EWT. This contract will address deficiencies identified in WIT's inspection report dated January 2015.
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

Table 4-1 Population and Household Forecasts, 2020-2050

	POPULATION						
SEWER SERVICE AREA	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Baltimore City	45,612	48,737	53,211	58,334	62,981	64,707	65,538
Cox Creek	153,472	161,901	168,058	172,540	174,762	176,915	178,157
Maryland City	25,506	27,460	29,352	30,437	31,256	31,806	32,212
Patuxent	86,382	94,430	100,231	103,024	105,068	107,125	109,011
Broadneck	89,090	91,184	92,753	93,907	94,693	95,467	95,930
Annapolis	87,880	90,245	92,360	93,724	95,111	96,401	97,878
City of Annapolis*	40,246	41,484	42,722	43,960	45,198	46,436	47,846
County Portion	47,634	~~48,761~~ 49,636	~~49,638~~ 50,638	~~49,764~~ 50,889	~~49,913~~ 51,163	~~49,965~~ 51,340	~~50,032~~ 51,532
Mayo-Glebe Heights	8,816	9,081	9,330	9,552	9,737	9,873	9,986
Broadwater	10,890	11,383	11,842	12,185	12,440	12,640	12,818
Piney Orchard	12,433	13,120	13,787	14,302	14,667	14,979	15,180
Bodkin Pt./Pinehurst	286	290	294	298	303	308	314
Rose Haven	743	755	767	780	794	808	820
Ft. Meade (Private)	8,645	8,815	8,983	9,108	9,175	9,233	9,290
Rural	62,940	64,286	65,246	66,023	66,437	66,857	67,101
COUNTY TOTAL	**592,695**	~~621,687~~ 622,562	~~646,214~~ 647,214	~~664,214~~ 665,339	~~677,424~~ 678,674	~~687,119~~ 688,494	~~694,235~~ 695,735
	HOUSEHOLDS						
SEWER SERVICE AREA	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Baltimore City	17,847	18,789	20,450	22,619	24,621	25,296	25,621
Cox Creek	57,897	60,712	62,821	64,896	66,104	67,301	68,393
Maryland City	7,624	8,208	8,684	9,005	9,247	9,410	9,530
Patuxent	33,054	35,634	37,623	38,871	39,842	40,822	41,741
Broadneck	30,351	30,905	31,437	31,828	32,294	32,558	32,716
Annapolis	34,781	35,345	36,113	36,906	37,533	38,044	40,007
City of Annapolis*	16,541	16,877	17,212	17,548	17,883	18,219	18,546
County Portion	19,289	19,388	19,703	20,290	20,530	20,718	21,461
Mayo-Glebe Heights	3,271	3,349	3,441	3,523	3,591	3,641	3,683
Broadwater	4,610	4,706	4,856	4,997	5,102	5,184	5,257
Piney Orchard	4,821	4,992	5,246	5,442	5,581	5,700	5,776
Bodkin Pt./Pinehurst	160	162	164	166	169	172	175
Rose Haven	409	412	415	422	430	438	445
Ft. Meade (Private)	2,325	2,331	2,337	2,345	2,352	2,367	2,382
Rural	21,772	22,063	22,392	22,983	23,837	24,235	24,623
COUNTY TOTAL	**219,971**	**228,528**	**236,781**	**244,935**	**251,583**	**256,061**	**260,349**

Source: Draft Round 10 Projections for the Baltimore Metropolitan Council Cooperative Forecasting Group (2020-2050)
**City of Annapolis Source: BAE Urban Economics, June 2021*

Figure 4-1 Sewer Service Areas and Service Categories

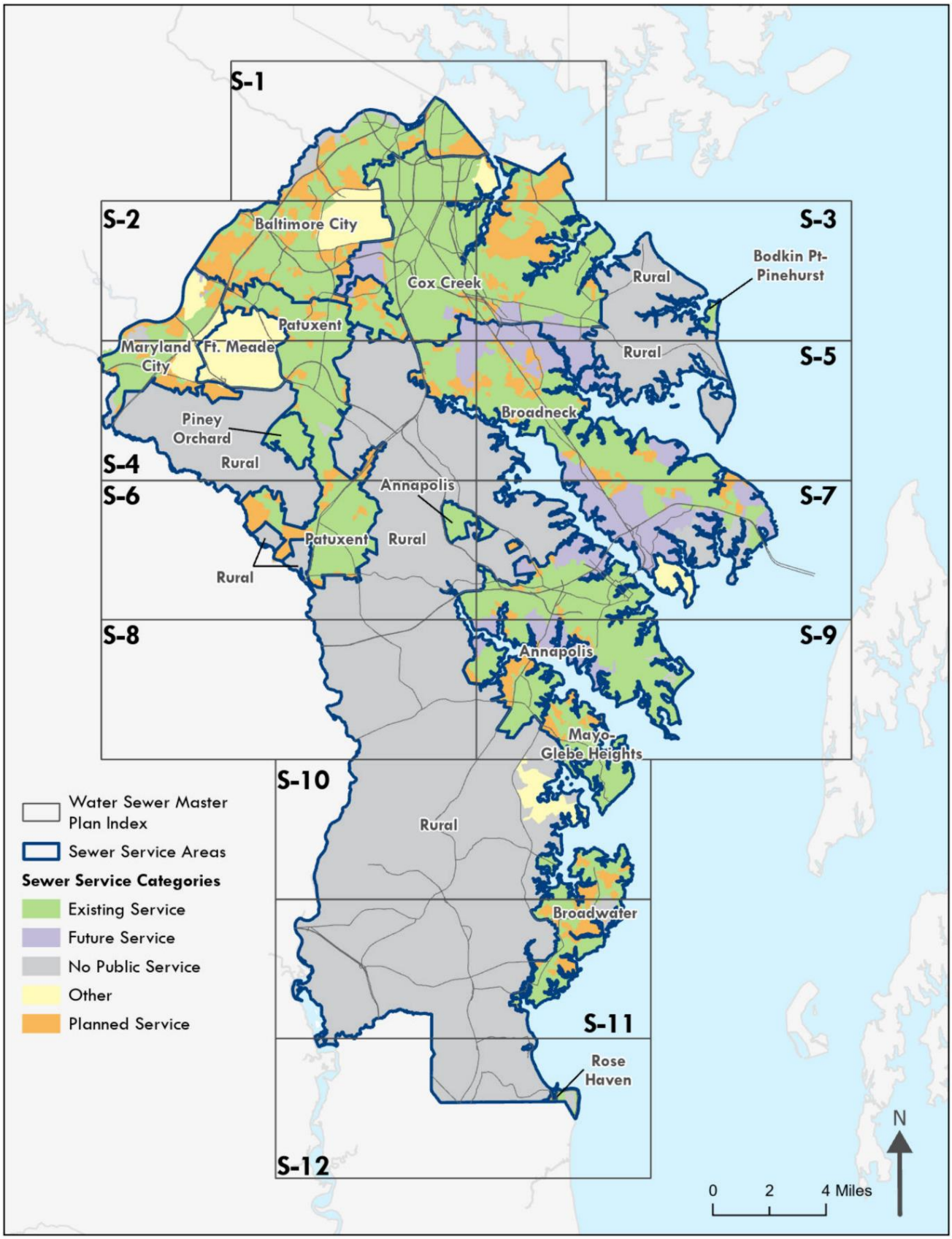


Table 4-2 Projected Sewer Flow 2020-2050

Sewer Service Area	2020 Total Flow (MGD)	Capacity (MGD)	% of Capacity	2025 Total Flow (MGD)	Capacity (MGD)	% of Capacity
Baltimore City	4.69	6.39	73.4	5.39	6.39	84.4
Cox Creek	11.34	15.00	75.6	12.01	15.00	80.1
Maryland City	1.39	3.33	41.7	1.97	3.33	59.2
Patuxent	5.77	10.50	55.0	6.44	10.5	61.3
Broadneck	4.66	8.00	58.3	5.19	8.00	64.9
Annapolis WRF Total	8.72	13.00	67.1	9.15	13.00	70.4
Annapolis: City/USNA	3.93	6.70	58.7	4.15	6.70	61.9
Annapolis: County Total	4.79	6.30	76.0	~~5.00~~ 5.07	6.30	~~79.4~~ 80.5
Annapolis: AA County	4.15			~~4.33~~ 4.40		
Mayo Regional SPS[c]	0.64	1.14	56.1	0.67	1.14	58.8
Broadwater	1.24	2.00	62.0	1.29	2.00	64.5
Piney Orchard	0.57	1.20	47.5	0.59	1.20	49.2
Bodkin Point	[a]	0.007		[a]	0.007	
Rose Haven/Holland Point	0.10	0.14	71.4	0.10	0.14	71.6
County Treated Total	**33.69**			~~**36.64**~~ **36.71**		
Sewer Service Area	**2030 Total Flow (MGD)**	**Capacity (MGD)**	**% of Capacity**	**2035 Total Flow (MGD)**	**Capacity (MGD)**	**% of Capacity**
Baltimore City	5.83	6.39[b]	91.2	6.15	6.39[b]	96.2
Cox Creek	12.98	15.00	86.5	13.48	15.00	89.9
Maryland City	2.06	3.33	61.9	2.14	3.33	64.3
Patuxent	6.62	10.50	63.0	6.75	10.50	64.3
Broadneck	5.70	8.00	71.3	5.82	8.00	72.8
Annapolis WRF Total	9.39	13.00	72.2	9.62	13.00	74.0
Annapolis: City/USNA	4.27	6.70	63.7	4.40	6.70	65.7
Annapolis: County Total	~~5.12~~ 5.2	6.30	~~81.3~~ 82.5	~~5.22~~ 5.31	6.30	~~82.9~~ 84.3
Annapolis: AA County	~~4.43~~ 4.51			~~4.51~~ 4.60		
Mayo Regional SPS[c]	0.69	1.14	60.5	0.71	1.14	62.3
Broadwater	1.29	2.00	64.5	1.30	2.00	65.0

Piney Orchard	0.60	1.20	50.0	0.62	1.20	51.7
Bodkin Point	[a]	0.007		[a]	0.007	
Rose Haven/Holland Point	0.10	0.14	71.9	0.10	0.14	72.4
County Treated Total	~~38.64~~ 38.71			~~39.73~~ 39.82		
Sewer Service Area	**2040 Total Flow (MGD)**	**Capacity (MGD)**	**% of Capacity**	**2045 Total Flow (MGD)**	**Capacity (MGD)**	**% of Capacity**
Baltimore City	6.30	6.39[b]	98.6	6.44	6.39[b]	100.8
Cox Creek	13.73	15.00[b]	91.5	13.86	15.00[b]	92.4
Maryland City	2.18	3.33	65.5	2.25	3.33	67.6
Patuxent	6.87	10.50	65.4	6.90	10.50	65.7
Broadneck	5.92	8.00	74.0	6.02	8.00	75.3
Annapolis WRF Total	9.83	13.00	75.6	10	13.00	76.9
Annapolis: City/USNA	4.52	6.70	67.5	4.64	6.70	69.3
Annapolis: County Total	~~5.31~~ 5.41	6.30	~~84.3~~ 85.9	~~5.36~~ 5.47	6.30	~~85.1~~ 86.8
Annapolis: AA County	~~4.59~~ 4.69			~~4.61~~ 4.72		
Mayo Regional SPS[c]	0.72	1.14	63.2	0.75	1.14	65.8
Broadwater	1.31	2.00	65.5	1.33	2.00	66.5
Piney Orchard	0.63	1.20	52.5	0.64	1.20	53.3
Bodkin Point	[a]	0.007		[a]	0.007	
Rose Haven/Holland Point	0.10	0.14	72.6	0.10	0.14	72.8
County Treated Total:	~~40.47~~ 40.57			~~41.00~~ 41.11		

Sewer Service Area	**2050 Total Flow (MGD)**	**Capacity (MGD)**	**% of Capacity**	**Build-out Flows[d] (MGD)**
Baltimore City	6.58	6.39[b]	103.0	10.00
Cox Creek	14.00	15.00[b]	93.3	22.57
Maryland City	2.34	3.33	70.3	3.70
Patuxent	6.94	10.50	66.1	13.81
Broadneck	6.11	8.00	76.4	10.69

Annapolis WRF Total	10.16	13.00	78.1	15.01
Annapolis: City/USNA	4.78	6.70	71.3	5.67
Annapolis: County Total	~~5.40~~ 5.51	6.30	~~85.7~~ 87.5	~~9.34~~ 9.45
Annapolis: AA County	~~4.63~~ 4.74			~~8.20~~ 8.31
Mayo Regional SPS[c]	0.77	1.14	67.1	1.14
Broadwater	1.35	2.00	67.3	2.58
Piney Orchard	0.66	1.20	55.4	0.75
Bodkin Point	a	0.007		0.09
Rose Haven/Holland Point	0.10	0.14	73.8	0.20
County Treated Total:	~~41.58~~ 41.69			~~69.11~~ 69.22

Source: Anne Arundel County November 2021 Allocation Report, AACO Wastewater Flow Projection Tool, and the City of Annapolis
See Appendix H for more information.
Notes:
(a) Flow not metered for existing 16 homes. Future demand is not significant.
(b) These WRFs are anticipated to require an expansion, a re-rating, or an additional flow allocation to meet future flow predictions.
(c) Sewer flows for the Mayo SSA are now conveyed to the Annapolis WRF. The Mayo WRF and Glebe Heights Small Communal are being decommissioned. As requested by MDE, flows from the Mayo Regional SPS are being tracked separately in this table.
(d) Build-out flows for the County were computed assuming full development of all property in the SSA at current zoning as described in Appendix A. The sewer demands shown for 2020 through 2050 were computed using the AACO Wastewater Flow Projection Tool. The tool uses the existing WRF Allocation Flow as a starting point and extrapolates flows into the future generally using Traffic Analysis Zone (TAZ) projections.

4.7.6 Annapolis Sewer Service Area No. 6

4.7.6.1 General Description

The Annapolis sewer service area includes the City of Annapolis and the surrounding area. It is generally bounded by the Severn River, the Chesapeake Bay, South River and MD 50. The southern boundary extends beyond the South River to include the Woodland Beach, South River Colony, and Sylvan Shores drainage areas. The northwestern boundary extends north of Route 50 to include the Bacon Ridge Branch Watershed. The boundaries are shown on Master Plan Maps S-6 through S-9.

The service area encompasses ~~19,619~~ 20,629 acres, of which 4,892 acres fall within the City of Annapolis. The Annapolis area is heavily oriented to water-related recreation and commercial ventures. Other than the City itself, other urbanized areas include the Parole Growth Management Area and the MD Route 2 corridor in Edgewater. There are approximately 617 acres of vacant land within the service area that could be served by public sewer in the future.

According to the County's current Land Use Plan, the majority of land in the County portion of the service area (excluding the City of Annapolis) is planned for low-density residential use. Densities are higher in the Heritage Harbor and Riva Trace communities and in the Woodland Beach community in Edgewater. Commercial and office uses are planned primarily in the Parole Town Center and along MD 2 in Edgewater. The Parole Town Center is an existing mixed-use activity center that includes retail and office uses, regional commercial services and a variety of types of residential uses.

The City of Annapolis is primarily developed. However, redevelopment of property and several annexations from the County have occurred in recent years. Future development will be primarily from infill of single-family homes and redevelopment of commercial properties. West Street (MD 450) has been targeted as a revitalization corridor.

There are five privately or independently owned and / or operated systems located within the Annapolis SSA. These systems are described in Section 4.3.1, listed in Table 4- 4 and depicted on Master Plan Maps S-7 and S-9.

4.7.6.2 Projected Population Growth and Flows

Population within the Annapolis sewer service area is projected to increase to ~~97,878~~ 99,378 by the year 2050. The County portion of the population increase is ~~50,032~~ 51,532 and the City portion is 47,846. Future County residential growth will primarily be concentrated in the Parole Town Center with lower density infill development occurring in other areas on the Annapolis Neck. County commercial and office uses will continue to be concentrated in the Parole Town Center and along MD 2 and Mayo Road in Edgewater. The Annapolis Town Center at Parole mixed use development is near completion and includes a hotel, multifamily condominium units, townhouses, retail and office uses.

For the City, the growth potential will be focused primarily on the redevelopment of various properties currently zoned for commercial use that will be targeted for mixed-use development in the future. With few exceptions, these properties are previously developed sites that could accommodate additional uses and density, and in so doing provide greater value to the City. The Future Land Use Map included in the City's Annapolis Ahead 2040 Comprehensive Plan, which is currently in draft form, identifies these properties as "Mixed-Use". The adopted forecast of new household growth for the City would result in adding roughly 1,500 households through 2045. This growth will generally be allocated to three groups:

- About 37 percent to completing the remaining development pipeline;
- About 19 percent to building out the remaining zoned capacity (e.g. vacant lots); and

Table 4-21 City of Annapolis Sewer Flow Projections

Year	Average Daily Flow (MGD)
2020	3.93
2025	4.15
2030	4.27
2035	4.40
2040	4.52
2045	4.64
2050	4.78

4.7.6.4 Pumping Station, Collection, and Conveyance System

The inventory of the City of Annapolis owned and operated pump stations is included in Table 4-22 and a schematic of the relationship between pump stations and the connecting infrastructure (pressure and gravity) is provided in Figure 4-8. The City owned and operated collection system within the SSA consists of a network of gravity collectors and force mains and includes 26 sewer pumping stations. The system serves approximately 98% of the City. Flows from the Naval Academy pass through the City collection system before reaching the Annapolis WRF.

A list of County pump stations is also included in Table 4-22 and a schematic of the relationship between pump stations and the connecting infrastructure (pressure and gravity) is provided in Figure 4-9. The inventory of this infrastructure within the SSA includes the following:

a) ~~61~~ 62 County-owned sewer pump stations
b) ~~138.7~~ 140.7 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~~ 44.10 miles of force mains ranging in size from 1.5 to 30 inches in diameter
e) Approximately 13,700 connections

The integral backbone of the County's portion of the Annapolis service area conveyance system is a 30-inch diameter manifold force main that conveys sewage from the Parole sewer pump station to the Annapolis WRF. Manifold force mains add complexity to the system as head conditions are affected by the discharge rates of the other connected pump stations.

A large area designated as planned service lies along Forest Drive south of Bywater Road. Development in this area would require comprehensive planning to designate drainage areas that could be served by pump stations designed and constructed to discharge against the head conditions of Parole and Hunt Meadows pump stations.

Station Name	Owner	Address/Location	Master Plan Map	Operating Map 200/40	A.A. County Station ID Number	Design Capacity (MGD)
Arundel on the Bay V	County	1260F Washington Dr	S-9	V24D3&4	700128	1.3536
Arundel on the Bay VI	County	3331 Thomas Point Rd	S-9	U24A1	700127	1.872
Bay Ridge I	County	36 Bay Dr	S-9	V23B1	700055	1.224
Bay Ridge II	County	226 W Lake Dr	S-9	V22C2	700053	0.1152
Bay Ridge IX	County	17 River Dr	S-9	W23D4	700165	0.22032
Bay Ridge V	County	69 Bay Dr	S-9	V23A2	700052	0.8352
Bay Ridge VI	County	2 Bay Dr	S-9	V23B3	700056	0.98208
Bay Ridge VII	County	148 E Lake Dr	S-9	V23A3	700054	0.18288
Bay Ridge VIII	County	42R E Lake Dr	S-9	V22B2	700164	0.527
Bay View	County	1850 Shore Dr	S-9	Q24A4	700092	1.656
Bentley Road	County	1018 Shore Dr	S-9	Q23B2	700046	0.2592
Berkshire	County	3095 Newington Dr	S-9	O22B2	700151	0.12096
Broad Creek	County	1F Harry S Truman Pkwy	S-7	P20A3	700226	0.144
Broad Reach	County	434 Lightship Landing Way	S-7	Q21A2	700331	0.1368
Cape St. John I	County	298 Cape St John Rd	S-9	P21B3	700136	1.0267
Cape St. John II	County	3001 Friends Rd	S-9	P22A4	700137	0.144
Cape St. John III	County	3033 Friends Rd	S-9	P22A3	700138	0.144
Cape St. John IV	County	2989F Poplar Trl	S-9	P22A4	700139	0.2304
Cape St. John V	County	2998A Dogwood Trl	S-9	P22A1	700140	0.144
Cape St. John VI	County	210 Cape Saint John Rd	S-9	Q22D4	700141	0.144
Cape St. John VII	County	123F Island View Rd	S-9	Q22D4	700142	0.144
Chesapeake Harbour I	County	2111 Chesapeake Harbour Dr E	S-9	U22A1	700200	0.34704
Chesapeake Harbour II	County	7008R Channel Village Ct	S-9	U21B2	700222	0.3744
Crownsville	County	1215 Farm Road	S-6	Q20	N/A	0.79
Dreams Landing	County	550 Dreams Landing Way	S-7	S18B4	700312	0.1296
Edgewater Village	County	50 Central Ave W	S-9	P24D2	700308	0.2232
Generals Highway	County	2110F Generals Hwy	S-7	Q19B2	700086	1.8
Ginger Park	County	149 Bausum Rd	S-7	Q20C3	700305	0.06192
Heritage Harbor I	County	998 Mastline Dr	S-6	O20C4	700081	1.2744
Heritage Harbor II	County	516 Coover Rd	S-7	O20B1	700080	1.6128
Highland Beach I	County	3273 Washington Ave	S-9	V23D3	700209	0.2448
Highland Beach II	County	1455 Chesapeake Ave	S-9	V24D1	700210	0.203
Hillsmere I	County	509 Beach Dr	S-9	U23C4	700045	1.296
Hillsmere II	County	107 Green Spring Dr	S-9	T24A4	700157	0.144

e) Berkshire (CIP S7918159)

f) General's Highway (Sam's Club) (CSP)

g) Heritage Harbor II (CSP, CIP S7918157)

h) Parole (CIP S7918177)

i) Hillsmere I (CIP S7918172)

j) Riva II (CIP S7918159)

k) Southdown Shores (CSP)

New pump station facilities designed and constructed as either development projects or through the County's CIP are anticipated in the following location:

a) Edgewater Beach Sewer Extension (Potential Petition Project) (CIP S808501 S8056-01)

Work on this potential petition project includes the design, right of way acquisition and construction of a sanitary sewer collection system (pumping station, force main , gravity mains) serving the Edgewater Beach Community. This community has been identified as an On-site Wastewater Management Problem Area for a number of years. It consists of relatively small lots developed with single family homes served by private wells and septic systems, the majority of which are located in the Chesapeake Bay Critical Area. The density of individual septic systems is contributing to the degradation of local groundwater, and some private wells in the community have been found to have elevated nitrate levels.

The County has applied for Bay Restoration Grant and MDE low interest loans in 2020 to help finance the sewer extension.

A number of the capacity deficient gravity mains and force mains were also identified through the CSP. On-going investigations will determine specific capacity for infrastructure upgrades (pump stations\ piping) and timing of these improvements.

b) Crownsville Sewer System

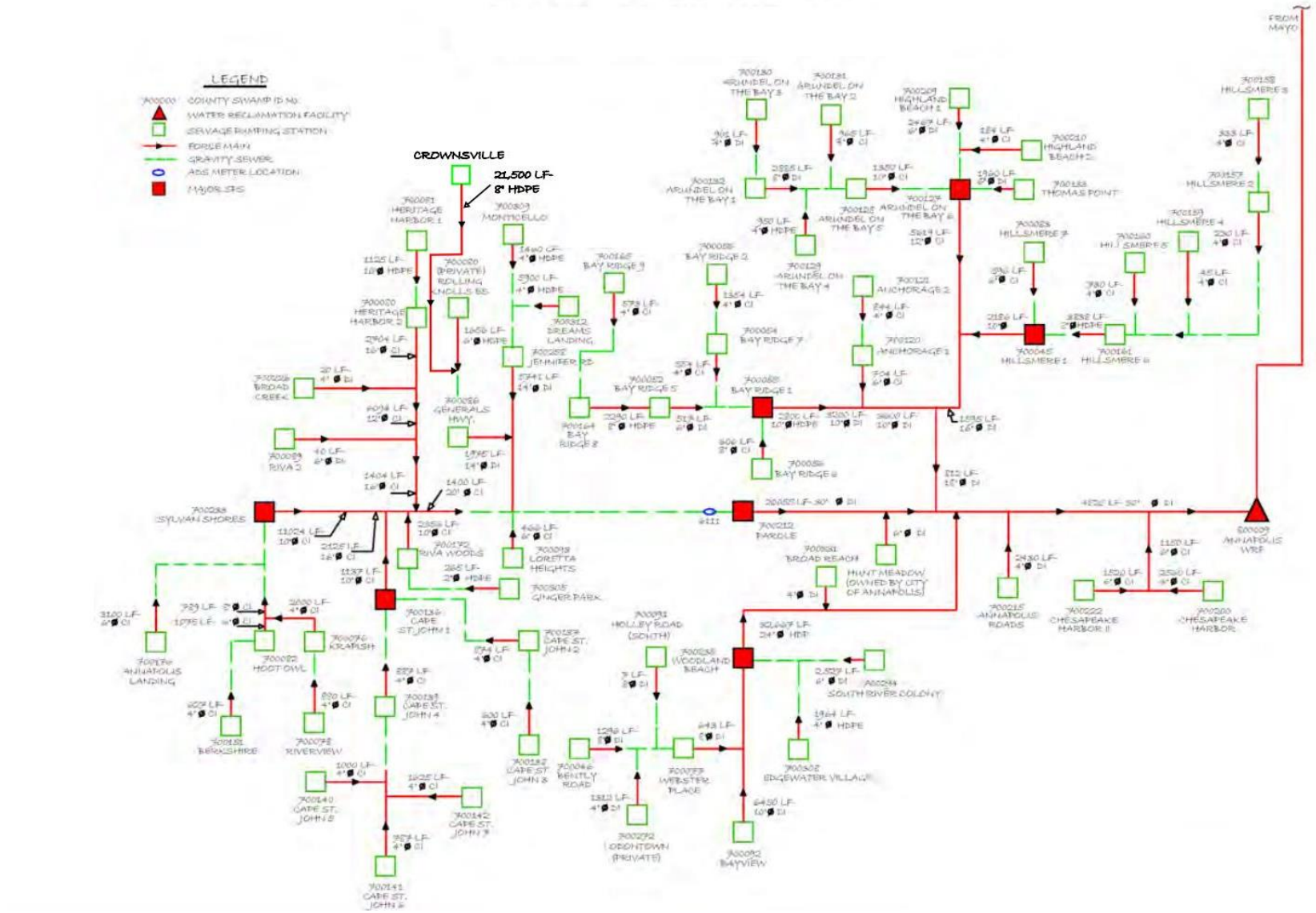
The Crownsville sewerage system presently serves approximately 13 tenants and various other users within and around the 485-acre Crownsville Hospital Memorial Park (formally Crownsville State Hospital). Ownership of the wastewater system was conveyed to the County under an Agreement of Sale dated July 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.

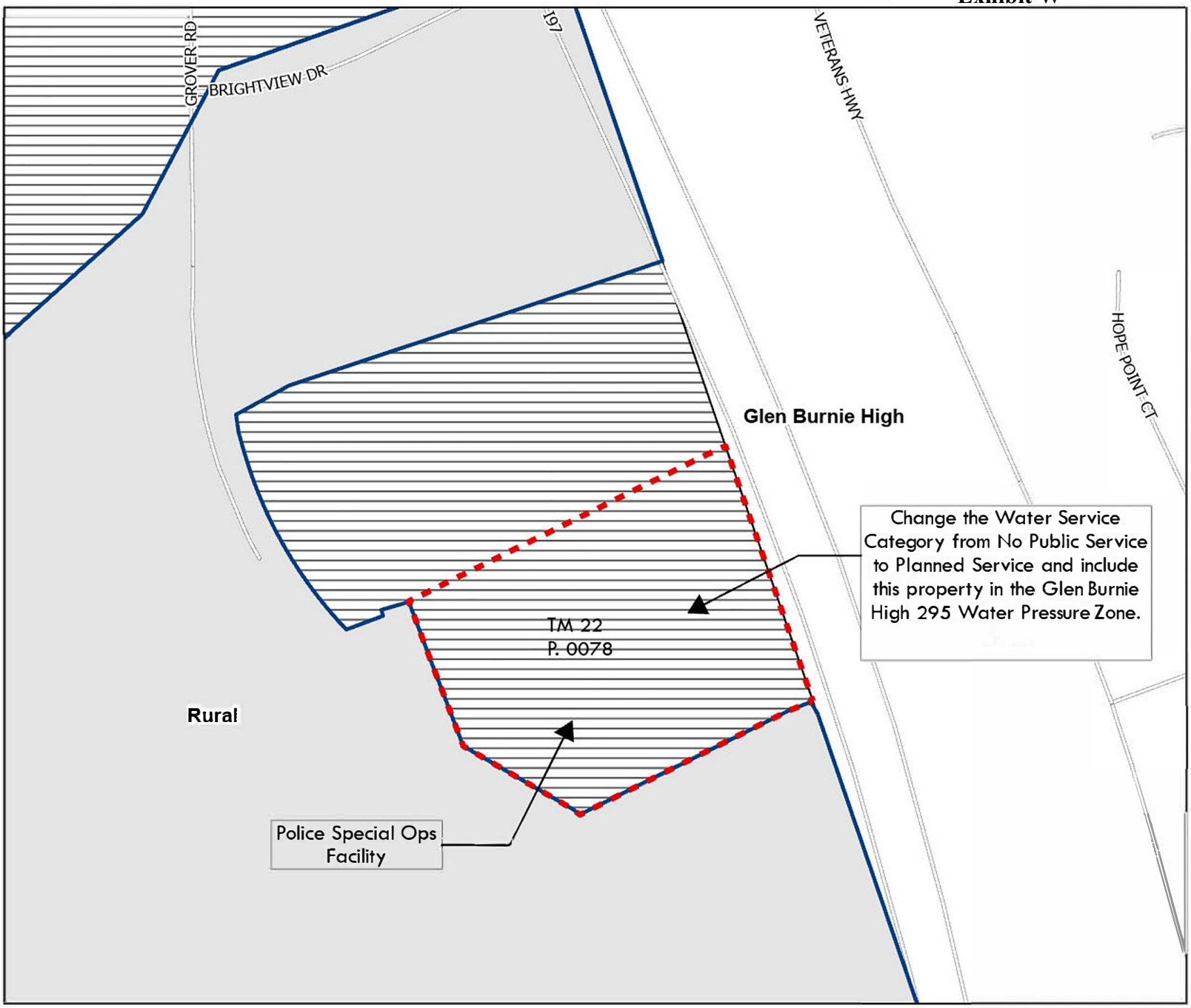
Figure 4-9 Annapolis SSA



Contract Title	Contract Number	Description
Stoney Run Gravity Sewer Modifications	X7388242	This contract will modify the gravity line near Stoney Run. New pipe and manholes will be installed to reduce hydraulic restrictions.
Heritage Harbor Sewer Takeover	Z533273	Work under this contract involves the inspection and evaluation of improvements to facilitate a takeover of the private sewer collection system at Heritage Harbor. This contract is in response to a valid petition.
Reece Rd Gravity Sewer Extension	Z533276	This contract includes the design of an extension of public sewer to eight properties along Reece Road. This is a petition project.
Maple Rd WW Gravity Extension	Z533277	This contract includes the design of an extension of public sewer to eight (8) properties along Maple Road. This project is in response to a valid petition.
Maple Rd WW Low Pressure Extension	Z533277	This contract includes the design of an extension of public sewer to eight (8) properties along Maple Road. This project is in response to a valid petition.
Hidden Cove Sewer Takeover Study	Z533278	This project will investigate the existing private sewer infrastructure serving 16 homes in the Hidden Cove I & II neighborhood and identify needed improvements before takeover by the County.
Bayberry Dr WW Gravity Extension	Z533279	This contract includes the design of an extension of public sewer to three properties along Bayberry Drive.
Design TO Sewer Petitions Ph 1	Z533280	This project is to select an A/E to perform task order services for the design of extensions of public sewer service for customer petitions.
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	This project consists of constructing a new force main to convey sanitary sewage from the Crownsville Memorial Park 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. This force main will have restricted access to serve only designated parcels within the defined Crownsville Memorial Park area. No private connections, including residential, commercial or industrial users will be permitted to connect to this force main.
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 Memorial Park 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.

Police Special Ops Facility - Water -W-4

Bill No. 84-25
Exhibit W

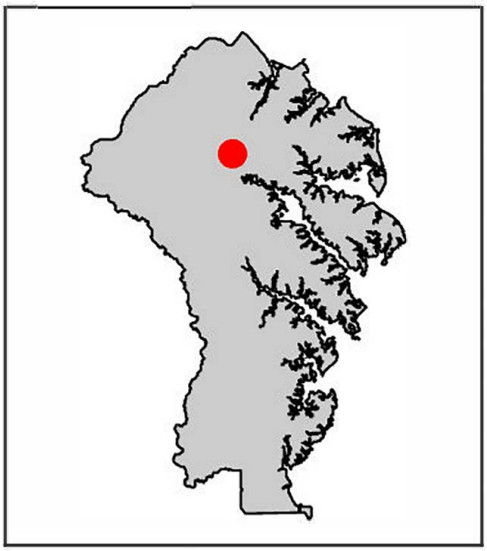


Water Service Category Change

Water Pressure Zones

Water Service Categories

- Existing - Annapolis
- Existing Service
- Future Service
- No Public Service
- Other
- Planned Service

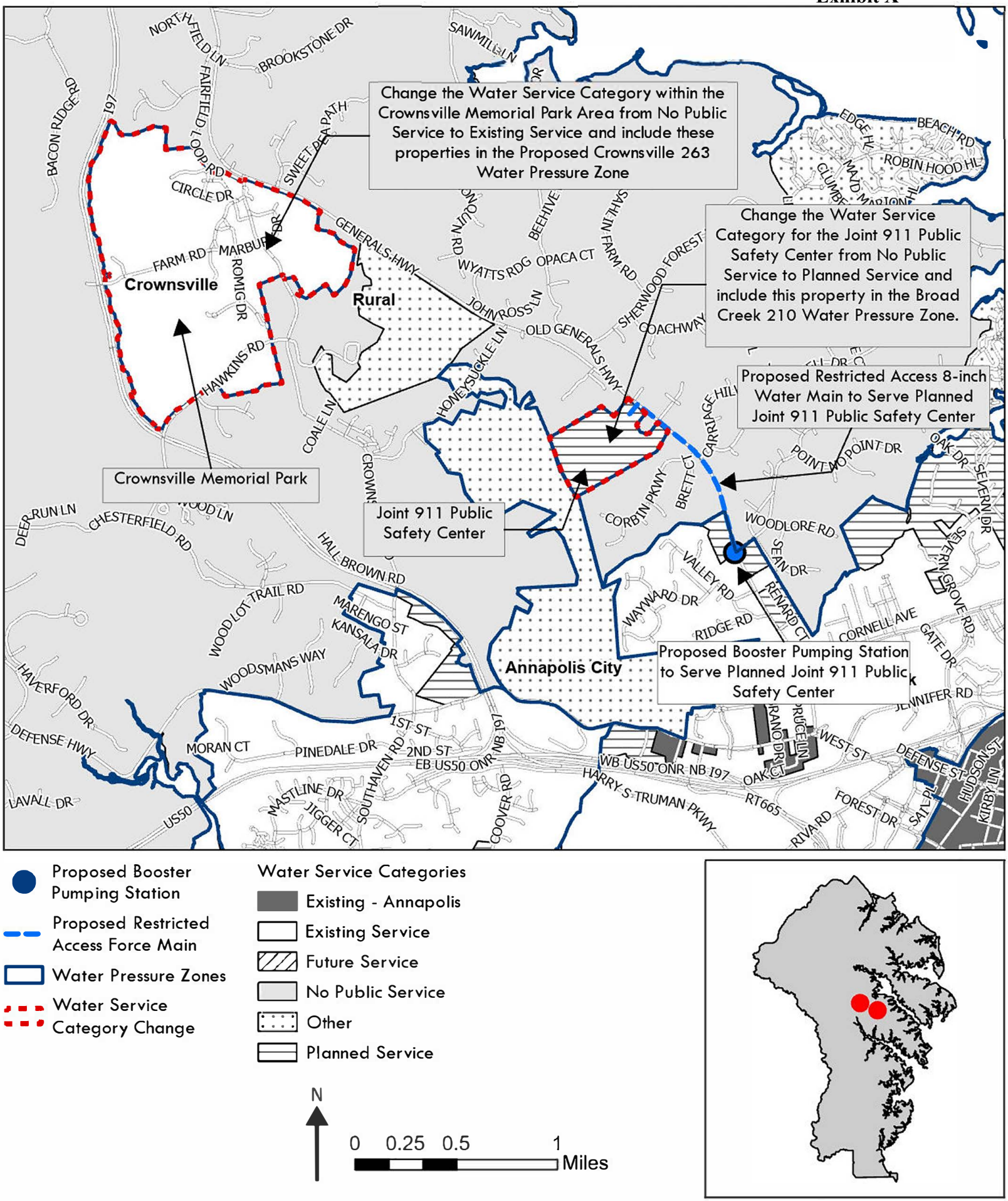


N

0 0.13 0.25 Miles

Crownsville Memorial Park Area and Joint 911 Center - Water - W6 and W7

Bill No. 84-25
Exhibit X



- Proposed Booster Pumping Station
- Proposed Restricted Access Force Main
- Water Pressure Zones
- Water Service Category Change

Water Service Categories

- Existing - Annapolis
- Existing Service
- Future Service
- No Public Service
- Other
- Planned Service

N

0 0.25 0.5 1 Miles

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

Bill No. 84-25
Exhibit Y