

## Chapter 257 Implementation

Chapter 257 (HB 893) of 2007 - *Bay Restoration Fund - Wastewater Treatment Facilities Upgrades - Reporting Requirements* requires that “Beginning January 1, 2009, and every year thereafter, MDE and Planning shall jointly report on the impact that a wastewater treatment facility that was upgraded to enhanced nutrient removal during the calendar year before the previous calendar year with funds from the Bay Restoration Fund had on growth within the municipality or county in which the wastewater treatment facility is located.”

As required by this law, Planning and MDE have advised the BRFAC with the best available information and data analysis to address this mandate.

### Available Capacity

This report addresses the following funded facilities that were upgraded to ENR with BRF, and completed prior to January 1, 2020, and operational for one calendar year:

Facility	County	Design Capacity (MGD)		Flow in CY 2020 (MGD)
		Original	At Upgrade	
Cumberland	Allegany	15.0	15.0	10.718
George’s Creek	Allegany	0.6	0.6	0.992
North Branch	Allegany	2.0	2.0	1.357
Annapolis	Anne Arundel	13.0	13.0	8.760
Broadneck	Anne Arundel	6.0	6.0	4.646
Broadwater	Anne Arundel	2.0	2.0	1.233
Cox Creek	Anne Arundel	15.0	15.0	11.227
Maryland City	Anne Arundel	2.5	2.5	1.407
Patuxent	Anne Arundel	7.5	7.5	5.808
Back River	Baltimore City	180	180	142.400
Chesapeake Beach	Calvert	1.32	1.5	0.825
Denton	Caroline	0.8	0.8	0.570
Federalsburg	Caroline	0.75	0.75	0.298
Greensboro	Caroline	0.28	0.332	0.201
Freedom District	Carroll	3.5	3.5	2.115
Mount Airy	Carroll	1.2	1.2	0.742
Taneytown	Carroll	1.1	1.1	0.989
Elkton	Cecil	2.7	3.05	1.869
North East River	Cecil	2.0	2.0	1.244
Perryville	Cecil	1.65	2.0	0.630
Rising Sun	Cecil	0.275	0.50	0.243
Indian Head	Charles	0.5	0.5	0.402
La Plata	Charles	1.5	1.5	1.224

Facility	County	Design Capacity (MGD)		Flow in CY 2020 (MGD)
		Original	At Upgrade	
Cambridge	Dorchester	8.1	8.1	3.210
Hurlock	Dorchester	2.0	1.65	1.323
Ballenger Creek	Frederick	6.0	15.0	7.403
Brunswick	Frederick	0.7	1.4	0.633
Emmitsburg	Frederick	0.75	0.75	0.435
Frederick	Frederick	8.0	8.0	5.878
Thurmont	Frederick	1.0	1.0	0.580
Aberdeen	Harford	4.0	4.0	1.756
Havre De Grace	Harford	1.89	3.03	2.511
Joppatowne	Harford	0.95	0.95	0.930
Sod Run	Harford	20.0	20.0	11.367
Little Patuxent	Howard	25.0	29.0	18.243
Chestertown	Kent	0.9	0.9	0.679
Galena	Kent	0.08	0.11	0.035
Damascus (WSSC)	Montgomery	1.5	1.5	0.852
Poolesville	Montgomery	0.75	0.75	0.630
Seneca (WSSC)	Montgomery	26.0	26.0	15.252
Blue Plains	Regional	169.6	169.6	122.100
Bowie	Princes George's	3.3	3.3	1.591
Parkway (WSSC)	Prince George's	7.5	7.5	6.631
Piscataway (WSSC)	Prince George's	30.0	30.0	29.441
Western Branch (WSSC)	Prince George's	30.0	30.0	24.875
Kent Narrows	Queen Anne's	2.0	3.0	2.350
Queenstown	Queen Anne's	0.085	0.20	0.108
Sudlersville	Queen Anne's	0.20	0.20	0.118
Crisfield	Somerset	1.0	1.0	0.608
Leonardtown	St. Mary's	0.68	0.68	0.678
Marlay Taylor	St. Mary's	6.0	6.0	3.745
Easton	Talbot	2.35	4.0	2.954
Talbot Region II	Talbot	0.5	0.66	0.406
Boonsboro	Washington	0.46	0.53	0.301
Conococheague	Washington	4.10	4.50	2.976
Hagerstown	Washington	8.0	8.0	5.581
MCI	Washington	1.6	1.6	0.806
Winebrenner	Washington	1.0	0.6	0.175
Delmar	Wicomico	0.65	0.85	0.692
Fruitland	Wicomico	0.8	0.8	0.631
Salisbury	Wicomico	6.8	8.5	5.128
Pocomoke City	Worcester	1.47	1.47	0.669
Snow Hill	Worcester	0.50	0.50	0.431

## **2021 BRF Analysis Findings**

### **Methodology**

The Maryland Department of Planning (Planning) conducts a BRF Analysis for each calendar year, as directed by Chapter 257 (HB 893) of 2007 - *Bay Restoration Fund - Wastewater Treatment Facilities Upgrades - Reporting Requirements*. The purpose is to provide the BRFAC and Maryland's legislature with information on the impact that an ENR-upgraded wastewater treatment facility may have on growth in the municipalities and counties in which the facility is located. Growth is measured before and after ENR upgrades within existing and planned sewer service area boundaries and PFAs, using Geographical Information System (GIS) mapping software. These findings help assess changes in growth patterns, the capacity of the upgraded facility to meet the demands of current and future users, and possible changes in development patterns that could be influenced by upgrades.

Planning staff work with every county and many municipalities to maintain and annually update the Statewide Sewer Service Data layer to ensure as accurate a representation as possible. Planning has successfully conducted a BRF analysis each year since 2009 by utilizing the most recently published data from Maryland Property View and the Sewer Service Data layers. It should be noted that data for each of these datasets affects the annual BRF Analysis Findings.

In 2018, Planning updated the BRF Analysis methodology to confirm data boundary discrepancies within the existing sewer service areas both before and after ENR technology implementation, resulting in improved data outputs. Planning is committed to continuous improvement to its processes, contributing to the overarching goal of restoring water quality in the Chesapeake Bay.

### **Available Capacity**

An ENR upgrade can create the possibility for capacity expansion beyond the original design capacity. However, the limitations of the WWTP nutrient discharge caps established by Maryland's Point Source Policy for the Bay<sup>1</sup> heavily influence whether that possibility can become reality, notwithstanding new treatment technologies or the use of multiple discharge means or wastewater reuse. As required by state regulations that guide county water and sewer plans, to date, all ENR upgrades and plant expansions have been found to be consistent with locally adopted and approved comprehensive plans. Also, our analyses show that the nutrient discharge caps following the ENR upgrades have not had any noted compromising effects on development.

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<sup>1</sup> Annual nutrient load caps for major WWTPs were based on an annual average concentration of 3 mg/l total nitrogen and 0.3 mg/l total phosphorus, at the approved design capacity of the plant. Design capacity for major WWTPs met both of the following two conditions: (1) A discharge permit was issued based on the plant capacity, or MDE issued a letter to the jurisdiction with design effluent limits based on the new capacity as of April 30, 2003; (2) Planned capacity was either consistent with the MDE-approved County Water and Sewer Plan as of April 30, 2003, or shown in the locally-adopted Water and Sewer Plan Update or Amendment to the County Water and Sewer Plan, which was under review by MDE as of April 30, 2003 and subsequently approved by MDE.

## Planning's Findings

For this year's reporting period, Planning reviewed development served by 61 WWTPs with ENR upgrades completed within the timeframe specified in Chapter 257 (HB 893) of 2007 - *Bay Restoration Fund - Wastewater Treatment Facilities Upgrades - Reporting Requirements*. The selection of ENR upgrades to be analyzed in the annual report is based on the following criteria: (1) ENR upgrades completed before January 1, 2018, and (2) operational for one calendar year. One new ENR upgrade is included in this year's report, the Upper Eastern Shore Region had one upgrade in Galena.

Table 1 summarizes the ENR upgrades that Planning reports to MDE. These ENR upgrades are completed, operational and meet the criteria. Table 1 also distinguishes new ENR upgrades since the last reporting period. The table depicts growth activity by the number of connections before and after an ENR upgrade. The starting point for each plant's reporting is the calendar year prior to the start of ENR funding; the table also shows the year in which the upgrade was completed and became operational. It then summarizes information on the number of connections before ENR funding, and the current number of connections, which includes connections to new development on sewer as well as connections of existing septic systems to sewer.

The table compares development in and outside PFAs, which are designated by local governments and recognized by the state as areas to concentrate growth and development due to the presence of existing or planned infrastructure. BRF funding is not restricted to PFAs, but PFAs provide a useful geographic frame of reference for reviewing possible effects of BRF upgrades on growth.

The table also shows that for each WWTP, the percentages of connections of improved parcels inside PFAs before and after ENR upgrades are very similar, within a few percentage points in every case.

Columns J and K in the table show the difference between last year's data and this year's data. This indicate how many parcels were connected within each sewershed and how many parcels within the PFA had connections in the sewershed within the last year.

Table 1: Connections to Wastewater Treatment Facilities Upgraded to ENR

			Connections Before ENR Funding					Total Connections Upgraded since Conversion to ENR				Upgraded Connections Since Last Reporting Period	
ENR WWTP	County	ENR Upgrade Completed and Operational (Month-Year)	Column A: Reporting Year before ENR Funding	Column B: Number of Improved Parcels in the Sewershed	Column C: Number of Improved Parcels in Existing Service Area ("S1")	Column D: Number of Improved Parcels in "S1" within PFA	Column E: % of Connections Located in "S1" & PFA (Column D ÷ C)	Column F: Total Improved Parcels in S1	Column G: Total Improved Parcels in S1 & PFA	Column H: % Total Improved Parcels Located in "S1" within PFA (Column G ÷ F)	Column I: Total Increase Improved Parcels in S1 (Total Number New Connections)	Column J: Difference in Improved Parcels in S1	Column K: Difference in Improved Parcels in S1 & PFA
<b>Western Region</b>													
North Branch	ALLE	Nov-06	2005	1,913	1,801	1,794	99.6%	1,832	1,815	99.1%	31	6	7
George's Creek	ALLE	Nov-10	2009	2,069	1,938	1,876	96.8%	1,980	1,921	97.0%	42	7	7
City of Cumberland	ALLE	Feb-11	2010	17,656	16,412	16,243	99.0%	16,730	16,576	99.1%	318	29	31
City of Hagerstown	WASH	Dec-10	2009	21,975	18,825	17,769	94.4%	20,449	20,173	98.7%	1,624	84	84
Winebrenner	FRED/WASH	Feb-17	2016	455	455	446	98.0%	452	443	98.0%	-3	-6	-6
Conococheague	WASH	Mar-18	2017	6,550	5,980	5,980	100.0%	6,153	6,153	100.0%	173	44	44
<b>Western Region Total</b>				<b>50,618</b>	<b>45,411</b>	<b>44,108</b>	<b>97%</b>	<b>47,596</b>	<b>47,081</b>	<b>98.9%</b>	<b>2,185</b>	<b>164</b>	<b>167</b>
<b>Washington Region</b>													
City of Brunswick	FRED	Sep-08	2007	2,446	1,957	1,957	100.0%	2,279	2,279	100.0%	322	-1	-1
Town of Thurmont	FRED	Apr-13	2012	2,385	2,345	2,204	94.0%	2,400	2,271	94.6%	55	-285	15

			<b>Connections Before ENR Funding</b>					<b>Total Connections Upgraded since Conversion to ENR</b>				<b>Upgraded Connections Since Last Reporting Period</b>	
Town of Poolesville	MONT	Jul-10	2009	1,742	1,719	1,651	96.0%	1,744	1,673	95.9%	25	-4	-4
Damascus	MONT	Feb-13	2012	3,997	3,793	3,437	90.6%	3,802	3,444	90.6%	9	0	0
City of Bowie	PRIN	Feb-11	2010	20,712	20,559	20,269	98.6%	20,729	20,494	98.9%	170	6	6
Parkway	PRIN	Jul-13	2012	15,470	15,394	15,383	99.9%	15,756	15,627	99.2%	362	73	57
Piscataway	PRIN	May-13	2012	56,296	55,007	51,954	94.4%	58,322	53,570	91.9%	3,315	294	120
Western Branch (WSSC)	PRIN	Apr-16	2015	45,533	43,438	38,554	88.8%	48,067	40,354	84.0%	4,629	643	269
Blue Plains	PRIN/MONT	Apr-16	2015	330,121	327,437	319,529	97.6%	333,140	325,112	97.6%	5,703	665	621
Seneca (WSSC)	MONT	Apr-16	2015	60,161	57,387	56,911	99.2%	57,813	57,335	99.2%	426	93	93
Ballenger Creek	FRED	Apr-16	2015	21,554	17,110	17,105	100.0%	17,521	17,516	100.0%	411	25	25
Town of Emmitsburg	FRED	Mar-16	2015	927	824	791	96.0%	838	805	96.1%	14	5	2
Frederick	FRED	Jun-18	2017	24,627	22,666	22,666	100.0%	22,901	22,901	100.0%	235	131	131
<b>Washington Region Total</b>				<b>585,971</b>	<b>569,636</b>	<b>552,411</b>	<b>97%</b>	<b>585,312</b>	<b>563,381</b>	<b>96.3%</b>	<b>15,676</b>	<b>1,645</b>	<b>1,334</b>
<b>Upper Eastern Shore Region</b>													
Town of Elkton	CECI	Dec-09	2008	6,000	4,926	4,925	100.0%	5,124	5,121	99.9%	198	31	31
Town of Perryville	CECI	Dec-10	2009	1,704	1,508	1,508	100.0%	1,563	1,562	99.9%	55	22	22
Rising Sun	CECI	Apr-16	2015	1,052	856	846	98.8%	862	855	99.2%	6	-2	1
Town of Chestertown	KENT	Jun-08	2007	1,772	1,742	1,562	89.7%	1,918	1,713	89.3%	176	12	9

			<b>Connections Before ENR Funding</b>					<b>Total Connections Upgraded since Conversion to ENR</b>				<b>Upgraded Connections Since Last Reporting Period</b>	
Kent Island (KNSG)	QUEE	Aug-07	2006	6,590	6,401	5,974	93.3%	7,308	6,917	94.6%	907	-37	-38
Town of Denton	CARO	May-12	2011	1,508	1,097	1,095	99.8%	1,564	1,557	99.6%	467	22	22
Town of Federalsburg	CARO	Aug-10	2009	881	827	817	98.8%	830	817	98.4%	3	6	5
Town of Easton	TALB	Jun-07	2006	5,810	5,831	5,822	99.8%	6,671	6,614	99.1%	840	30	30
Talbot Region II	TALB	Oct-08	2007	2,289	2,214	1,981	89.5%	3,171	2,192	69.1%	957	13	10
Northeast River	CECI	Oct-16	2015	5,714	4,459	3,931	88.2%	4,769	4,684	98.2%	310	105	102
Town of Queenstown	QUEE	Oct-16	2015	333	300	299	99.7%	325	324	99.7%	25	8	8
Greensboro	CARO	Jun-17	2016	727	687	687	100.0%	690	690	100.0%	3	5	5
Sudlersville	QUEE	Mar-18	2017	187	186	186	100.0%	185	185	100.0%	-1	N/A	N/A
Galena (new)	KENT	Dec-18	2017	374	296	328	92.6%	296	274	92.6%	0	N/A	N/A
<b>New Facilities Upgraded During Reporting Period</b>				<b>374</b>	<b>296</b>	<b>274</b>	<b>92.6%</b>	<b>296</b>	<b>274</b>	<b>92.6%</b>	<b>296</b>	<b>N/A</b>	<b>N/A</b>
<b>Upper Eastern Shore Total</b>				<b>34,941</b>	<b>31,330</b>	<b>29,961</b>	<b>96%</b>	<b>35,276</b>	<b>33,505</b>	<b>95%</b>	<b>3,946</b>	<b>696</b>	<b>666</b>
<b>Lower Eastern Shore Region</b>													
City of Cambridge	DORC	Dec-13	2012	5,861	5,418	5,293	97.7%	5,412	5,393	99.6%	-6	-2	-2
Town of Hurlock	DORC	May-06	2005	769	703	703	100.0%	807	805	99.8%	104	2	-1
Town of Delmar	WICO	Sep-11	2010	1,107	932	824	88.4%	987	869	88.0%	55	13	12
City of Pocomoke	WORC	Oct-11	2010	1,893	1,607	1,585	98.6%	2,264	1,607	71.0%	657	641	5

			<b>Connections Before ENR Funding</b>					<b>Total Connections Upgraded since Conversion to ENR</b>				<b>Upgraded Connections Since Last Reporting Period</b>	
City of Crisfield	SOME	Aug-10	2009	2,495	2,044	1,735	84.9%	2,051	1,810	88.2%	7	1	0
Town of Snow Hill	WORC	Jun-14	2013	900	930	882	94.8%	904	863	95.5%	-26	-26	-20
City of Fruitland	WICO	Nov-16	2015	2,237	1,847	1,788	96.8%	1,976	1,898	96.1%	129	42	39
Salisbury	WICO	Jan-18	2017	10,794	10,705	10,500	98.1%	10,939	10,730	98.1%	234	105	103
<b>Lower Eastern Shore Total</b>				<b>26,056</b>	<b>24,186</b>	<b>23,310</b>	<b>96%</b>	<b>25,340</b>	<b>23,975</b>	<b>94.6%</b>	<b>1,154</b>	<b>776</b>	<b>136</b>
<b>Baltimore Region</b>													
Town of Mount Airy	CARR/FRED	Nov-10	2009	3,336	3,145	3,145	100.0%	3,435	3,433	99.9%	290	0	0
Joppatowne/Sod Run	HARF	Nov-13	2012	51,174	48,459	48,195	99.5%	49,227	48,961	99.5%	768	43	43
City of Havre De Grace	HARF	May-10	2009	5,098	4,898	4,782	97.6%	5,669	5,666	99.9%	771	62	62
Little Patuxent	HOWA	Sep-12	2011	56,997	50,848	50,833	100.0%	58,991	58,918	99.9%	8,143	53	53
City of Aberdeen	HARF	Mar-15	2014	5,098	4,524	4,443	98.2%	4,543	4,462	98.2%	19	10	10
Broadneck	ANNE	May-15	2014	30,847	21,172	20,454	96.6%	21,845	21,053	96.4%	673	1	-6
Maryland City	ANNE	Mar-15	2014	4,522	4,394	4,376	99.6%	4,563	4,554	99.8%	169	78	78
Patuxent	ANNE	Mar-15	2014	24,037	22,886	22,440	98.1%	23,895	23,435	98.1%	1,009	-1	-1
City of Annapolis	ANNE	Apr-16	2015	31,823	28,384	27,466	96.8%	28,094	27,170	96.7%	-290	-666	-664
Broadwater	ANNE	Apr-16	2015	4,919	4,694	3,902	83.1%	4,731	3,926	83.0%	37	-24	-25



			Connections Before ENR Funding					Total Connections Upgraded since Conversion to ENR				Upgraded Connections Since Last Reporting Period	
City of Taneytown	CARR	Jul-16	2015	2,647	2,486	2,485	100%	2,497	2,496	100.0%	11	1	1
Back River	BACI/BACO	Sep-17	2016	313,624	311,468	309,249	99%	312,290	310,322	99.4%	822	-169	88
Mayo	ANNE	Oct-17	2016	3,410	3,316	3,066	92%	3,366	3,113	92.5%	50	15	15
Cox Creek	ANNE	Jan-18	2017	48,105	42,688	41,792	98%	42,901	41,944	97.8%	213	32	6
Freedom District	CARR	Mar-18	2017	8,535	7,336	7,336	100%	7,502	7,482	99.7%	166	123	122
<b>Baltimore Region Total</b>				<b>594,172</b>	<b>560,698</b>	<b>553,964</b>	<b>99%</b>	<b>573,549</b>	<b>566,935</b>	<b>98.8%</b>	<b>12,851</b>	<b>-442</b>	<b>-218</b>
<b>Southern Maryland Region</b>													
Town of Indian Head	CHAR	Jan-09	2008	1,409	1,317	1,317	100.0%	1,404	1,404	100.0%	87	0	0
Town of La Plata	CHAR	Dec-14	2013	3,164	3,213	3,132	97.5%	3,624	3,608	99.6%	411	57	57
Marlay Taylor	STMA	Aug-16	2015	12,420	7,996	7,984	99.8%	8,308	8,296	99.9%	312	20	20
Chesapeake Beach	CALV	Nov-17	2016	4,041	3,320	2,694	81.1%	3,340	2,710	81.1%	20	12	10
Leonardtown	STMA	Aug-17	2016	1,640	1,089	936	86.0%	1,102	948	86.0%	13	2	1
<b>Southern Maryland Total</b>				<b>22,674</b>	<b>16,935</b>	<b>16,063</b>	<b>95%</b>	<b>17,778</b>	<b>16,966</b>	<b>95.4%</b>	<b>843</b>	<b>91</b>	<b>88</b>
<b>Statewide</b>													
New Facilities Upgraded During Reporting Period			N/A	N/A	N/A	N/A	N/A	296	274	110.8%	N/A	N/A	N/A
<b>Statewide Totals</b>				<b>1,314,432</b>	<b>1,248,196</b>	<b>1,219,817</b>	<b>98%</b>	<b>1,284,851</b>	<b>1,251,843</b>	<b>97.4%</b>	<b>36,655</b>	<b>2,930</b>	<b>2,173</b>

Notes:

(new) = Facilities upgraded to ENR during the reporting period.

There are a few instances since reporting began in 2009 where the total number of improved parcels in Column C varied slightly due to service boundary discrepancies. Planning has worked diligently to resolve this issue.

Planning's analysis shows Little Patuxent has had the largest total increase of connections since conversion to ENR (which occurred in 2012), with an increase of 8,143 connections. Overall, the Washington Region had the largest regional total increase of new connections since conversion of WTTTPs to ENR with 15,676 connections. Compared to last year, the Washington Region saw the biggest increase in connections from year-to-year with 1,645 new connections. Statewide, there was an increase of 2,930 additional improved parcels connected during this year's reporting period. Overall, 36,655 improved parcels have been connected since WTTTPs statewide have been upgraded to ENR.

Although every effort is made to ensure data is current and correct, there may be significant increases or decreases of new connections from year-to-year. For example, the number of total improved parcels with existing sewer (Column F) may appear to decrease from one year to the next. However, the reason for the decrease may not be related to the number of improved parcels no longer having sewer, but rather adjustments in the MDProperty View data, the PFA layer, or the sewer layer. Planning evaluates many factors that play a part in source data and findings and make adjustments or corrections, where necessary. It is noted that Annapolis lost a large number of connections since the last reporting period, due to a major update to the MDProperty View data; last year's report was based on 2015/2016 data and this year's report was based on the most recent data available from the 2017/2018 update.